

AFTERIMAGES

Photographs as an External Autobiographical Memory System and a Contemporary Art Practice

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Abstract

Afterimages:

Photographs as an External Autobiographical Memory System and a Contemporary Art Practice

My proposition developed in this thesis is that photographs have changed the way the past is conceived and therefore the way the past is remembered. Just as the inventions of the telescope and microscope radically changed our understanding of distance and space on a macro and micro level, the invention of the photograph has radically altered our concepts of the past, memory and time.

My starting point is a collection of photographs taken by my grandfather, Albert Edward Ingham, which is used both in my studio work and as a basis for my theoretical writing. My concerns as an artist are with the ways in which familiar photographs and their relation to ideas of personal memory can be incorporated in an art practice.

The written element begins with a reflection into my motivation for using this collection and its usefulness to both my written and studio work. I include a short biography of my grandfather, leading me to consider biography and autobiography, and their relation through photography to autobiographical memory. This is followed by an in depth discussion on autobiographical memory and how it differs from other forms and processes of memory. With this I have placed a discussion of contemporary ideas on photographs. Finally I look closely at 'external memory systems' and how these relate to changes in the way autobiographical memory operates in relation to photographs.

The emphasis of this thesis is to explore ways to elucidate my own practice as an artist and to offer a commentary on those issues which have been central to its development over the past several years. This has been, and continues to be, a process of making explicit and of clarifying those influences that have resulted in me pursuing autobiography as the major concern of my practice as an artist.

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Introduction to Research Project.

Afterimages:

Photographs as an External Autobiographical Memory System and a Contemporary Art Practice

The aim of this thesis is to explore ways to elucidate my own practice as an artist and to offer a commentary on those issues which have been central to its development over the past several years. This has been, and continues to be, a process of making explicit and of clarifying those influences that have resulted in me pursuing biographical and autobiographical traces as the major concern of my practice as an artist.

My starting point is a collection of photographs taken by my grandfather, Albert Edward Ingham, which is used both in my studio work and as a basis for my theoretical writing. My concerns as an artist are with the ways in which familiar photographs and their relation to ideas of personal memory can be incorporated in an art practice. Also, how autobiographical memory can be reflected using photographs, and how photographs can have an affect on the autobiographical memory of the spectator.

My proposition developed in this thesis is that photographs have changed the way the past is conceived and therefore the way the past is remembered. Just as the inventions of the telescope and microscope¹ radically changed our understanding of distance and space on a macro and micro level, the invention of the photograph has radically altered our concepts of the past, memory and time.

I will argue that photographs, both conceptually and as a form of visual representation, are radically different from other visual depictions. This difference is central to my enquiry into the relationship between photographs and autobiographical memory². Photographs not only have metaphorical relationships with memory, but have also changed how our autobiographical memory functions. They have changed our relationship to – and of thoughts of – the past; and have therefore changed memory itself and the way memory is thought about.

¹Tools like the telescope and microscope have led the recent explosion of knowledge of our universe. Today telescopes allow us to see galaxies 13 billion light-years away (10^{25} m) and microscopes allow us to see even single atoms (about 10^{-10} m) Discoveries made with telescopes have shaped current theories about the nature and origin of the universe. Discoveries made with microscopes have shed light on the nature and origin of the matter that makes up the universe and on the nature and origin of life. <http://invsee.asu.edu/Modules/size&scale/unit3/unit3.htm>

² Definition of autobiographical memory is a memory for events and issues related to yourself and includes memories for specific experiences and memory for the personal facts of one's life.

This change is not only due to the increase in available visual information brought about by photography, but is also related to the specific qualities of the photograph, distinguishing the medium from all other forms of representation. These include its presumed objectivity, its ease of manufacture and distribution, and its wide appeal both in production and consumption. It is these particular qualities and their relationship to autobiographical memory that have directed my research.

I have identified through my research a lack of consensus in contemporary photographic theory about the meaning, function and nature of the photographic image. These disagreements make problematic an enquiry into photography's relationship to autobiographical memory. Some recent analyses of photography overcomes this problem by taking a multi-disciplinary approach, essentially combining the debate emphasising the interpretation of the image [its 'nature'] with that where the emphasis lies with its context. Such a multi-disciplinary analysis entails looking at a photograph as a text, through semiotics, as well as examining its 'essential' qualities as a medium and the contexts in which its meaning is produced and operates. Applying this multi-disciplinary methodology to my grandfather's collection within this thesis, I will be examining photography's ability to interrogate and produce autobiographical memories.

The written element begins with a reflection into my motivation for using this collection and its usefulness to both my written and studio work. In this I include a short biography of my grandfather, leading me to consider biography and autobiography, and their relation through photography to autobiographical memory. This is followed by an in depth discussion on autobiographical memory and how it differs from other forms and processes of memory. I have then created a taxonomical analysis of the collection, engendering a greater understanding of the desires and concerns that motivated my grandfather's photographic practice. With this I have placed a discussion of contemporary ideas on photographs and an analysis of Roland Barthes' *Camera Lucida*. Finally I look closely at 'external memory systems'³ and how these relate to changes in the way autobiographical memory operates in relation to photographs.

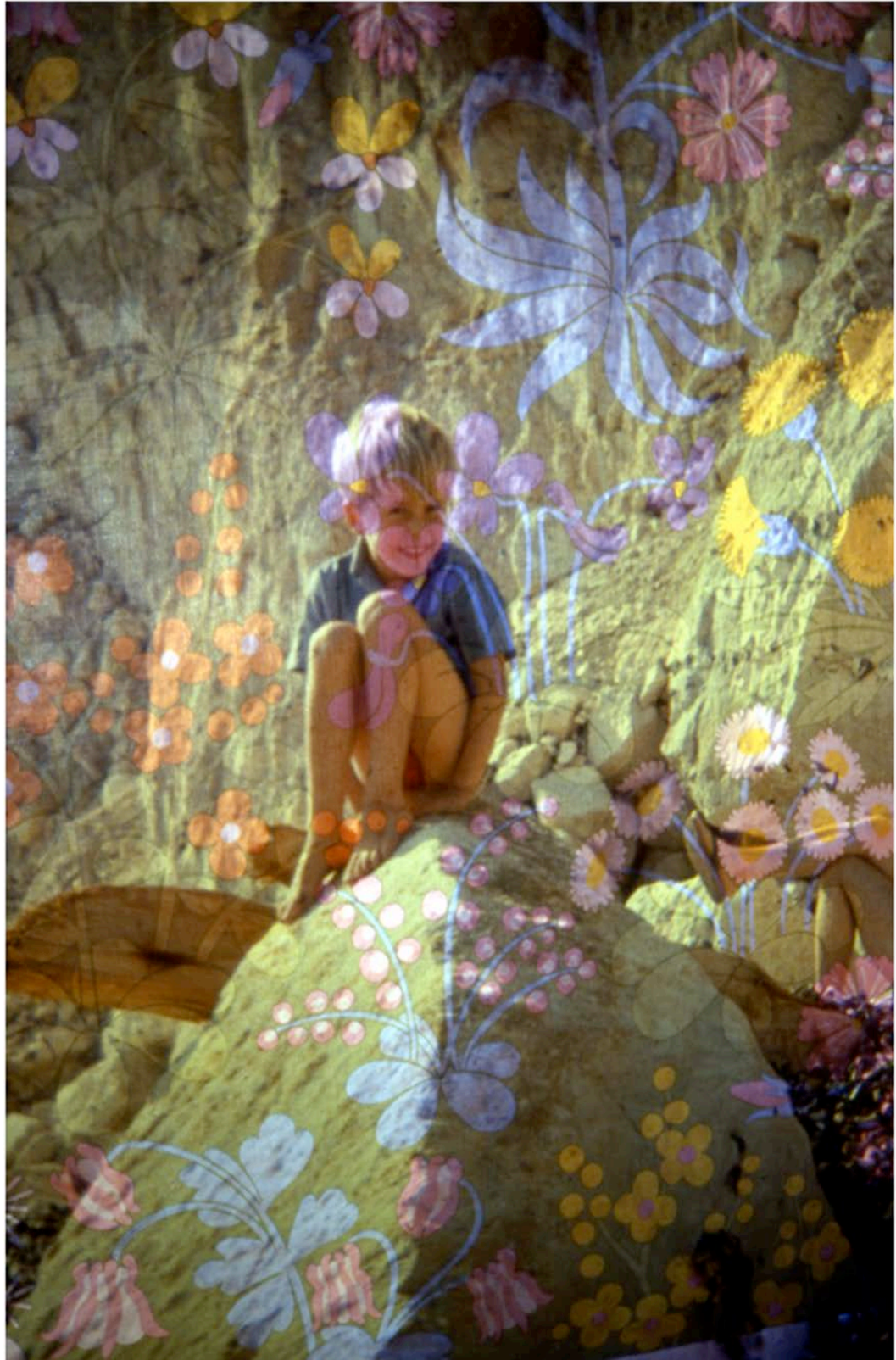
3 Merlin Donald describes this as, "The growth of the external memory system has now so far outpaced biological memory that it is no exaggeration to say that we are permanently wedded to our great invention, in a cognitive symbiosis unique in nature." He also says. "Individuals in possession of reading, writing, and other visuo-graphic skills thus become somewhat like computers with networking capabilities; they are equipped to interface, to plug into whatever network becomes available. And once plugged in, their skills are determined by both the network and their own biological inheritance. Humans without such skills are isolated from the external memory system, somewhat like a computer that lacks the input/output devices needed to link up with a network. [Donald 1991]"



Mark Ingham drawing *Ajanta*, 2000



Image from A.E Ingham's Photographic collection, India 1966/67



Me 1966 Seven Sister Beach Wallpaper. Photographic Print. 1.5m x 1m. 2004

Chapter 1.

‘Just So’ Stories⁴

A Grandson’s Account of his Grandfather’s Life and his Collection of Photographs.

Introduction

... an essential constancy of modern art - uniqueness of personality - persists; no longer manifested through facture, the individuality of touch, but through an unrepentant autobiographical confession or fantasy concerning those areas of human activity in which the artists are most singularly personal their literally - private lives. [Pincus-Witten 1977]

The aim of this thesis is to explore contemporary attitudes to photography and the degree to which photography has had an affect on autobiographical memory⁵. The key vehicle for this exploration is my own studio practice which appropriates photographs originally taken by my grandfather, A.E. Ingham, some of which coincide with my own childhood and hence throw an illumine but disconcerting light on my own autobiographical memory. I propose to discuss ways in which autobiographical memory is formed, stored and retrieved, and to move on to consider how these processes have evolved through interaction with photography. The opening chapter initiates this investigation with an analysis of the subject matter of my grandfather’s collection of photography. The collection is a means by which I am able to examine the relationship between my own sense of autobiography and photographs of past events which form a part of that autobiography.⁶

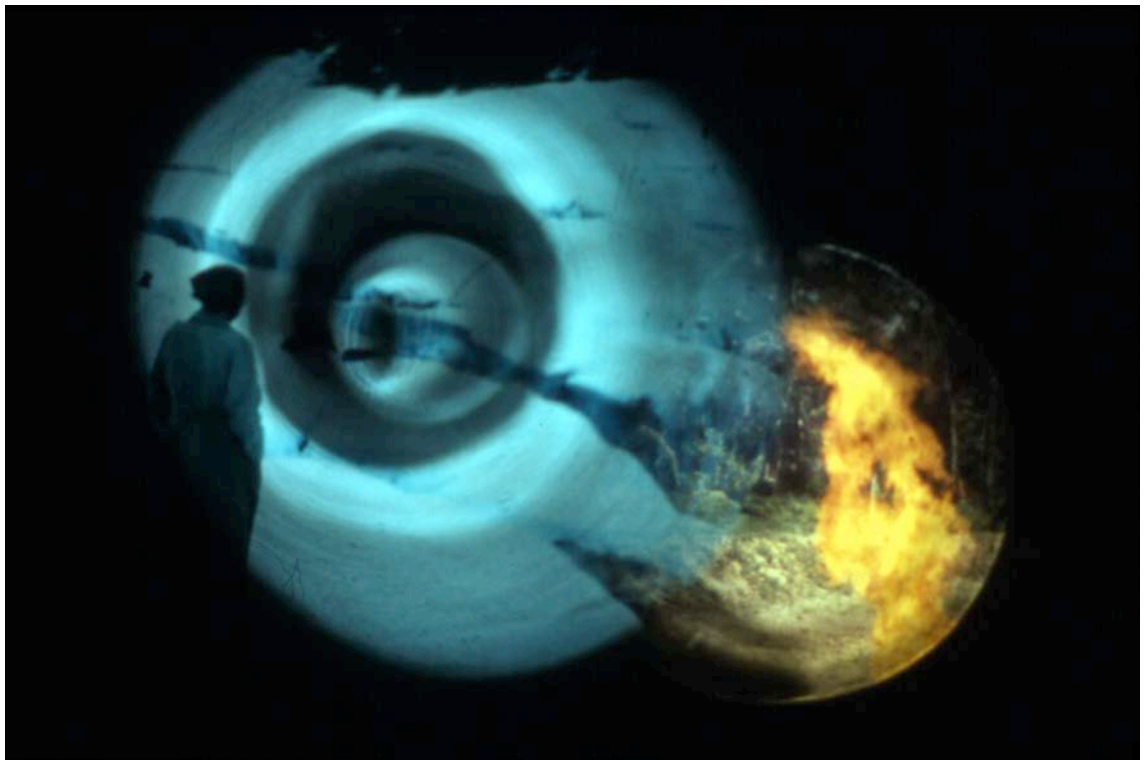
⁴ Twenty-five years ago, paleontologist Stephen Jay Gould and biologist Richard Lewontin criticized the so-called adaptationist programme, charging that overeager biologists labeled some organisms’ traits adaptations without real evidence. Many traits, they said, were actually by products, associated with adaptations, but not the result of natural selection. The bridge of one’s nose will hold up one’s glasses, but it’s not an adaptation for such. This so-called science, argued Gould and Lewontin, boiled down to little more than just-so stories--referring to Rudyard Kipling’s century-old children’s fables that offered imaginative explanations for certain animals’ distinctive qualities. URL: http://www.the-scientist.com/yr2004/mar/research2_040301.html

⁵ Autobiographical memory is a term used by researchers into memory to define a type of memory for events and issues related to a person’s life. As will be shown in Chapter 2 of this thesis it has different characteristics to other types of memory. Martin A. Conway working in the Department of Psychology at Durham University explains that there is a type of memory called Autobiographical Memory and this is, ‘...a type of memory that persists over weeks, months, years, decades and lifetimes, and it retains knowledge [of the self] at different levels of abstraction, [Autobiographical memory] is a transitory mental representation: it is a temporary but stable pattern of activation across the indices of the autobiographical knowledge base that encompasses knowledge of different levels of abstraction, including event-specific sensory perceptual details, very often – although by no means always – in the form of mental images.’ [Badderley:55]

⁶ Martha Langford writes: ‘As long as photography has existed, claims for its usefulness as a repository of memory have been countered by arguments that echo the ancient distrust of writing, the fear that reliance on any system of recording ultimately leads to mental degeneration, to a condition of mnemonic atrophy’ [Langford 2001:4].

Initially, I am concerned with why, as an artist, I have been using the collection as a basis for my work and theoretical concerns. I begin, therefore, with an autobiographical approach, an account of my own childhood memories and how they connect to the photographs in the collection. Of necessity, this account is both a partial and fragmentary, and is in part informed by photographs themselves, as for example when these have triggered a further associative chain and/or network of memories. This narrative is thus written in a conventional autobiographical form, combining the ‘facts’ of my life with my own reminiscences of actual events.

There follows a biographical account of my grandfather’s life, using the written and anecdotal evidence I have been able to gather about his life, alongside my own personal recollections. It is included to make possible some understanding of his motivations for taking photographs and as a way of understanding my own interests in the collection. This biography is pertinent for the concerns of my thesis as it constructs and interprets a version of the past; as in their own way do autobiographical memory and photographs.



RMJI Trinidad Fire. Camera Projection. Digital Print. 67cm x 95cm. 2004

In the conclusion of this chapter I will begin to examine these two modes of description as ways of analysing and interpreting past events, and to consider how these subjective processes of recounting, themselves, can influence memories.⁷



Döppelganger: Yonder. Photographic Print 120 cm x 150 cm. 2003

⁷ Psychologist M.A. Conway says of this, 'When a person has the experience of remembering a past event then knowledge drawn from the phenomenological record, thematic knowledge, and the self all contribute to the construction of a dynamic representation which constitutes that memory.' [Roberts:137]

1. An Autobiographical Account of My Involvement with the Collection.

This autobiographical sketch is only a partial and fragmented account of my life as it takes its cue mainly from my past experiences with the collection of photographs. I am associated with the collection in many different ways. I am directly and indirectly implicated with some of the photographs. Although I was not present when the majority of the photographs were taken, I am depicted in others and have visited certain of the locations. At other times, I was actually present at the event and recognise a number of the people photographed. I have also been in situations where the photographs were presented as transparencies in the form of slide shows. When the collection came into my possession, I already knew some of the background from anecdotal evidence given to me by my family.



An image from the collection. My grandmother in the Alps, 1960s

1.1. Working with my grandfather's collection of photographs.

I started to use the collection as source material for my art practice in 1996. A year earlier, I made a conscious decision to change the way I worked. After making sculptural objects and site-specific installations for fifteen years, I had decided that my work had become too reliant on a given site and had become too impersonal. Reviewing my previous work, I found that mathematics was one area about which I had always been curious, but with which I had never directly engaged in my practice. I therefore initiated an investigation, both practical and theoretical, into some of the relationships between visual art and mathematics. One direction this exploration led me was to look at my family history. My father and his brother had studied mathematics at university and my mother's brother is a mathematics teacher, I had studied mathematics at A-Level. I became especially interested in my paternal grandfather who was a professor of mathematics at Cambridge University. It was at this stage that I decided to explore my own history and the history of the relationship I had to my grandfather by using his collection of photographs as a starting point.

I was also interested in the way that some of my sculptures and installations affected certain spectators, whereby they would be reminded of events from their own past. In a few instances, this seemed to be for them like Proust's encounter with the madeleine,⁸ the work stimulating strong sensual memories. I therefore became curious about the role memory played when art works are confronted.

1.2. My childhood experiences with the collection.

In 1966 I returned to Britain from Colombia, my family having previously lived in Trinidad and Tobago, where I had been born in 1960. My mother, brother and I lived a couple of streets away from the house of my paternal grandfather and grandmother in Cambridge. It was here that I first remember meeting my grandfather. We would visit the house they called 'Millington Road'⁹ regularly, and after my grandfather's death in 1967 I lived in this house until 1976.

⁸ Proust writes, 'It is not possible that a piece of sculpture, a piece of music which gives us an emotion which we feel to be more exalted, more pure, more true, does not correspond to some definite spiritual reality. It is surely symbolical of one, since it gives that impression of profundity and truth. Thus nothing resembled more closely than some such phrase of Vinteuil the peculiar pleasure which I had felt at certain moments in my life, when gazing, for instance, at the steeples of Martinville, or at certain trees along a road near Balbec, or, more simply, in the first part of this book, when I tasted a certain cup of tea.' [Proust 1984:44]

⁹ The road was called Millington Road and at the time still had Gaslights illuminating it. The house was always called Millington Road by all the family and visitors.



Me outside Millington Road house 1967 and Me up a tree in a Cambridge park 1967. [Images from the collection]

For many years, and long before I moved to Cambridge, my grandfather had the habit of presenting slide-shows of his trips abroad and his other activities to family and friends. When I came to Cambridge these presentations continued and I became a part of his audience. These transparencies are now the major part of the existing collection.

When I think back to these presentations, the only group of images I clearly recall followed his return from a long trip to India. I have been told that this ‘event’ was staged in the drawing room and continued every evening for a week. Each evening the room had to be rearranged, causing quite a ‘palaver’. He had made the projector himself, incorporating a wide-angle lens, made out of wood, pots and pans, and held together with nuts and bolts. It was not only able to show mounted transparencies but also un-mounted rolls of transparencies.



My Grandfather's home made projector on top of piano in the drawing room in the Millington Road house. [Image from the collection.]



Detail of my Grandfather's home made projector on top of piano in the drawing room in the Millington Road house. [Images from the collection]

The transparencies were projected onto a large, 8ft x 6ft presentation screen. The screen covered nearly all of the French windows and when not in use was stored, retracted out of sight, behind the pelmet of the curtains.

He presented the transparencies after dinner and the performance lasted about two hours.¹⁰ While the transparencies were being shown he would describe¹¹, in detail, the places and people he had encountered on the trip.¹² He would also explain at length why some of the photographs were over or under exposed, or were out of focus, and what would have been there if this had not been the case.

It is these incidents that have stuck in my mind most vividly. I remember one particular slide being so hopelessly over exposed, that nothing of any significance could be seen. This 'image' seems to have been burned into to my memory.¹³ My grandfather described in great detail what would have been there, which as I recall was an Indian temple.



Indian Temple 1966. [Images from the collection]



Detail

¹⁰ Martha Langford in her book, *Suspended Conversations: The Afterlife of Memory in Photographic Albums*, writes, 'Looking at another person's snapshots, slides, home movies, or tapes can indeed be killing: presentations are rarely short in duration, and repletion seems endemic to the genre.' [Langford 2001:5].

¹¹ 'The photographic moment and speech have much in common: visual literacy and memory less so, though they are complementary. The accumulation of photographic moments does not replace memory; rather, it overburdens recall with visual data that explodes in the retelling. That we desire to retain all that data in a permanent structure in which it can be visited, from which memories can be retrieved, fit with our faith in literacy, but challenges its rules. Our mimetic photographic memories need a mnemonic framework to keep them accessible and alive.' [Langford 2001:21]

¹² Henry Sayre describes the slide show and the family album as "the mnemonic devices of a new oral history." This is another way of saying that the album functions as a pictorial aide-memoiré to recitation, to the telling of stories [Langford 2001:5].

¹³ These have been called 'Flashbulb Memories' or 'Benchmark Memories' and are often of historic or momentous events. Some researchers argue that these memories do not change over long periods of time. Although in tests these memories have been seen to succumb to the same vagaries, distortions and reconstructions as other types of memory go through. Neisser says of these types of memory, '...such memories are not so much momentary snapshots as enduring benchmarks. They are places where we line up our own lives with the course of history itself and say, "I was there".' [Roberts:136]

Indeed, until I started to look at the collection more closely, I believed it to have been the Taj Mahal. I have since discovered that no images of that particular palace exist in the collection. I may therefore be confusing similar images of Indian temples in the collection – or it could just be that some of the transparencies are missing.¹⁴

When I first went to these presentations, I was just six years old. I had never been to the cinema nor seen television, and therefore it was my first experience of this sort of visual spectacle. I remember, initially, being very excited. My family has over the years mythologized this particular event and other similar slide presentations. It is therefore difficult to separate what actually happened from the anecdotal reminiscences that have become embroidered over time.¹⁵ The transparencies themselves, my own memories and the memories of others is all that I have left of these episodes.

Furthermore, I am not sure if I am now only remembering memories of my older memories, or even remembering other people's recounted memories of this event.¹⁶ This seeming conundrum became one of the factors behind my interest in the influence of photography on autobiographical memory. It seemed to me there was an interesting distinction between the supposed certainties of photographs¹⁷ as compared to the uncertainties of autobiographical memory.¹⁸

1.3. Who has owned the collection.

When I came to live at the Millington Road house, after my grandfather's death in 1967, the collection of his photographs and his photographic equipment were stored in a cupboard in a small dressing room next door to his study. My brother and I often played in this room and took an interest in the cameras, light meters, and flash guns, but took no special notice of the

¹⁴ There are some gaps in the collection where photographs are missing from certain verifiable sequences of images.

¹⁵ Scott McQuire writes of this, 'What is called history is never homogeneous, made up only of positivities and positives, all that is solid, enduring, visible, memorialized and saved, but also, and as importantly, is formed by processes of selective amnesia, strategic illegibility, repression, avoidance, neglect, and loss. Recognizing that history is biodegradable, that it belongs as much to the decay of origins and archives as to their preservation and 'museification', demands new protocols from those which have operated in the name of absolute origins, authentic relics and photographic truths.' [McQuire1998:176]

¹⁶ Victor Burgin alludes to this when he quotes research made by Marie-Claude Tranger on the way people remembered certain events from WWII. She found that there was a complex relationship between everything they had seen and their memories. When talking about what she had found out she says, that there were, 'Memories of fact [mixed] with memories of images, or of words, and even memories of memories.' In some cases she also found that they were remembering other peoples recounted memories. [Burgin:228]

¹⁷ Susan Sontag in an early argument in her book *On Photography* says of photographs that they, '...do not seem to be statements about the world so much as pieces of it.' She qualifies this later on by saying, 'Although there is a sense in which the camera does indeed capture reality, not just interpret it, photographs are as much an interpretation of the world as paintings and drawings are.' Susan Sontag, *On Photography*. Penguin Books, 1979. pp.6-7. Barthes on the other hand describes the photograph as having a, '...certain but fugitive testimony' [Barthes 2000:27]

¹⁸ Siegfried Kracauer argues that, 'Memory encompasses neither the entire spatial appearance of a state of affairs nor its entire temporal course. Compared to photography, memory's records are full of gaps.[Kracauer:50]

photographs. I especially remember playing with his homemade slide projector. I also used his enlarger when learning how to develop black and white films. This was in his old darkroom in the attic. It was not until the house was being cleared following my grandmother's death in 1983, that his photographs resurfaced. They passed first to my uncle and then to my brother, before being left in another cupboard in my mother's house. I took possession of them in 1996.



Image of my grandfather's enlarger and darkroom in the attic of the Millington Road House. [Images from the collection]

1.4. My encounters with the collection.

When I first took possession and re-encountered the transparencies, after a thirty-year gap, I started to remember the slide-shows. As I immersed myself further into the collection, I came to recall the sofa, the darkness, and the musty smell of the drawing room. The bleached out slide and the animals made on the screen with the shadows from our hands also came to mind. From these memories I started to recollect the room in detail and all the other activities that had taken place there.

Memories of my grandmother reading to my brother and I also came to mind. She would read aloud from *Alice in Wonderland*, *Peter Rabbit*, *Wind in the Willows*, *The Hobbit* and the *Just So* and other stories by Rudyard Kipling. I remembered my grandmother crying while reading the story of Riki Tiki Tavi, a mongoose who dies heroically in one of Kipling's stories. And I remembered the Jabberwocky.



Rose-Marie Jane Ingham on back door step of "Millington Road" 1960s. [Image from the collection]

I recall the room being a dark, dusty, heavy brown, with peeling brown and beige William Morris designed wallpaper¹⁹ and cobwebs in the corners of the ceiling. There was an out-of-tune upright piano, on which the slide projector sat. We were only allowed in when accompanied by an adult. The transparencies seemed to have acted as a shortcut to these memories, condensing and focussing them so they became clear and resonant.²⁰

¹⁹ Remembering again I realise that this wallpaper was not present in the drawing room but was mainly in on the walls of the landings and corridors.

²⁰ It was in 1931, in his "Small History of Photography," that Walter Benjamin first used the term "optical unconscious." With the photographs of Muybridge or Marey undoubtedly in mind, he speaks of how the naked eye cannot penetrate movements of even the most ordinary kind. "We have no idea at all," he says, "what happens during the fraction of a second when a person steps out." But photography, he exults, "with its devices of slow motion and enlargement, reveals the secret. It is through photography that we first discover the existence of this optical unconscious, just as we discover the instinctual unconscious through psychoanalysis." [Krauss:178 -179]

At first it had been the collection as a whole that focussed these memories. When I opened the bags the photographs had been stored in, there was a vague smell of photographic chemicals. This smell, initially, reminded me of the dressing room and the cupboard in which the photographs had been stored. I was reminded of the times my brother and I would dress up in our home-made Batman and Robin outfits and play in this room. The smell also brought back memories of all the darkrooms I had been into in my life. A flood of memories had started to come back to me.²¹

Looking at and handling the transparencies also lead me to be reminded of the other parts of the Millington Road house. It was where my father and uncle were born, and had lived from the 1930s to the 1950s and many of their toys and sports equipment were still there when we moved in. There had been no decoration and virtually no maintenance for many years. It still had old DC electricity and the only heating came from the coal fireplaces in each room. There were threadbare Persian rugs rather than carpets on the floors.

When we moved into the house, my grandfather's study was changed into a bedroom for my brother and I. Overnight it went from being a classic academic's room with a large old-fashioned wooden desk, armchair, fireplace, and papers strewn about the place, to being a children's bedroom. The beige walls were re-papered in flowered lime green, designed by the children's book illustrator Jan Pienkowski²² who ironically also went to King's College, Cambridge, where he read Classics and English.

²¹ In a review of Brassai's book, *Proust in the Power of Photography* the idea that space in Proust's writings is commented on. It says, 'When he first read *In Search of Lost Time* in 1926, Brassai was not a photographer; when he reread it in the late 1960s, he realized that Proust's appreciation of photography anticipated the work of Walter Benjamin and Roland Barthes and that, in fact, "photographic art is at the heart of Proustian creation." Throughout his life, Proust collected photographic portraits and used them as models. He also relied on reproductions when he studied painting and architecture. Thus, photographs are an important part of *A La recherche du temps perdu*, and Brassai draws attention to specific scenes and the functions photographs perform in the narrative, as powerful "simulacra" or metaphors. The poses and multiple images of people perceived through time and through the narrator's varied lenses, sometimes close-up and sometimes from afar, seem to Brassai inextricably connected to the form and purpose of a photo album. He connects Proust's image-making with the function of the stereoscope [two images creating three-dimensionality] and with the way in which chronophotography could deconstruct movement. Linking Proust's vision to the camera and his idea of involuntary memory to the development of the latent image in the darkroom...' From URL: <http://www.booksmatter.com/b0226071448.htm>

²² Jan Pienkowski was born in Warsaw, into a family of architects and artists, Jan Pienkowski came to London as a ten year-old who spoke no English. He quickly developed a passion for English comics - "At my grammar school comics were banned... when we were in the sixth form there was always a race to see who could be the first to confiscate an Eagle on the day it came out." He studied English and Classics at Cambridge but spent most of his time designing posters, sets and costumes for student drama productions. While still in Cambridge, he was co-founder of the greetings card company, Gallery Five, of which he remains a director. After college, he found work as an art director in advertising. "They all thought I was very eccentric. With an English degree you were supposed to want to be a copywriter." He also created cartoons and graphics for the BBC Children's TV series, *Watch*. URL: http://uk.dk.com/nf/Author/AuthorPage/0,,11_1000025335,00.html



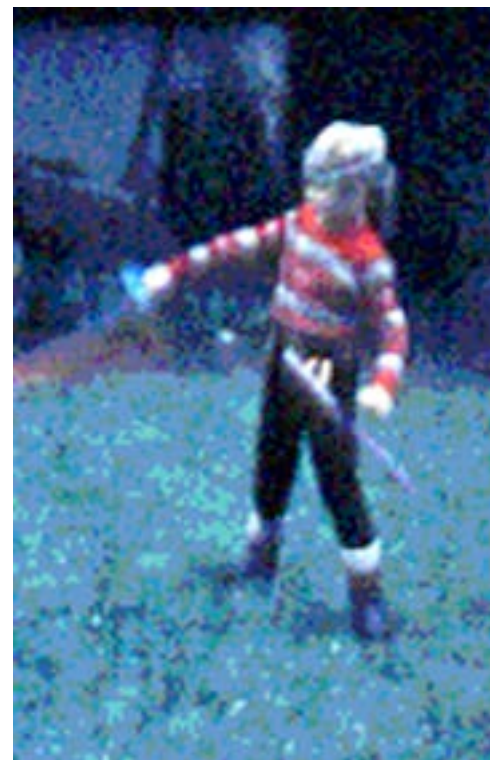
Sections of the Jan Pienkowski wallpaper used in my bedroom in 1967/68

The carpets were light in colour and the furniture had a modern feel to it: greater transformation in the way the room looked and felt was hardly imaginable.

Again the transparencies had elicited detailed memories of my childhood. I was not surprised by what I remembered, I ‘knew’ about all these incidences, events and places, but I was surprised by how the transparencies had evoked such strong associative chains and networks of memory. When I looked at them again my memory of these places and events became sharper and more intense. My memories began to ‘join up’, not in any particular order, and to weave in with other people’s stories of that time. Throughout this process of remembrance, triggered by looking at the transparencies, I switched between seeing a scene through my own eyes and viewing myself present in the scene.²³ I was apart of, and involved in, the scenes depicted in the photographs and but also detached, looking into and upon these same scenes.

²³ These two modes of remembering are sometimes referred to as ‘field’ and ‘observer’ memories. Research has shown that older memories tend to be seen from the point of view of an observer and more recent ones from something like the original perspective. [Schacter:21]

When the collection first came into my possession the quantity and disorganisation of the transparencies overwhelmed me.²⁴ I felt reluctant and even repulsed by the transparencies²⁵ and these feelings of reluctance and repulsion made me remember why I had not wanted to use them before. The collection led me back to memories of the break up of my parents' marriage. It seemed to symbolise the strange and strict upbringing my uncle and father had gone through and the attempt by my grandmother to bring up my brother and I in the same way. It seemed to represent why my father was estranged and distant. I had feelings of morbid fascination and revulsion, but at the same time, I was deeply curious and intrigued by the collection. It had a crumbling presence and for me a sadness about it.²⁶



A half-frame slide from the collection showing the Millington Road garden with me and my brother playing.

²⁴ Landford [2001] say of this, 'For the compiler [of photographic albums, things were not changing quite so quickly; some basic criteria never do. If the amateur botanist and the obsessive philatelist collected for preciousness, comprehensiveness, variation, and aberration, so did the amateur compiler: special occasions, annual outings, photographic novelties, and social high jinks were samples preserved from life. As the Kodak made it easier to document the family, so more esoteric subjects came within reach. Albums became increasingly unruly and eclectic, lay on social history a proverbial chicken-and-egg whether an evolving definition of the family modified the family album or the other way around.' [Langford 2001:24]

²⁵ Alan Sekula, who uses a dialectical theory and the Marxism of Georg Lukács to inform his writing says in his essay, 'Reading an Archive', 'But the machine [camera] establishes its truth, not by logical argument, but by providing an experience. This experience characteristically veers between nostalgia, horror, and an overriding sense of the exoticism of the past, its irretrievable otherness for the viewer in the present.' [Sekula 1983:122] I would suggest that there are other experiences than can occur when looking at a photograph that are more neutral than Sekula has described above Boredom just being one experience that can occur frequently when looking at photographs.

²⁶ When Roland Barthes starts to investigate photography he uses what he calls a 'casual phenomenology', which he bends to accommodate, '...the object (photograph) which was immediately steeped in desire, repulsion, nostalgia, euphoria.' [Barthes:2000:27]

1.5. Reasons I am using the transparencies in my practice.

I decided to work with the collection despite these ambivalent thoughts and emotions. After my first trawl through the photographs, four boxes of transparencies stood out from the perceived chaos.



Four slide boxes from the collection

All four were in the distinctive orange colour of the Agfa photographic company²⁷. They had my grandmother's handwriting on them. The slides were numbered and in some cases annotated. Three of the boxes contained slides from my grandfather's trip to India and the fourth was of a sports day at my old school.



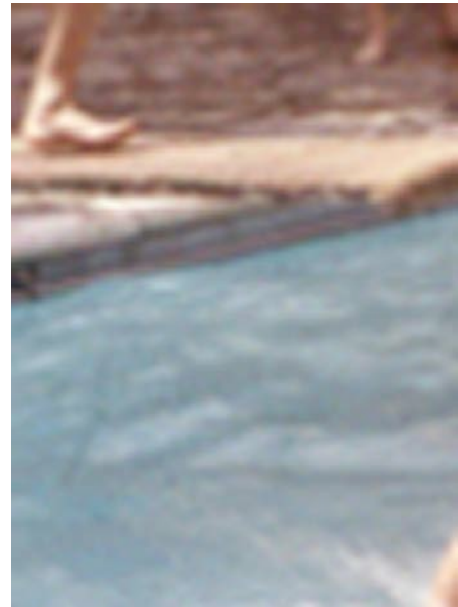
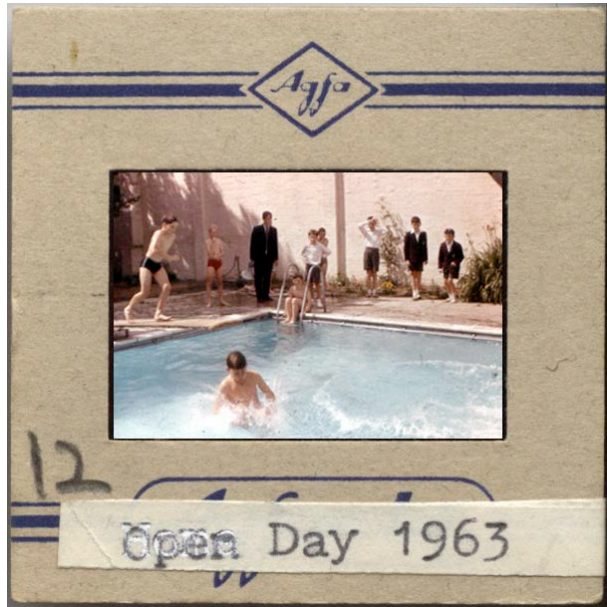
My grandmother's handwriting on one of the Agfa slide boxes

I was interested to see if I remembered any of the transparencies of India. After looking at them for a while I got a sense of recognition from some of them. There was nothing I remembered specifically, it was more to do with the general 'look' of them. None of the predominant features in the slides seemed to conjure up any memories. It was some of the small details in the landscapes and skies, in the transparencies, that seem to evoke some recollections of his slide presentations. It was almost the 'heat' that came from the images, the glow they had, that was evocative.

The other box of slides was of a sports day in 1963 at King's College Choir School, which I attended from 1968-1972. The places in the slides were instantly recognisable. The playing fields, buildings and the swimming pool were all there as I remembered them. One slide stood out from the rest. It was of a boy somersaulting into a swimming pool off a diving board. Looking at the slide immediately transported me back to the times when I swam in that pool. I was reminded of the coldness of the water. The pool had been unheated. I recognised and remembered the rail and steps around the surface edge of the water. I remembered exactly the fittings that clasped the rail and joined it to the side of the pool. I recollected the roughness of the coir matting that covered the diving board. The remembering of it made my feet tingle. It

²⁷ Originally established in 1867. "Actien Gesellschaft fur Anilin Fabrikation" was formed in 1873. AGFA is an abbreviation from the original name. Agfa purchased Rietzschel's factory [Munich] in 1925 from which time the Rietzschel name was no longer used on cameras and the first "Agfa" cameras were produced. Agfa's USA operations joined forces with Ansco in 1928 to form Agfa Ansco, which eventually became GAF, Agfa also continued operations in Germany both in the production of cameras and films, with the Munich, Leverkusen, and Wolfen factories in operation before WW11 and resuming production in the summer of 1945. [The Wolfen factory continued operations under the name ORWO for ORiginal WOlfen. It still existed after the reunification of Germany.] In 1952 Agfa founded "Agfa AG fur Photofabrikation" in Leverkusen and "Agfa Camera-Werk AG" in Munich. These merged in 1957 to become Agfa AG, which soon acquired Perutz Photowerke, Leonar-Werke, Minosa and others before merging with Gevaert of Belgium in 1964. From URL: <http://www.ozcamera.com/agfa.html>

reminded me of when I swam two lengths underwater, or it might have only been one and a half, I found I could not remember exactly.

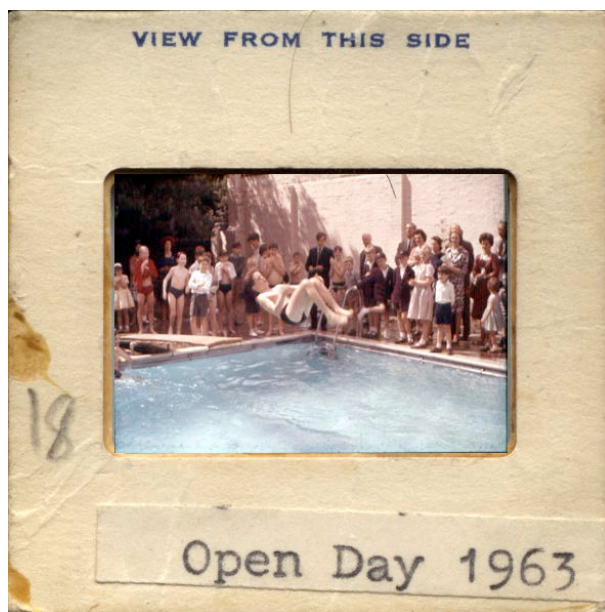


Kings College Choir School swimming pool showing diving board. [Images from the collection]



Detail of Kings College Choir School swimming pool showing diving board. [Images from the collection]

It was this image of the boy somersaulting that ‘pricked’ me, as Roland Barthes would say²⁸. I was curious about this image because the unknown boy looked similar to me, yet was ten years older. It seemed to me that he was caught in a frozen moment of flight, perfectly still and silent. As I looked at the slide further I wondered what was going on in the photograph. Was this the moment after the thud and twang of the diving board and before the crash of the water and the applause? Was he showing off? Competing in a competition? Was he demonstrating an intricate dive for the benefit of the spectators? Did he have time to fully rotate and make that perfect entry? On the other hand, did he belly flop into the water splashing the spectators and skulk away, embarrassed by his failure? I felt as though I was becoming absorbed into the photograph.

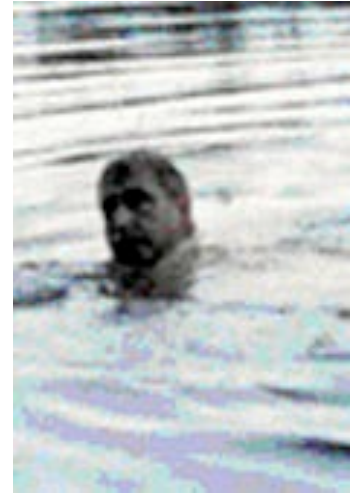


Kings College Choir School, Cambridge, swimming pool. [Images from the collection]

After these thoughts about what was happening in the slide I looked at it again. I started to remember other aspects of the pool. From the glow that came from the slide I felt it looked like a beautiful summer’s day, yet I knew how cold that water was, ‘its good for you’ cold. This then instantly triggered a memory of my father talking about his swimming exploits in the very same pool. This then lead me to think about the times when my brother and I were on holiday with him and we swam in icy mountain lakes, thinking at the time what a stupid activity this was and saying ‘no’ after a couple times of being miserably frozen. This, then, reminded me of the

²⁸ Barthes describes it as, ‘...the element which rises from the scene, shoots out of it like an arrow, and pierces me.’ It is ‘...that accident which pricks me (but also bruises me, is poignant to me).’¹ [Barthes 2000:26-27]

tradition that my grandfather kept of ‘breaking the ice’ on Christmas Day where members of a swimming club would swim in the frozen river Cam.²⁹ This also made me think back to when I was a member of a local swimming club and being a successful competitor, yet being very bored.



My grandfather in the river Cam, Cambridge. [Images from the collection]

After looking at these two sets of slides I became intrigued by the different ways they provoked my memories. I had never been to India but I remembered the event of seeing the slides. I had never, as far as I can remember, seen the slides of the sports day before, but had been to the places depicted in them.

Both elicited strong and detailed memories, which were both visual and sensual. I had felt the past unfold. Because of the memories that had been stirred by the slides and my curiosity as how photographs could do this, I had gone from a feeling of ambivalence towards the collection to having a strong desire to use and incorporate the slides into my art practice.

²⁹ This involuntary reaction, from a small detail, can trigger an associative chain of memories, and as in Proust's writings it is often some time after the initial event has caused an awakening of memory that the specific details of that memory, through thought, come to light. Barthes emphasises these points when he says, 'However lightning-like [a fulguration] it may be, the *punctum* has, more or less potentially, a power of expansion. [Barthes 2000:45.]



Swimming Up. Digital Photographic Print. 1m x 1.5m 2005

1.6. Art from the Transparencies

After taking some time to look through the collection again, I came across three slides that fascinated me. I always seemed to be drawn back to them. The first two slides were next to each other on a roll of film that had been taken by a half-frame camera. The image on the left was of a hollyhock and the one on the right was of my grandfather. I was interested in these images because the hollyhock was from the front garden of my grandparent's house. This reminded me of the garden and of my grandmother who was a botanist. The image of my grandfather interested me because it was one of only five or six of him in the collection and it was close to the image I had had of him in my memory.



A half frame transparency of a Hollyhock and my grandfather. 1960s. [Images from the collection]

Also at the time, I simply liked the fact that they were taken one after the other and were by and of my grandparents. When I first looked at these slides I assumed that my grandmother had taken the photograph of my grandfather. On closer inspection it seems more likely that my grandfather took all the photographs and the one of him is a self-portrait.

Using these transparencies, initially projected on to a sheet of paper, I produced a painting. Eventually, after going through a number of processes, it became a diptych. The original painting was cut up into one-centimetre wide strips from top to bottom. The corresponding strips from each half of the painting were then stuck down next to each other on a board. This process was repeated on a second board creating two paintings. These were then placed next to each other. The two halves of the painting looked identical on first reading but no two elements were the same. I was exploring ideas to do with genetics at the time and the painting was a culmination of this investigation.



Painting from half-frame transparency of hollyhock and my grandfather.

The third slide was of the boy somersaulting into the swimming pool, of which I made a drawing by projecting it onto a large sheet of paper and tracing the outline of every differentiated tone. After a while, I decided to draw over this initial drawing by similarly tracing the transparencies that came before and after this image. This resulting image had elements of abstraction besides more 'readable' figurative elements, giving a tension between the discernible and the indiscernible.

My intention at the time was not to make a picture which told a story or that could be read in a conventional narrative or figurative way. The work was to have no beginning, middle, and end. The viewing became a journey of looking *at* and *with* the work, rather than being about my history or a history triggered by recognisable narrative elements.

I explored this process further using the transparencies my grandfather had taken in India. They were the only transparencies out of the 4,000 that had been properly catalogued – my grandmother's doing – but they were also integral to my memories of the week-long slide-show. I finally produced seven of these 'drawings' using the same technique.

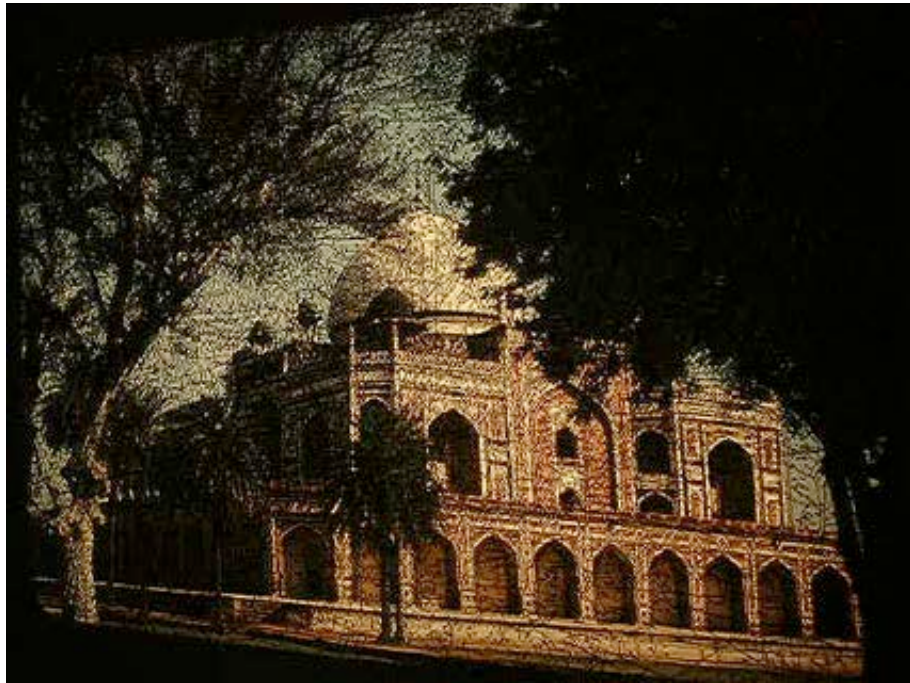
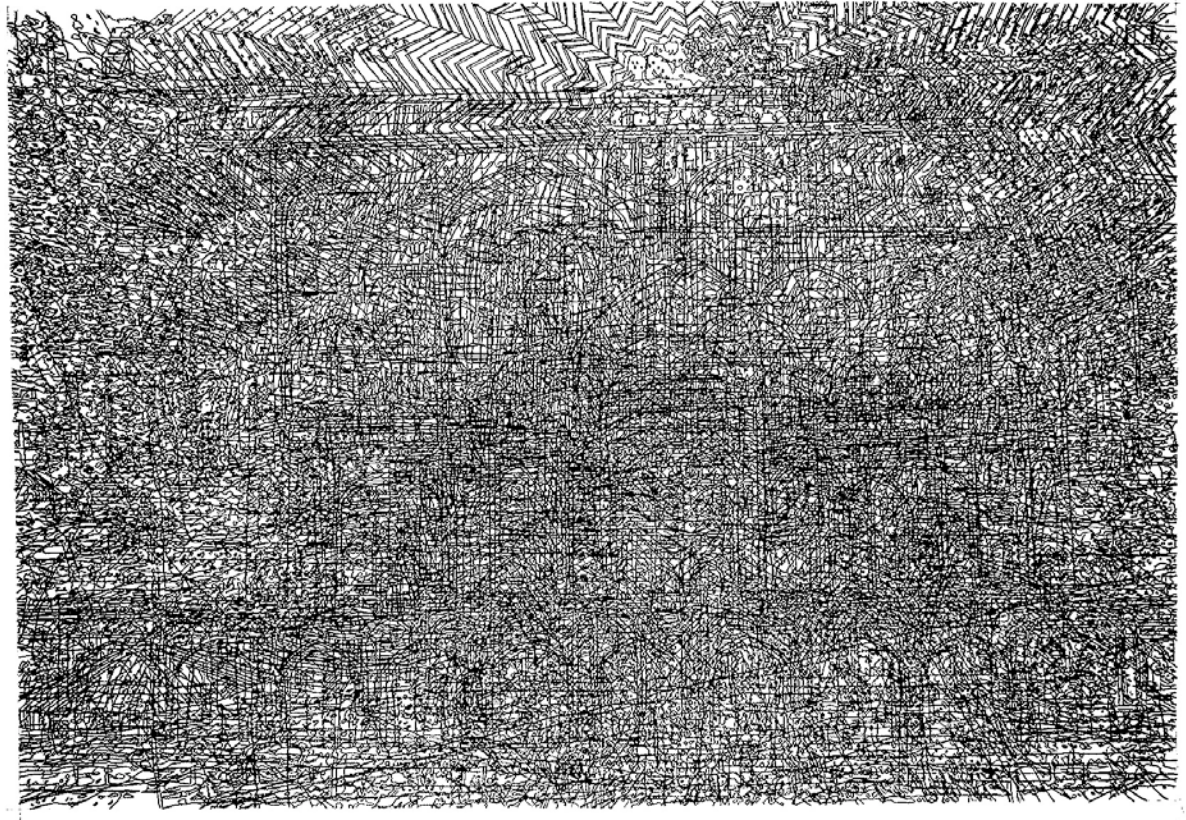


Image of transparency being projected onto paper and drawn around. 2000

The process of making this work seemed to me to be both opposite and yet similar to the developing of a black and white photograph in a dark room. The projected image slowly appeared on the paper as I drew around everything, taking three to four hours per slide. At first I could see the image of the original slide, but with the addition of each new layer the previous images became increasingly indistinct. It was not unlike leaving the paper in the developer too long: eventually it will go black. I saw this process as a metaphor for how we forget and remember the past. Within the general tangle of lines, there were parts and areas that were

recognisable and distinct. These were not separate from the rest of the image and they seemed to flow out of the abstract morass.



Ajanta. Felt Pen drawing on paper 120 cm x 180 cm. 2000

Since completing these drawings, I have made work that uses the collection more directly, with the photographs becoming a part of the work rather than just a starting point. I carried out a series of explorations into how the collection could be used to generate work about the relationship between memory and photography. Starting by drawing directly onto the enlarged photographs, I used the same overlapping technique as described above. This way of working made more obvious the source material used to make the drawings and at the same time retained the idea that the image was in some way being erased and fragmented. I saw this as being linked to the way our autobiographical memory works, with some things being very clear while others are hazy and indistinct. But although I was partly satisfied with this way of working, the drawings still had an ambiguity that for me was unsatisfactory.



Doubled Flip Acetate. A4 digital print. 2001

I therefore decided to explore the images in the collection even more directly by using the photographs without the addition of a drawn element. I made a series of works that involved reversing and overlapping the same image on top of each other by using acetate copies. These rotations, reflections, transformations, and doublings scrambled the reading of the image. The work produced from these explorations had, for me, a peculiar and uncanny quality.³⁰

I then made a series of works that explored the way the images on a roll of film relate to one another. Most of the collection is in roll form and not mounted. In the previous drawings, I had projected twelve consecutive images on top of each other. I was now more interested in what would happen to these images when they were separated and made sequential. Some of the rolls had a filmic quality about them, a movement through time and space that I found intriguing. I cut the printed and enlarged photographs in half and put them together with half of

³⁰ Freud in his essay 'The Uncanny' [Das Unheimlich] suggests that an uncanny experience "is often and easily produced when the distinction between imagination and reality is effaced". Such an experience can arise when a repressed memory is partially recalled or, when we are confronted with ideas that we may well have believed our rational minds had laid to rest. [Freud:367]

the subsequent image, in an attempt to bring out some of their narrative and documentary³¹ aspects. Despite a disjointing effect, this tended to emphasise the feeling of transition between individual photographs. Also, in closing the gaps between the photographs and creating new ones I was exploring the idea that memories do not come back to us in a smooth continuous flow, but are distorted and have a 'chopped-up' quality: mixed up, confused, overlapped, non-sequential, and incomplete.



Jump Cut, Trinidad 1961. Photographic print. 2002

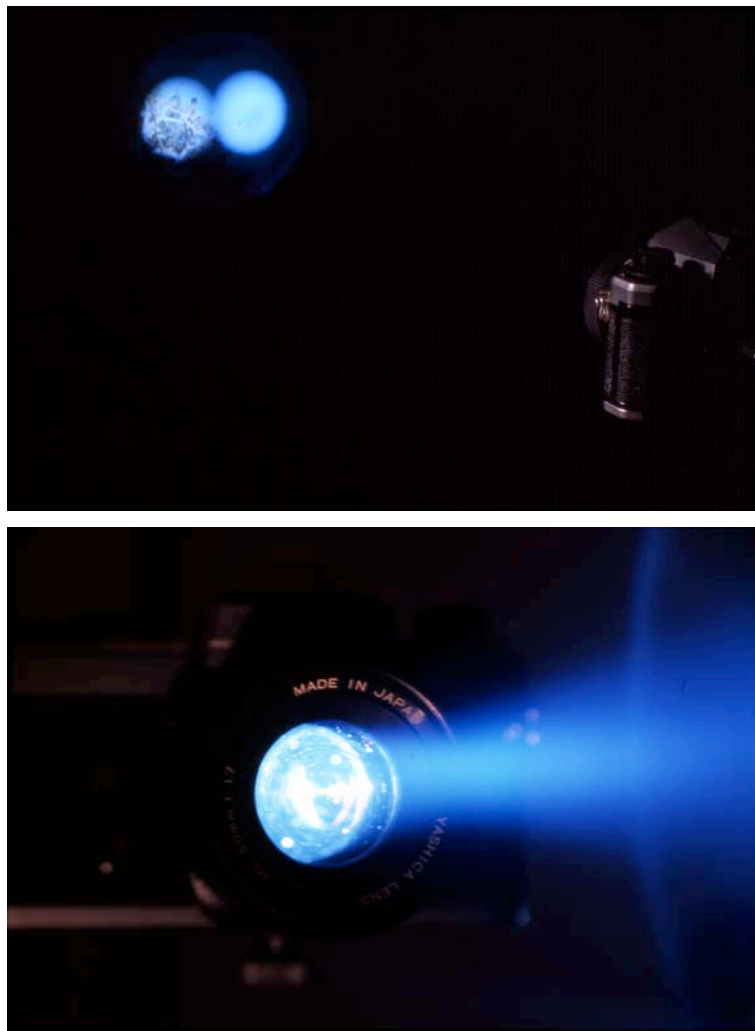
From this series of works I explored further the narrative and fragmentary nature of memory. Using a projector and a revolving mirror, I was able to both project and interrupt the image, which travelled around the room, distorting and undulating on the walls and ceiling. At some points in its journey it could be seen clearly and at others it was indecipherable: flashes of clarity mixed in with periods of obscurity. By adding more projectors and automatically changing the transparencies, these states of confusion and clarity were further emphasised.

Following this work, I explored the oral aspects of narrative that are set up when photographs are looked at in various private and public situations, taking my grandfather's 'performances' as a

³¹ Some of the photographs and sequences of photographs have a 'reportage' feel to them almost like National Geographic photographs.

starting point. These narratives were an interweaving of my grandfather's biography, my grandmother's storytelling, and my own autobiography. By 'performing' the transparencies, I set up a situation whereby my grandfather's use of the collection was highlighted as a source of remembrance and memories.

The next major development involved making slide projectors out of a number of old cameras, one of which had belonged to my grandfather. The transparencies went into the camera where the film would have been. With the camera's back removed, the shutter permanently open, and a light shone from the back through the transparency, these cameras were transformed into home-made projectors, with the lens focusing the image, thus reversing the original process and function of these instruments. I then photographed the projected images and enlarged them to various sizes.



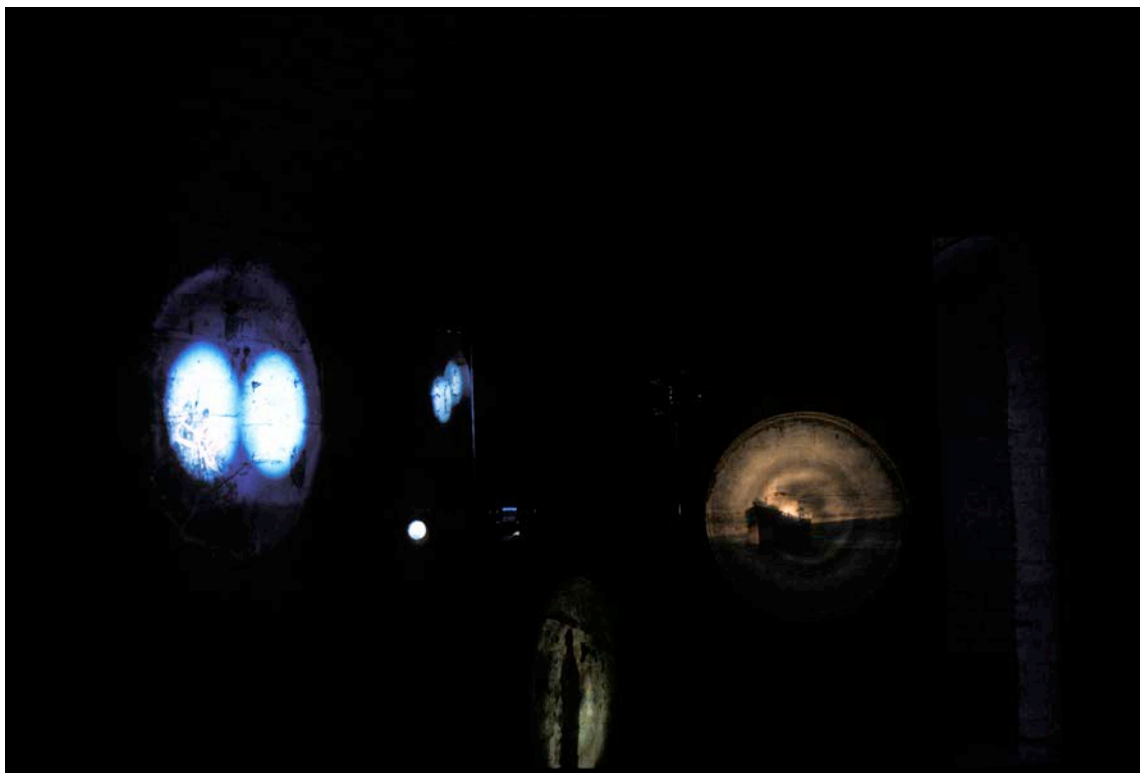
Camera Projector, projecting image.

In a darkened room I set up an installation using a number of these camera/projectors, the images produced being circular, due to the small torches used as light sources, and differing in size and intensity depending on their distance from the wall.³² This work has been my major concern up until the present day.



Delhi/Seuz [Detail] Photographic print. 1m x 1.5m. 2002

³² Lara Mulvey comments, 'The fantasy of a privileged insight that tears the mask away from perceived reality gives way to another reality, that of the mask itself and the reality of fantasy. Photography is generally assumed to be primarily anchored to the visible. The pleasurable paradox, familiar to the cinema, that the photographic image can be organised to express an abstract idea, an argument, the interior world of desire and imagination, seems strange to still photography.' [Mulvey:137]



Images from *Grand Tour in the Fantastic!* Exhibition, 2003

1.7 Reflections on the Autobiographical Account.

Writing this account made me aware that however objective I thought I was being, the act of writing down my memories and remembering events, whether triggered by the transparencies or from what I ‘knew’ about my past, had an effect on these ‘memories’ themselves.³³ Inevitably, the account was an approximation, an editorial process whereby I was adding and taking away from what I thought I knew. Even at the time of writing I was aware of editing to a certain extent, but I later came to question by what criteria I had come to mention some events and exclude others. This suggests another level of complexity at work in autobiographical memory, leading me to question how different ‘types’, ‘systems’, and ‘processes’ can be interpreted and represented.

Following my initial impulse to investigate the relationship between visual art and mathematics, as I used the collection further I gradually became more interested in autobiographical memory’s connection with photography. In particular, I became interested in my own autobiographical memory and how this, through photographs, could be linked in with ideas of biography and autobiography.

When I read Roland Barthes, *Camera Lucida* I noticed that he investigates photography from the viewpoint of himself as a spectator of photographs. He says that, ‘The disorder which from the very first I had observed in photography – all practices and all subjects mixed up together – I was to rediscover in the photographs of the *Spectator* whom I was and whom I now wanted to investigate.’ [Barthes 2000:16] He starts this investigation by choosing certain photographs that ‘agitate’ him and cause an ‘adventure’ to occur. He names this attraction an ‘animation’, adding: ‘The photograph itself is in no way animated [I do not believe in “lifelike” photographs], but it animates me: this is what creates every adventure.’ [Barthes 2000:18-20.] I experienced a similar ‘animation’ when I looked through my grandfather’s collection of photographs. Most were interesting on the level of curiosity, but one, the boy somersaulting into a swimming pool, set me off on an ‘adventure’ that created an associative chain and network of memories.

³³ K. Hastrup says of this that, ‘Memories ... are placed in the time they are remembered, narrated, reinterpreted, sometimes rejected and often forgotten. Recollection are immediately experienced. Memory makes a critical difference to these: in being remembered an experience becomes a memory.’ [Coffey:127]



Image from *Grand Tour in the Fantastic!* Exhibition. 2003



Image from the collection. Sports day 1963.



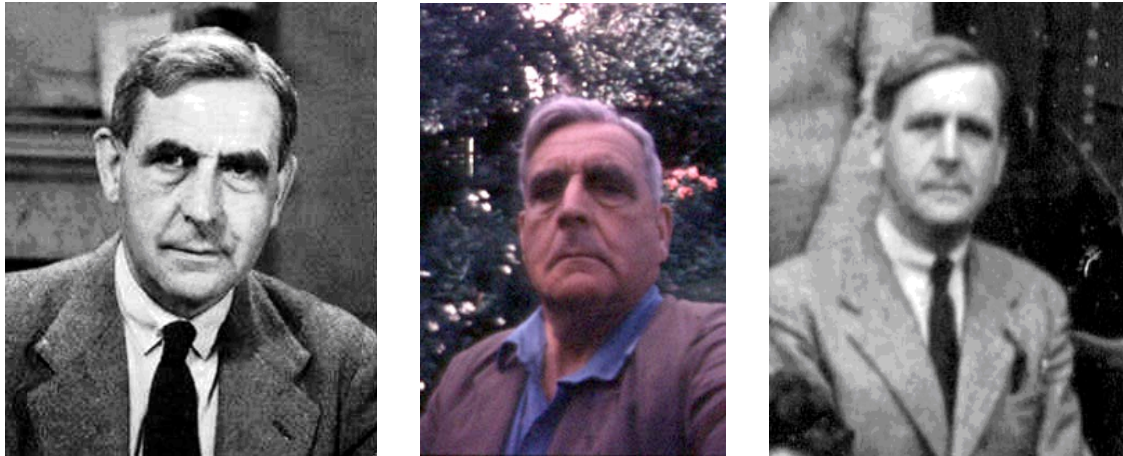
Details from transparency of a boy somersaulting into Kings College Choir School swimming pool. 1963. [Images from the collection, details]



Kings College Choir School swimming pool. 1963. [Image from the collection]

2. A Biography of A.E. Ingham

'He enjoyed doing mathematical puzzles, and photography, at which he experimented endlessly with great expertise' [A.E. Ingham Obituary]



Images of A.E. Ingham 1950s/1960s. From college magazines and the collection.

This short biography of my grandfather aims to offer some insights into the reasons why he took up photography and why he took the photographs he did. It also illuminates the milieu of a Cambridge academic. I have drawn upon written information from libraries and other sources along with anecdotal evidence supplied by my family. I have also drawn on some of my own memories of him.

Albert Edward Ingham was born in Northampton in 1900, the son of a 'boot-operative'. He studied at Cambridge University where he had a prestigious career as a mathematics student and then taught at King's College until his retirement from Director of Studies in 1959. He was made fellow of the Royal Society in 1945 and Reader of Mathematical Analysis at King's in 1953, a position he held until his death in 1967. He was variously described as: 'lucid', 'eloquent', 'conscientious', 'impersonal', 'a perfectionist', 'shy', 'modest', 'reserved', 'melancholic', 'ironic' and 'loyal'. His main passions in later life were cricket and photography. His obituary printed in King's College magazine is attached as an appendix, elucidates this further ³⁴

³⁴ See Appendix 1 for the full obituary.

His main interest in mathematics was the study of number theory and, more specifically, prime numbers and their distribution and predictability. In 1933, he wrote a book called 'The Distribution of Prime Numbers'. This was reprinted in a new edition in 1964, and again in 1990, and is still used in undergraduate mathematics departments in many universities as an introduction to prime number theory. The introduction on the back of this new edition says, 'Despite being long out of print, this Tract still remains unsurpassed as an introduction to the field, combining an economy of detail with a clarity of exposition which eases the novice into this area.'³⁵

During the early 1930s he was a supervisor to Alan Turing, famous for breaking the Enigma Code during the Second World War and for his ground breaking work in the invention of the electronic computer. At the time I learnt about this connection between Turing and my grandfather, I was exploring aspects of Artificial Intelligence and Artificial Consciousness in my own art practice. Turing had come up in this research because of his 'test' to see if computers could show signs of 'intelligence'.³⁶ For me this was connected to the idea that up until fairly recently human memory has been seen by some to be analogous to the way information is stored and retrieved by a computer. In my chapter on 'memory systems' I investigate this connection further.

In a biography of Alan Turing by Andrew Hodges mention is made of my grandfather, whom he describes as, '...serious but with a wry humour, the embodiment of mathematical rigour...' [Hodges:31] Commenting on Turing's disappointment at not getting a fellowship, Hodges says, 'As forecast he failed to gain a Cambridge appointment. *Ingham wrote from King's encouraging him to stay for another year, and this made his mind up.*' [Ibid:67]

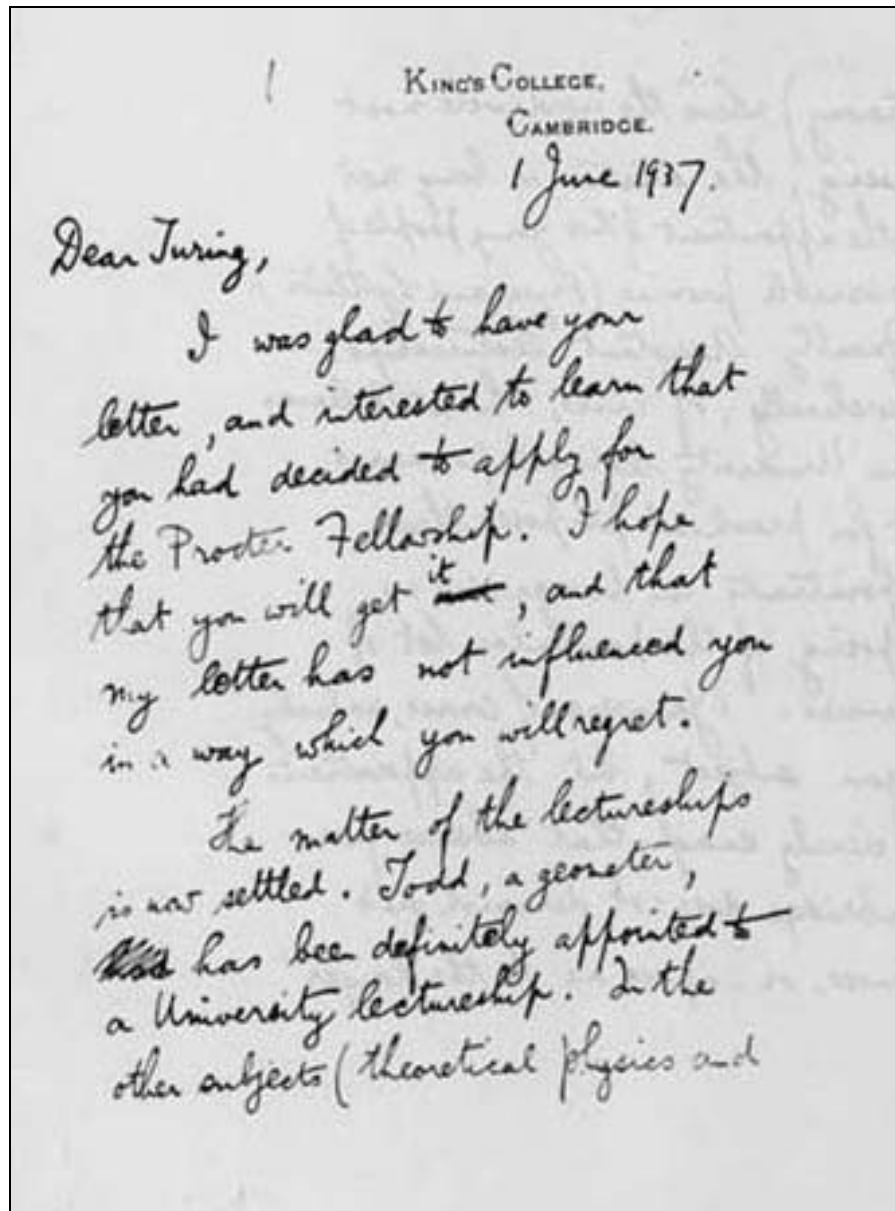
In a letter written to Turing, on the 1st June 1937, my grandfather comments on the above incident saying, 'You were, of course, unlucky in your subject, but the appointments show clearly enough that absence from Cambridge does not diminish one's chances, or expose one to the dangers of being overlooked.'³⁷ Although my grandfather seems to have been conservative by nature he was, by all accounts non-judgmental, being more interested in mathematics than

³⁵ The Distribution of Prime Numbers, A.E. Ingham. CUP 1990.

³⁶ Alan Turing says of this test, 'I propose to consider the question "Can machines think?" This should begin with definitions of the meaning of the terms "machine" and "think."' A definition is that the, 'Turing Test is meant to determine if a computer program has intelligence. When talking about the Turing Test today what is generally understood is the following: The interrogator is connected to one person and one machine via a terminal, therefore can't see her counterparts. Her task is to find out which of the two candidates is the machine, and which is the human only by asking them questions. If the machine can "fool" the interrogator, it is intelligent.'

³⁷ In a letter to Turing from A.E. Ingham. [See Appendix 2].

personal mores. From my grandfather's correspondence with Turing, it seems he was sympathetic to Turing during the trials and tribulations he experienced at Cambridge over his homosexuality. In the same letter my grandfather says, 'I was glad to have your letter, and interested to learn that you had decided to apply for the Proctor Fellowship. I hope you will get it, and that my letter has not influenced you in a way which you will regret.'³⁸ A page from this letter is reproduced in the next illustration.



A page from a letter to Alan Turing, 1937, from A.E. Ingham.

³⁸ In a letter to Turing from A.E. Ingham. [See Appendix 2].

As is not uncommon with mathematicians, my grandfather's main burst of creative energy was in his twenties and thirties. After 1945, he continued to publish occasional papers, but increasingly devoted himself to academic administration and teaching. It was at this point that he took up photography with a passion. His initial interest was in black and white photography and it was not until about 1954 that he turned almost exclusively to colour transparency film. He had several cameras including a Leica.



Detail from one of the images from the collection showing one of my grandfather's cameras. 1966/67

His obituary says, 'He enjoyed ... photography, at which he experimented endlessly with great expertise.'³⁹ Curiously, when I think back to the time I spent with my grandfather, I do not remember him ever taking a photograph of me or a photograph of anything else for that matter. Other than photography, his main passions in later life were mathematical puzzles and cricket. He loved cricket so much that he played into his sixties and, even though he lived in Cambridge,

³⁹ A.E. Ingham's Obituary. [See Appendix 1].

he arranged for my grandmother to have their sons born in Leeds so that they would be qualified to play for Yorkshire.

My memories of him now are of a distant, shadowy figure. Coming down from working in his study at meal times, when a gong was sounded and his name, 'A.E.' or 'Pa', was called out. I have memories of him talking during his slide shows. I have no recollection of his death or the events of the time that surrounded it. I recall that many years later I was told that he had died on a mountain pass high up in the Alps and his ashes had to be flown back as hand luggage. Since being told this story, I have an image of my grandmother, who was very wiry and fit, striding off into the distance up the mountain leaving my grandfather, who was a 'heavy' man, lying by a rock looking out on to a scene he had often photographed as he expired. This is linked an abiding memory of how fast and vigorously my grandmother would walk. She was always frustrated with my brother and I as we 'dawdled' fifty yards behind her. We just could not keep up with her furious pace.

After his death I occasionally met his old friends and colleagues, who would always talk fondly of him. I remember distinctly a pre-eminent Egyptian mathematician visiting the house. He was desperate to buy my grandfather's mathematical notes and papers. I think he has stuck in my mind because he would drink his tea by holding the saucer and not the handle of the cup. My grandmother resisted his offers and kept the papers in an old cupboard in the house.

The anecdotal evidence about my grandfather and his photography from family and friends mainly surrounds his slide presentations, in particular their duration and the fact that the content appeared unedited. It seems he never exhibited any embarrassment when showing transparencies that could be seen as controversial. I have been told that he would show transparencies of the children in various states of undress and when he showed transparencies of erotic carvings from temples in India he would deliberately pause and point out their poses.



Karala, India. 1967. [Image from the collection]

2.1 Commentary on the Biography

Some of the reasons why my grandfather might have taken photographs are illuminated by Susan Sontag when she observes in her book *On Photography* that photography ‘...is mainly a social rite, a defence against anxiety, and a tool of power.’[Sontag:8] All these aspects can be seen in my grandfather’s collection. According to Sontag the idea that a photograph would not be taken at a family event or on holiday has become seen as ‘indifference or even transgressive.’[Ibid:9] She emphasises this by saying, ‘It seems positively unnatural to travel for pleasure without taking a camera along. Photographs will offer indisputable evidence that the trip was made, that the program was carried out, that fun was had.’ [Ibid:9-10] This seems to have been one of the reasons my grandfather took so many transparencies of his travels. They were not only for personal consumption but were taken with their potential audience in mind.

Sontag also argues that taking photographs on holiday assuage the anxiety of not working and gives the holidaymaker/photographer something to do. It becomes an ‘imitation of work.’[Ibid:9-10] My grandfather was semi-retired when he started taking photographs, and his

children had already left home. As someone who always liked to keep busy, it seems likely that the taking of photographs as a replacement for work whilst on holiday was one reason for this intense activity.

Sontag also talks about the sexual nature of taking a photograph. She argues that because there is a distance between the photographer and the photographed this cannot be seen as a sexualised act. She stresses this by saying, 'The camera does not rape, or even possess, though it may presume, intrude, trespass, distort, exploit and, at the farthest reach of metaphor, assassinate – all activities that, unlike the sexual push and shove, can be conducted from a distance, and with some detachment.' [Ibid:13] There seems to be an argument here about permission, permission to possess an image, to take a photograph, to own it without consent. Great distress can be caused when a photograph is taken without the consent of the person photographed. The simple fact of someone possessing a photograph without consent can cause anxiety. In my grandfather's case it seems that when he wanted to capture his experience of an event he had little thought of what the subjects of his photographs might feel.

Sontag also discusses the family photo album as substitute for the dispersed extended family and as a way of keeping them close. She says, 'Those ghostly traces, photographs, supply the token presence of the dispersed relatives. A family's photographic album is generally about the extended family – and, often, is all that remains of it.' [Ibid:9] Sontag continues from this line of argument to the idea that, 'A photograph is both a pseudo-presence and a token of absence.' [Ibid:16] This then leads to the idea that it is a sense of the unattainable and a distance that makes possible erotic feelings when in front of a photograph. She argues that, '...such talismanic uses of photographs express a feeling both sentimental and implicitly magical: they are attempts to contact or lay claim to another reality.' [Ibid.]

There are some aspects of this in my grandfather's collection of photographs. The family at the time was dispersing and he did record the events surrounding this dispersal. This does not seem to have been out of any sense of nostalgia, but was rather a duty. He did not keep the photographs with him at all times. Once they had been viewed they were not carried on his person or put in an album, and were rarely, if ever, seen again. The pleasures he gained in taking and looking at photographs lay elsewhere.

Conclusions

The personal autobiographical narrative, in relation to my grandfather's photographs, serves as a starting point for an inquiry into what happens when attempts are made to communicate and represent memories. It is now clear to me that memories are contingent upon how and when an event was remembered *at the time the event happened* and the circumstances under which the remembering occurred.⁴⁰ Memories are also changed by what happens, socially and personally, in the intervening time between an event and the remembering of that event. Unlike the habitual acts of memory in our daily lives, when we are required to remember details from our past we have to think consciously to remember them. This difference between 'knowing' and 'remembering' is crucial to the development of my project. I know I was in a drawing room at an event, family members have told me this. But I also *remember* being there.⁴¹ In chapter four I will discuss how photography has affected these different states of recollection.

Furthermore, memories are not fixed and stored intact waiting for the right cue to come along to re-form them into snapshots as if they had been perfectly preserved in amber.⁴² They are mediated, subjective and subject to change and this is especially the case of what cognitive neurobiologists call 'autobiographical memory'.⁴³ Writing an account of a memory is therefore doubly mediated: it necessarily brings into play both the original memory on which the act of writing is predicated *and* those cues that the act of writing itself introduces. I scrutinise this 'performative' act of describing the way memories are created in later chapters.

⁴⁰ The neurobiologist Daniel L. Schacter explains this by saying, 'What has happened to us in the past determines what we take out of our daily encounters in life, memories are records of how we experienced events, not replicas of the events themselves. [Schacter:6]

⁴¹ Conway explains the different states of 'knowing' and 'remembering' by saying, 'Rememberers 'just know' they attended a specific school, had a particular job, lived with a certain person and so on. A possibility here is that the 'knowing' or 'just knowing' feeling state is one that, in terms of cognitive effort, is less costly than recollective experience and although it may occur when the system is in retrieval mode as specific memories are constructed, it can also occur in other states that do not feature retrieval mode. [Ibid:60]

⁴² Schacter makes the point that, 'We now know enough about how memories are stored and retrieved to demolish another long-standing myth: that memories are passive or literal recordings of reality. Many of us still see our memories as a series of family pictures stored in the photo album of our minds. Yet it is now clear that we do not store judgement free snapshots of our past experiences but rather hold on to the meaning, sense, and emotions these experiences provide us.' [Ibid:5]

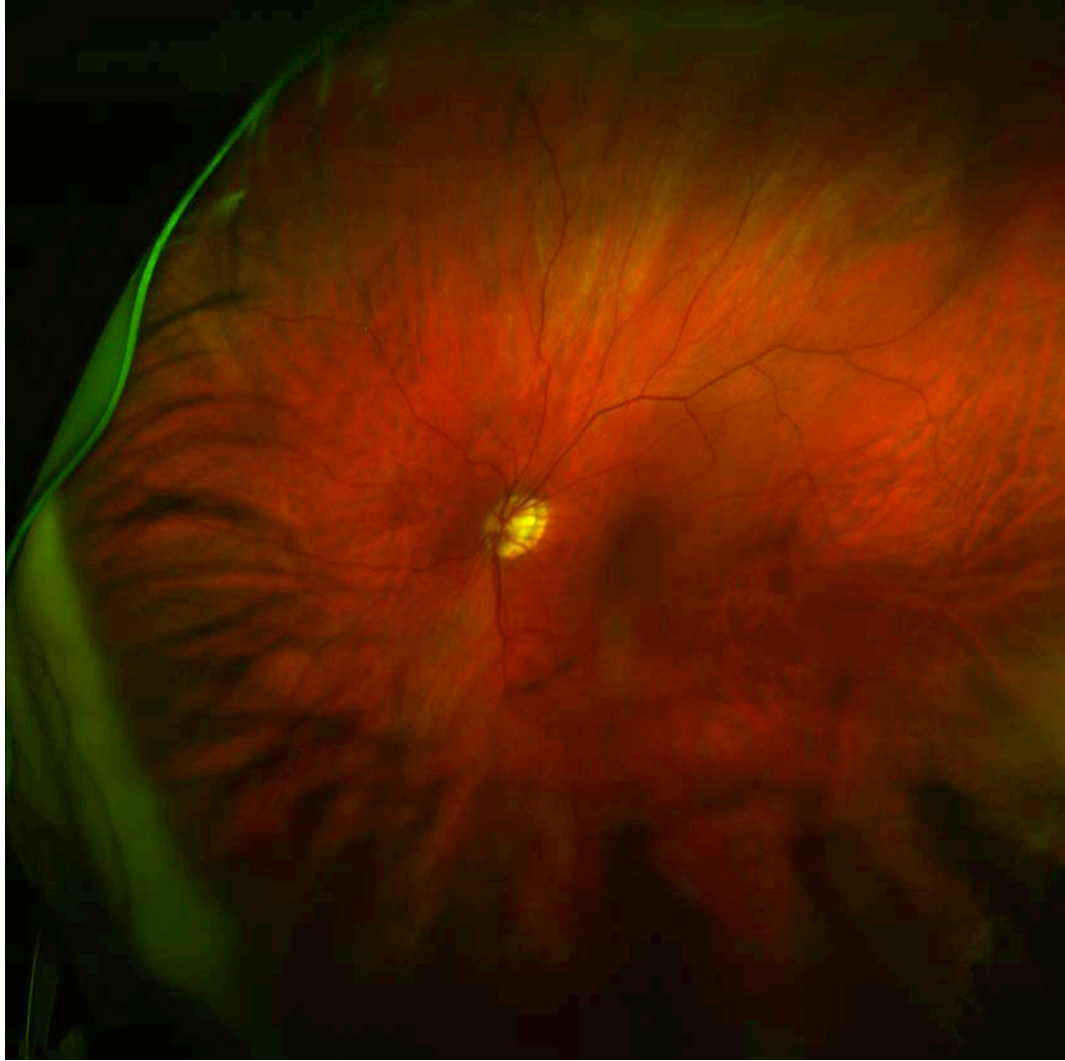
⁴³ Martin A. Conway working in the Department of Psychology at Durham University explains Autobiographical memory as, '...a type of memory that persists over weeks, months, years, decades and lifetimes, and it retains knowledge [of the self] at different levels of abstraction, [Autobiographical memory] is a transitory mental representation: it is a temporary but stable pattern of activation across the indices of the autobiographical knowledge base that encompasses knowledge of different levels of abstraction, including event-specific sensory perceptual details, very often – although by no means always – in the form of mental images.' [Badderley :55]



Camera Projection. A.E. Ingham, Millington Road garden. 1960s.

Every time I look at my grandfather's collection of photographs, even now that I know it thoroughly, memories surface and remind me of places, people, and events from my formative years. I have often felt as though I have entered another world, a world seen through my grandfather's eyes via the lens of his camera. I have found myself in a space between what the photograph depicted and my experience of looking at it. It was a space in which I was both self-conscious and at the same time unaware of where I was.⁴⁴

⁴⁴ This experience is sometimes described as 'qualia' where we are aware of a sensation happening and the sensation itself at the same time.



The inside of my left eye. Photographic Print. 1m x 1m. 2003.

It is this simultaneity of experiences that makes me feel strange and is similar to how I sometimes feel when a certain type of memory of a past event surfaces in my mind.⁴⁵ I got to know him better as a human being rather than the mysterious and often mythical figure he had become in my mind. I felt I was walking in the Alps, looking in detail at plants and insects, and punting and picnicking on the river Cam. The images started to resonate and become a part of my memory. The photographs seemed very alive. I had no sense of the morbidity that I had felt

⁴⁵ This folding of time into a single instant is described by Barthes as the, ‘...vertigo of time defeated.’ and as ‘dizzying his consciousness.’ [Barthes 2000:96.]

when I first looked at the transparencies five or six years ago. They had moved me and made me question my pre-concepts of memory, photography and the relationships between them.⁴⁶

This idea that photography has altered our perception of the past, and even the perception of time itself, is central to my inquiry into photography's role in changing memory. Roland Barthes sometimes saw photography as a living ghost of the past, here and not here at the same time, creating a fundamental shift in the way the world is perceived and conceived. When I look at my grandfather's photographs I see them as being alive. Not just alive when they were taken but alive now. Not just, 'I was there' or 'I could have been there' or even 'I feel like I am there', but 'I am there and they are here, now'. It is this 'certain, but fugitive testimony' [Barthes 2000:93] that confirms, but also creates doubts in, the veracity of our own memories. These issues are addressed more fully in Chapter Three.

In *Camera Lucida* Roland Barthes narrowed down his field of enquiry by dividing photography into three practices. He names these as: the operator [the photographer], the spectrum [the photographed], and the spectator [the viewer]. This echoes the way I have attempted to analyse my grandfather's collection of photographs from autobiographical, biographical and taxonomical points of view. Barthes rejects looking at photography from the photographer's point of view, as he is not a photographer himself. He is uneasy when he is photographed and is dissatisfied with the resultant images of himself. They never capture who he thinks he is or wants to be. [Barthes 2000:10-15] Because of this he sees, 'the Photograph is the advent of the other: a cunning dissociation of consciousness from identity.' [Barthes 2000:12]

He argues that, looking at oneself in a photograph, creates a different way of viewing the world and finds it 'odd that no one has thought of the *disturbance* [to civilisation] which this new action causes.' This rupture occurs because for the first time people have been able to see their image in a fixed and 'unmediated' state as a photographic object and because of this he wants a new way of 'thinking about looking' and even a 'History of looking'. [Ibid] It is this 'disturbance' that Barthes talks about in relation to the way photography has changed the way we perceive the world, which is crucial to my concern with memory and photography. I argue that this same 'disturbance' that Barthes describes has also altered our relationship with memory. It has changed the way we look at ourselves and therefore changes the way we think about ourselves. As a consequence of these changes memory has also changed.

⁴⁶ Barthes sums up his desire to look at photography by saying, 'As Spectator I was interested in Photography only for "sentimental" reasons; I wanted to explore it not as a question [a theme] but as a wound: I see, I feel, hence I notice, I observe, and I think. [Ibid:20-21]

Photography can in some ways trigger memory, but for Barthes, this is not what is essential about photography, separating it from other forms of images and representations. Although Barthes dismisses memory as the essential element that makes photography different from other forms of representation, which I expand on in Chapter Three, I would argue that photography, due to a combination of its 'nature' and its 'culture', has played a part in altering our perception of the past and therefore it has stimulated an evolutionary shift in the way our autobiographical memory operates. In the next chapter I look more closely at 'Autobiographical Memory' and how it functions differently from other types of memory.



Me 1966 Seven Sister Beach Wallpaper. Photographic Print. 1.5m x 1m. 2004 [Detail]

4. Appendices

4.1 Obituaries

This is a transcript of my grandfather's obituary published in the King's College Magazine in 1967.

“Albert Edward Ingham joined the College from the University of Leeds, where he was Reader in Mathematical Analysis, in 1930, to fill the vacancy on the staff caused by the sudden and untimely death of Frank Ramsey. He had previously been a Fellow of Trinity, where he had also been a Scholar, from 1922-24. With his remarkable capacity for loyalty to institutions he became a devoted member of his new College while retaining his ties with the old one, of whose generous invitations to feasts he regularly took advantage.

He was born at Northampton on the 3 April 1900 and educated at Stafford Grammar School, where he was reckoned to be the most brilliant pupil they had had. His father, also A. E. I., a 'boot-operative' invented the 'velschoen',⁴⁷ for which his firm paid him an honorarium of one pound. [He himself wore boots until he was sixty.] At Trinity he won the highest mathematical honours of the University, including a Smith's Prize, and was elected to a Fellowship at his first attempt as well as to an 1851 Senior Exhibition. Before going to Leeds in 1926 he had a short spell at Gottingen. On his appointment at King's he was also made University Lecturer, and later [after two years as Cayley Lecturer], he became Reader in Mathematical Analysis in 1953, which he remained until this year.

On graduation he had begun research in the notoriously difficult subject of the analytic theory of numbers. Considerable advances in this were being made by G. H. Hardy and by J. E. Littlewood, to whom Ingham owed an especial debt. Throughout his career he worked in this or closely related fields, and in 1932 he published *The Distribution of Prime Numbers* [Cambridge Mathematical Tracts No. 30]. This and his articles in journals, all marked by exceptional lucidity, earned him in 1945 his Fellowship of the Royal Society, a distinction which he characteristically did not mention for the King's Register.

⁴⁷ Shoes of undressed leather.

Lucidity, accuracy and conscientiousness were indeed the hallmarks of all he did, of his lectures [delivered in a gown which was sea-green but not incorruptible], and of his supervisions, which were each preceded by anything up to an hour or more of mental wrestling with scripts however muddled. His lectures were more than that: they earned from Hardy the epithet 'eloquent'. The conscientiousness extended to such things as setting examinations, an exceptionally onerous task in the mathematical disciplines; and although one might lament the time and pains he spent in worrying over trifles, this was an essential accompaniment of his intellectual virtues. If this Report contains in future more misplaced commas and imperfect letters, it will be for lack of his wryly but unhesitatingly accepted responsibility. When he retired in 1959 from his College offices of Lecturer and Director of Studies, he had done nearly thirty years, including the war years [for most of which he was separated from his family, evacuated to America] of teaching which was utterly conscientious, if somewhat impersonal, and undertaken in the spirit of the Spartan boy with the fox gnawing at his vitals. The perfectionism rubbed off on the pupils, as many later realised with gratitude.

Ingham ['A. E.' to his close friends, but he was essentially a surnames man] was shy, modest and reserved by nature, though sociable and a frequent diner in hall. But his marriage in 1932 to Rose Marie ['Jane'] Tupper-Carey helped him to make his home in Millington Road a place of resort for his pupils. Everything was done for their two Sons. Their dining-room became a work-shop. And when, in due course, they went to King's College School, he developed another loyalty which continued to the end, long after they had left. He always played cricket for the Fellows against the School. Great was his delight when, as a sexagenarian, he scored his first fifty at cricket, against the College staff. When, a month before he died, someone tried to raise a side for a long vacation match, Ingham was the only Fellow to put his name down. Watching cricket also, at Fenner's, was a favourite pastime of his, as it was of Hardy's. Between overs he would correct scripts or devise examination questions. He enjoyed doing mathematical puzzles, and photography, at which he experimented endlessly with great expertise. His life was simple. He had no car, and used for more than forty years the Sunbeam bicycle he was given as a reward for matriculation. He never possessed a radio, let alone a television set. Mountain walking occupied his holidays. The only mathematical conferences he ever attended were at Bologna in 1926 and Moscow in 1966. Like many shy people he loved small children and was at his ease with them,

wholly off his dignity; and he went out of his way to be kind to people who had to make their way, as he had done, without the initial advantages which many of those around him had enjoyed.

In college meetings he predictably put the conservative view, sometimes with a melancholy irony that could not fail to amuse. There was something of Jacques about him. Impatient of any nonsense or fuss, he had complete integrity, and was not afraid of being in a minority of one. He had the great happiness of seeing his elder son Michael, after winning a Scholarship to the College and the Isaac Newton Studentship of the University, elected to a Fellowship in 1961.

After he retired from college teaching he paid a visit to India, but had to return suddenly for an operation, from which he recovered well. His death occurred suddenly and almost painlessly on 6 September 1967 at the age of 67, from heart-failure on a path high in the Alps near Chamonix, while he was on a walking holiday with his wife. His quiet and courteous presence will be much missed from the Fellows' Combination Room”.



Picnic with, myself, my grandfather, grandmother, bother and unknown woman, Cambridge 1966. Taken by my mother.

ALBERT EDWARD INGHAM

J. C. BURKILL†

Albert Edward Ingham was born at Northampton on April 3rd, 1900, and educated at Northampton and King Edward VI's Grammar School, Stafford. His father, also Albert Edward, was a boot-machine operator and designed the "veldt-schoen", for which his firm awarded him a very modest honorarium. (The son wore boots until he was sixty.) There was an elder brother, Christopher, in the family and three younger sisters.

It is recorded that, aged three, the boy showed his aptitude for numbers and angles by learning to tell the time. He had an ear for music but had no training. Christopher had piano lessons, but when his mother, hearing the piano played in the next room, assumed that he was doing his musical homework, she found that it was A.E. who was teaching himself. He won every prize that a brilliant schoolboy could win and an open scholarship at Trinity College, Cambridge, in December 1917, going into residence in January 1919 after a few months in the Army.

As an undergraduate he was handsome, with black hair and deep blue eyes, slow-moving, seldom speaking unless spoken to, friendly if sparing of smiles. He gave an impression of rock-like strength and integrity. He gained the highest honours in the Mathematical Tripos, a Smith's Prize and an 1851 Senior Exhibition. In 1922, at his first attempt, he was elected to a Prize Fellowship at Trinity for a dissertation in which, according to him, he proved two lemmas. A friend who brought him news of his election recalls that Ingham said "Oh", and went on working, perhaps at a third lemma.

In the early 1920s young men who had escaped or survived the war found a market, favourable to both buyers and sellers, in appointments at Cambridge or Oxford and other Universities. G. H. Hardy had a large say in the placing of pure mathematicians. Many years later, a letter of his written about 1923 was shown to me. I cannot remember just what he wrote, but his assessment of the field was emphatic: that though Ingham might be less adroit than some of his contemporaries in putting Vice-Chancellors at their ease in interviews, the depth and maturity of his Trinity dissertation marked him out as a leader of his generation in power and promise. In the event, Ingham enjoyed four years (1922-6) of research without any commitments to teach. He spent some months in Göttingen. In 1926 he was appointed Reader in the University of Leeds. In 1930, on the sudden and untimely death of F. P. Ramsey, he returned to Cambridge as fellow and director of studies at King's College, with a University lectureship. He was elected a fellow of the Royal Society in 1945 and was appointed University Reader in Mathematical Analysis in 1953.

† This notice is also to appear in *Biographical Memoirs of Fellows of the Royal Society*.

He was a member of the London Mathematical Society from 1922 and served on the Council for the ten years 1927-32 and 1940-45.

In 1957 he retired from regular College teaching after twenty-seven years of devoted labour. To a classical colleague his sufferings with a weak pupil seemed like those of the Spartan boy with the fox gnawing at his vitals. Pupils, strong and less strong alike, have testified to their gratitude for his gentle patience and the standards of perfection towards which, to their lasting gain, he encouraged them.

Ingham's lectures won higher praise from undergraduates and young graduates than those of any other teacher in the faculty. They were superbly organised, no detail was slurred over and yet the over-riding effect was one of simplicity with the main ideas and theorems in a high light. More than one lecturer dates his resolve to become a professional mathematician from hearing as a freshman Ingham's unfolding of analysis. Boys who had shown at school a preference for applied mathematics told their masters after a term or two that their eyes had been opened to analysis, which had become their favourite subject.

Not only in research and teaching but in all he did, Ingham was the embodiment of meticulous accuracy. Nothing slipshod came from his hand, his tongue or his pen. Throughout his life his colleagues were concerned at the time and energy which he spent on unrewarding chores, to his own exasperation at the slackness of others and to the detriment of his research. The duty of taking his share in the refereeing of papers was accepted with wry resignation. Unless an author had standards approaching Ingham's, his paper was likely to be taken to pieces, partly rewritten, and reassembled. Some of his friends ask whether, if he could have been more summary with secondary activities, might not some of the intact problems of number theory have been resolved by his magnificent analytical power? Others demur to the thought, holding that his conscientiousness was an integral part of his intellectual honesty.

From 1932 Ingham had the devoted support of his wife Jane (Rose Marie), daughter of Canon A. D. Tupper-Carey. They were ideally complementary, the one deliberate in all his actions, the other of surpassing quickness in thought, movement and speech. They had two sons, Michael and Stephen. Friends and pupils were always welcome to join the happy family circle at 14 Millington Road. It was characteristic that the best room in the house was turned into "the workshop" where Ingham's fine handiwork was a model for the next generation. A casual caller at the home would be likely to find young children of friends and neighbours in conversation or in play with the mathematician. The simplicity of their lives was in tune with his own and their company seemed to be for him the happiest relief from the depths of pure mathematics.

He was friendly and hospitable and would be lavish of his time to help a pupil or a colleague. With his instinctive kindness he would notice if someone at a party (perhaps a visitor to his College) was lonely and would draw him into a circle. He called almost everyone by his surname. This was in part for better definition—John

was more likely to be ambiguous than Williamson—but it was also formal courtesy. One cannot conceive of him thinking of a Provost of King's as Noel or Edmund, nor would he address a young faculty secretary as Jill or Kay or Anne.

The simplicity of his life has already been mentioned. It did not occur to him to want a car or a radio, let alone a television set. For forty years he used the Sunbeam bicycle that he had won at school as a prize. He was an expert photographer; he developed his own colour films and did everything from first principles. He had a reading knowledge of Russian as well as of the more usual languages. He was a good cricketer, as was his father—who would have been of minor county class if he had been able to give the time. He was always eager for a friendly match between the High Table and the College Staff or the Choir School. Like Hardy and Littlewood, he was a devotee of cricket-watching at Fenner's.

In a College conspicuous for the loyalty of its members, he was one of the most loyal. The King's Record relates that "in college meetings he predictably put the conservative view, sometimes with a melancholy irony that could not fail to amuse. Impatient of any nonsense or fuss, he had complete integrity and was not afraid of being in a minority of one". The link of the College with its Choir School had a particular interest for him. He had the great happiness of seeing his elder son Michael elected a Fellow of King's in 1961 and join the staff of the University Observatory at Oxford.

There were unexpected departures from the order and system which governed nearly all his doings. The large table on which he worked was a chaos of books, manuscripts, letters, notices, and a minute or two of search was often needed to bring to light what he wanted. For many years he and his wife spent their summer holiday walking (with rucksacks) among mountains. They asserted that no plans were made in advance; they would go to Victoria Station (not to an airport!) and decide there where to buy a ticket to. It was on such a holiday that he died. On September 6th, 1967, on a high path near Chamonix, his heart failed. Fortunately other walkers were within sight. He died almost without pain, conscious that everything that could be done for him was being done.

The 1920s were exciting years for a young analyst, and one with Ingham's ability would have been encouraged to plunge at once into deep water. Hardy left for Oxford in 1920, Littlewood stayed in Cambridge. Their collaboration suffered no interruption. High among their interests at that prolific period were (1) the zeta function and the analytic theory of numbers, (2) Tauberian theorems and the like. It is significant that the two "lemmas" of Ingham's fellowship dissertation were properties of the zeta function and that the first paper which he presented to the London Mathematical Society arose out of Littlewood's Tauberian theorem. These two interests were to cover nearly all of his life's work.

Research was not then organized under a "supervisor" as it has been in later years and, though it is likely that Ingham needed little direct help, he must have had boundless stimulus from Littlewood. Littlewood was happier solving problems

than writing up the results for publication and he would toss a manuscript across to a pupil, giving him ideas which he could develop. In particular there was a famous Bohr-Littlewood manuscript on the zeta-function which was intended to be a Cambridge tract but never was. The accessibility of Littlewood and a timely sentence from him, perhaps "Work at a hard problem; you may not solve it but you'll solve another one", would be enough to cheer Ingham on a sticky wicket.

It is now time to review in detail Ingham's contributions to knowledge. His one book, the Cambridge tract on *The Distribution of Prime Numbers*, was published in 1932. It is, and will remain, a classic. The roots of both this tract and Titchmarsh's on the Zeta Function were in the Bohr-Littlewood manuscript. Titchmarsh in 1951 expanded his tract into a substantial book (Oxford). When Ingham's tract went out of print he was urged to make a similar expansion or, at least, a revision. Such a rewriting would have meant, with his standards, more toil than he could face. The tract was ultimately reprinted, with minor changes, by Stechert-Hafner (New York) in 1964.

The papers comprise two main groups. Professor Davenport has written the following analysis of those on the theory of numbers, which form the larger group. The references are to the bibliography at the end of the notice.

The Riemann zeta function and the theory of numbers

The papers on the zeta function and the distribution of primes are 4, 7, 9, 10, 15, 18, 20, 23.

Other papers having their origin in problems of the analytic theory of numbers are 21, 22, 24, 25, 29.

The first in time was 7, the main results of which were communicated to the London Mathematical Society at its meeting on April 26th, 1923 (see *Proceedings* (2), 22). This paper is concerned principally with the asymptotic behaviour of

$$J_2(\sigma, T) = \int_1^T |\zeta(\sigma + it)|^2 dt \quad (1)$$

and

$$J_4(\sigma, T) = \int_1^T |\zeta(\sigma + it)|^4 dt \quad (2)$$

as $T \rightarrow \infty$, though for technical reasons it is found desirable to consider a more general form of the first. The most interesting and delicate case is when $\sigma = \frac{1}{2}$. Here the results proved are:

$$J_2(\tfrac{1}{2}, T) = T \log T + cT + O(T^{\frac{1}{2}} \log T), \quad (3)$$

where c is a certain numerical constant, and

$$J_4(\tfrac{1}{2}, T) = \frac{1}{2\pi^2} T \log^4 T + O(T \log^3 T). \quad (4)$$

Littlewood had obtained a less precise estimate for J_2 from the approximate functional equation for $\zeta(s)$. To establish (3) Ingham had to carry out a refined analysis of the remainder term in that functional equation.

The proof of (4) is more straightforward, but is based on the approximate functional equation for $\zeta^2(s)$, which had been placed at Ingham's disposal by Hardy and Littlewood, though it was not published by them until later.†

In the course of the proof of (4), Ingham found it necessary to estimate the sum

$$\sum_{m=1}^n d(m)d(m+k),$$

where $d(m)$ denotes the number of divisors of m . This no doubt suggested to him the more detailed investigation of this sum, and of the analogous sum

$$\sum_{m=1}^{n-1} d(m)d(n-m),$$

which is made in 4. His results on these two questions were substantially improved upon later by Estermann.‡ For references to more recent work see an article by Linnik.§

Paper 9 is of a quite different character from the two just discussed; it may be described as concerned with a qualitative rather than a quantitative question. Until this paper appeared, there was essentially only one proof that $\zeta(1+it) \neq 0$, namely that given in somewhat different forms by Hadamard and by de la Vallée Poussin in 1896. The same proof covers the non-vanishing of Dirichlet's L -functions at $1+it$, except in the case when the character is real (and non-principal) and $t=0$. For this latter result there were essentially two proofs, one arithmetical and due to Dirichlet, the other analytical and due to de la Vallée Poussin. Neither of them is similar to the proof for $\zeta(s)$. In 9, Ingham proved a general theorem which covers both cases:

Let

$$g(s) = \prod_p (1 - \varepsilon_p p^{-s})^{-1},$$

where ε_p is a number (real or complex) of absolute value 1 or 0, and the product is over all primes. Suppose that $g(s)$, which is obviously regular for $\sigma > 1$, can be continued along the real axis as far as the point $s = \frac{1}{2}$, this point included. Then $g(1) \neq 0$. In the application one takes $\varepsilon_p = \chi(p)p^{-ia}$, where χ is a character (which can be 1) and a is a real number (which can be 0).

† *Proc. London Math. Soc.* (2), 29 (1929), 81–97 or Hardy's *Collected Papers II* (Oxford, 1967), 213–229.

‡ *Journal für Math.*, 164 (1931), 173–182.

§ *Proc. Internat. Congress of Mathematicians* Edinburgh 1958 (Cambridge, 1960), 313–321.

In 10, Ingham considered the existence of

$$\lim_{T \rightarrow \infty} \frac{1}{T} \int_1^T |\zeta(\sigma + it)|^\lambda dt,$$

where λ is a positive real number. With the help of general convexity theorems, including Gabriel's two-variable convexity theorem†, he proved that the limit exists if $\sigma > \frac{1}{2}$ and $0 < \lambda \leq 4$. A simpler but more special proof was given later by Davenport.‡

Paper 15 is the first which relates directly to the distribution of the primes. Let $\pi(x)$ denote the number of primes not exceeding x , and let

$$\text{li } x = \int_0^x \frac{du}{\log u}$$

(where the Cauchy principal value is taken at $u = 1$). By the Prime Number Theorem, $\pi(x)$ is asymptotically equal to $\text{li } x$ as $x \rightarrow \infty$. Although numerical evidence suggested that $\pi(x)$ might be always less than $\text{li } x$, a famous theorem of Littlewood (1914) states that the difference $\pi(x) - \text{li } x$ in fact changes sign infinitely often. An account of Littlewood's proof was given by Ingham in Chapter 5 of his Tract. There is no difficulty if one supposes that the Riemann Hypothesis is false. But if it is true, the proof requires one to show that the oscillating terms in the "explicit formula" for $\pi(x) - \text{li } x$ sometimes add up to a large positive amount. Littlewood's proof was very delicate and complicated, and in the present paper Ingham gave a simpler and more direct proof. He further showed that, on the assumption of the Riemann Hypothesis, there exists a constant $A > 1$ such that every interval (x, Ax) , with x sufficiently large, contains both integers n for which $\pi(n) > \text{li } n$ and integers n' for which $\pi(n') < \text{li } n'$. For references to later work on these questions, see Ingham's comments in Hardy's *Collected Papers* II, 98-99. Some of the ideas underlying 15 emerge with greater generality and clarity in 23.

Of all Ingham's papers, probably 18 is the one which is known to the widest circle of mathematicians, since it concerns a problem of general interest, namely the magnitude of $p_{n+1} - p_n$, where p_n denotes the n th prime. Hoheisel was the first to prove, in 1930, that there is some constant $\theta < 1$ such that

$$p_{n+1} - p_n < p_n^\theta$$

for all sufficiently large n . His value of θ was only slightly less than 1. Ingham proved that the result holds with $\theta = \frac{5}{8}$, and indeed with a slightly smaller value of θ depending on whatever estimate may be proved for $|\zeta(\frac{1}{2} + it)|$ as $t \rightarrow \infty$. The proof depends on a new upper bound for $N(\alpha, T)$, the number of zeros of $\zeta(s)$ in the rectangle $\alpha \leq \sigma \leq 1$, $|t| \leq T$. Two such upper bounds are established in the paper;

† *J. London Math. Soc.*, 2 (1927), 112-117.

‡ *J. London Math. Soc.*, 10 (1935), 136-138.

4.2 Turing Letters

[Turing Letter 1951]

1 King's College,
Cambridge.
2 Jan, 1951

Dear Turing,

Thank you for your very interesting letter. I am indulging in a mild (I hope) attack of flu, and am writing this in bed; which is perhaps fortunate, for it is only in such periods of enforced idleness that I am able to think of anything worth while like the zeta function.

~~If I am not~~

i) Assumption of R.H. I am not (at

present) thinking of a 'Skewes number' in connection with Polya's conjecture. I want to prove the existence of positive A and X so that

$$\frac{L(x)}{\sqrt{x}} > A \text{ for some } x < X;$$

and, since I cannot do this by purely theoretical arguments, I am enquiring about the possibility of using computation to produce an explicit A (but not an explicit X). If the R.H. is false (or if $\zeta(s)$ has a multiple zero), pure theory gives all this (with any A and without computation), so I am just not bothering about this case. But all this would have to be reconsidered

2/ if we started to look for a numerical X.

ii) I am interested in your suggestion that it may, after all, be best to try to find a value of $\log x$ for which

$$(1) \quad 2 \sum_{0 < y < T} \left(1 - \frac{y}{T}\right) \frac{\zeta(2y)}{\rho \zeta'(y)} e^{iy \log x} > -\frac{1}{\zeta(1/2)}.$$

In my simple minded way I had assumed that this would demand more calculation, together with a certain amount of luck about the distribution of $y \log x$ (mod 2π). But, if this is the best way, it may be possible to get some help from the explicit formula

for $L(x)$, that my Egyptian

Fawaz (alias Ameen, alias Amin) worked out laboriously (but quite competently) during his recent sojourn in Cambridge.

This might enable us to do something about (1) without actually calculating $\frac{\zeta(2y)}{\rho \zeta'(y)}$, in much the

same way as one infers things about $\sum_p \frac{1}{p}$ from the term $\frac{1}{2} \log(1 - \frac{1}{x^2})$

in the explicit formula for $\psi(x)$. The corresponding part of the explicit formula for $L(x)$ is by no means so trivial, of course,

3/ but it involves only things that can in principle be calculated by routine (error functions, and arithmetical coefficients rather like $\lambda(n)$). This method, if it can be worked at all, might be expected to lead to a negative value of $\log x$ satisfying (1), which (with Dirichlet's theorem) would suffice. I suggested something on these lines to Farway, and I don't like butting in if he is working on it. If it is going to yield to treatment by sheer industry, he may do something with

it; if it calls for an original idea, I don't think he will.

iii) Statistics. This is a bit off my beat, and I make no comment.

iv) Your suggestion that the arguments of $\frac{\zeta(2p)}{\rho \zeta'(p)}$ are mostly near $-\pi/2$ fits in with the fact that

$$\sum_{0 < \gamma < T} \left(1 - \frac{\gamma}{T}\right) \frac{\zeta(2p)}{\rho \zeta'(p)} \sim \frac{\log T}{2\pi i}$$

when $T \rightarrow \infty$ through a suitable sequence. And the fact that

$$\sum_{0 < \gamma < T} \left(1 - \frac{\gamma}{T}\right) \frac{1}{\rho \zeta'(p)}$$

has the same asymptotic behaviour is consistent with the view that $\zeta(2p)$ is usually near 1. But I don't

4/ understand your statement 'Clearly $\zeta(2p)$ will tend towards positive real values'. Is this a firm assertion about $\zeta(1+it)$ when $t \rightarrow \infty$ through the sequence 2γ ? Or is it subject to the qualification 'whenever p comes in its 'right' place as judged from the asymptotic distribution of the zeros? You go on to suggest that we might prove e.g. that

$$\sum_{0 < \gamma < 200} \frac{\zeta(2p)}{\rho \zeta'(p)} e^{p/50} \left(1 - \frac{\gamma}{200}\right) > 0.35.$$

This would mean having (1) for an x near 1. But isn't this just the kind of thing we cannot expect?

Certainly, from the point of view of trying to prove

$$\lim_{x \rightarrow \infty} \frac{L(x)}{\sqrt{x}} = \pm \infty,$$

this is just where the analogy with $\zeta(x)$ breaks down. We cannot make the l.h.s. of (1) large with T by using a value of $\log x$ near 0 (or any other finite value). The corresponding thing for $M(x)$ (or something like it) has been worked out by Titchmarsh in his paper in Q.J. (Vol. 14, I think, but I haven't the exact reference by me), but the fact has been known to Littlewood and others for donkey's years. Of course, one might, with

5/ luck, get away with the particular numerical inequality, but the indications are against it. Here again Farag's explicit formula would help, and he has himself potted about a bit in this region. I wouldn't regard his (negative) results as conclusive, but my own reading of the ~~the~~ evidence is that to satisfy (1) we shall have to use a value of $\log x$ rather far removed from 0, on one side or the other.

v) The question of the extent to which we can approximate to ρ by ρ^* is no doubt mixed up with 'Gram's law' and departures from it. I used to potter about with this in abortive attempts to

prove $N_0(T) > \frac{(2\pi-e)}{2} T \log T$, but I could never prove that the departures were small enough, so I couldn't prove anything positive. A. Selberg has, of course, now proved that $N_0(T) > AT \log T$ for some $A > 0$, but I have not studied his proof closely enough to know whether it ~~throws~~ throws any light on the relation of ρ to ρ^* .

Best wishes for 1951.

Yours sincerely,

A. E. Ingham

P.S. Please excuse the scrawl

[Turing Letter September 1937]

1/4 Millington Road,
Cambridge.
18 Sept 1937.

Dear Turing,

I am sorry not to have returned this before. It reached Hayling Island while I was abroad, and the people who were forwarding my letters didn't send it on. (Perhaps they judged from the size and shape of the packet that it was not holiday reading.)

I have read the manuscript with great interest (though, of course, I haven't checked all the numerical details). I am glad to know that

my method compares favourably with the others in the numerical result.

You may or may not know that Shewes has now tackled the problem on the supposition that the R.H. is false. The main idea is Littlewood's (I believe he ^(J.E.L.) worked it out) for $\psi(x) - x$, but if you want $\pi(x) - \text{li } x$ you have to do it directly, and ~~Shewes~~ Shewes is tackling the presumably very tiresome details — numerical and other — of this. There is an allusion to the matter in Littlewood's note in J.L.N.S. 12, 217-221. The indications are that you have to be content with a larger limit ~~than~~ than the ones you get on R.H. (4 exponentials instead of 3); which

is odd, on the face of it, because Littlewood's theorem is all the more true if the R.H. is false.

I have to find problems for various research students next term, and I had thought vaguely that Littlewood's note on 'An inequality for a sum of cosines' might be examined by someone with a view to discovering whether it throws any light on some ^{standing} questions left open e.g. whether Polya's theorem on the changes of sign of $a(n)$ in $\sum_{n \leq x} a(n)$ is true with $\text{li } n$ in place of $\text{li } n$. But if you think this is likely to collide with anything on which you have designs, I will keep off it. (If I hear nothing from you by the beginning of term — Oct 8 — I

will assume that you have no objection to my going ahead.)
Best wishes for America.

Yours sincerely,
A.B. Ingham

[Turing Letter 1950]

King's College,
Cambridge.
19 Dec, 1950

Dear Turing,

Many thanks for your letter. It is clever of you to dig so much out of Jakobson's Ende. I confess that, never having got to very close quarters with the numerical side of things, I have never regarded the maps of $S(p)$ as much more than pretty pictures. I should never have supposed that one could use them to get even a rough approximation to $|S(p)|$ with any confidence. I suppose you use some kind of interpolation. I am sorry to have troubled you with any; I should have made it clear that I was really only interested in mod.

Your rough value is sufficient to ~~confirm~~ dash any hopes of getting away with a few terms of the series, as we might have done if $\left| \frac{S(2p)}{S(p)} \right|$ had turned out to be a good deal larger than it is. The thing is avoided in connection with Polya's conjecture

$$L(x) \equiv \sum_{n \leq x} \lambda(n) \leq 0 \quad (x \geq 2),$$

where $\lambda(n)$ is ± 1 according as n is the product of an even number of prime factors (counting repetitions). From the theoretical side the situation is that, if we assume that

- (a) the Riemann hypothesis is true
- (b) the complex zeros are all simple,

$\lambda(n) = (-1)^{\Omega(n)}$ ($n=1, 2, 3, \dots$).

mechanically, or electronically possible, I have no means of judging, except by consulting an expert like yourself. If this programme is within the bounds of possibility at all, we must, in carrying it out, either disprove Polya's conjecture, or, by failing to verify (ii) for the particular N and k , be led to suspect a definite linear relation among the η 's (though I suppose we could not prove it by computation alone).

Since Polya's conjecture is certainly false if (a) or (b) is false, and since it seems to me incredible that (c) can be false, I take it as morally certain that Polya's conjecture is false. But I should like to see it definitely settled, because people continue to emit hot air in favour of Polya's conjecture without ever facing up to the fact that they can only have this if they are prepared to deny the highly plausible conjecture (c).

Returning to (i), I may add that the

then Polya's conjecture could be disproved if we could find an integer $k \geq 1$ and a real $T > 0$ such that

$$(i) \sum_{0 < \gamma < T} \left(1 - \frac{\gamma}{T}\right) \left| \frac{S(2p)}{S(p)} \right| > \frac{k+1}{2k} \frac{1}{|S(k)|};$$

(ii) the γ in $0 < \gamma < T$, any $\gamma_1, \gamma_2, \dots, \gamma_N$, satisfy no linear relation of the type

$$\sum_{n=1}^N \varepsilon_n \gamma_n = 0 \quad \text{or} \quad \pm \gamma_n \quad (n=1, 2, \dots, N)$$

with ε_n 's = $0, \pm 1$, except in the trivial cases when the ε_n are all 0 or when $\varepsilon_n = \pm 1$ and the other ε_n are 0.

Now the l.h.s. of (i) $\rightarrow \infty$ with T . Hence, it should in principle be possible to find a numerical value of T for which (i) is true with a suitable preassigned k (say $k=1$); and then (ii) will certainly be true if to (a) and (b) we add the ~~conjecture~~ assumption

(c) $\gamma_1, \gamma_2, \gamma_3, \dots$ are linearly independent.

But the above arrangement replaces this by a weaker assumption that could in principle be tested by a finite amount of numerical calculation. But whether this amount is humanly, or

l.h.s. is $\geq \frac{\log T}{2\pi} + O(1)$, so it should in principle be possible to find a suitable T without actually calculating the $\frac{S(2p)}{S(p)}$. But the T that you would get by carefully inserting constants in the analysis would be impossibly large from the point of view of verifying (ii).

Best wishes for Christmas and the New Year.

Yours sincerely,

A. E. Ingham

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Chapter 2.

Autobiographical Memory

A Form of 'Mental Time Travel'⁴⁸.

Introduction

When I remember an episode of my personal history, I come into contact with events and experiences that are no longer present, and my conception of my own life involves narratives in which such experiences are interrelated. We find it easy to engage in the peculiar sort of 'mental time travel' involved in such autobiographical memory, although we're often aware of significant limits to its reliability. [Sutton:2]

Following on from my autobiographical and biographical accounts of my connections to my grandfather's life and his photographs in Chapter 1, this chapter is an investigation into recent research that has redefined the concept of memory as a 'unitary faculty of the mind'⁴⁹. This research has come to the conclusion that human memory is 'composed of a variety of distinct and dissociable processes and systems'. [Schacter 2001:5]

I discuss the implications of this new research for our memory and I examine, more specifically, how autobiographical memory operates in relation to my concern with the ways photographs have affected human memory.⁵⁰ I propose that our memory is made up of many 'types', 'systems', and 'processes' and that 'autobiographical memory' is different from 'working' everyday memory.⁵¹ Researchers into memory from many different fields⁵² now consider this faculty of the mind not to be like a storage device or computer, where memories

⁴⁸ Thomas Suddendorf and Michael C. Corballis define this as. 'Mental time travel comprises the mental reconstruction of personal events from the past [episodic memory] and the mental construction of possible events in the future. It is not an isolated module, but depends on the sophistication of other cognitive capacities, including self-awareness, meta-representation, mental attribution, understanding the perception-knowledge relationship, and dissociation of imagined mental states from one's present mental state.' [Suddendorf:133-167]. And is describe by Endel Tulving by saying, 'The owner of an episodic memory system is not only capable of remembering the temporal organization of otherwise unrelated events, but is also capable of mental time travel: Such a person can transport at will into the personal past, as well as into the future, a feat not possible for other kinds of memory.' [Tulving 1993:67]

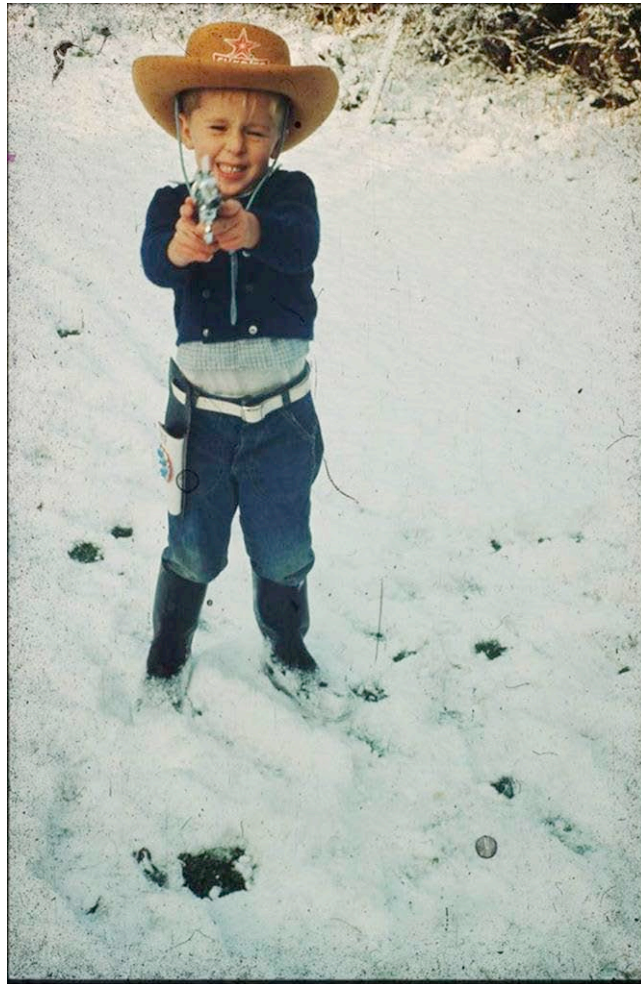
⁴⁹ We now realize that memory is not a unitary faculty of the mind, there are many different kinds of memories and they involve different brain systems with different components and presumably somewhat different kinds of log' [Kandel:4]

⁵⁰ Harold Rosen, says of autobiographical memory that it is, '...not a single kind of monolithic process which delivers equally a monolithic kind of text. It grows out of different kinds of images which in their turn, when they are verbalised are shaped by a diversity of textual resources and social contexts.' [Rosen:129]

⁵¹ 'Autobiographical Memory' as defined by M.A. Conway as, '...a type of memory that persists over weeks, months, years decades and lifetimes, and it retains knowledge [of the self] at different levels of abstraction.' [Baddereley:55]. Working Memory has replaced short-term memory as a 'more theoretically meaningful' term. [Ibid. 270]

⁵² Interdisciplinarity in the Sciences of Memory Even if cognitive science is still 'a mere babe in the woods of science' the cognitive sciences of memory nevertheless harness a vast institutional, technological, and textual apparatus more typical of Kuhnian normal science than of an entirely pre-paradigmatic era. Yet because memory is studied in many different disciplines, from neurobiology to narrative psychology, there is no obvious unity to either the objects of enquiry or the methods employed. [Eckardt:221],

are inputted, retained and then retrieved without alteration, but to be constantly under construction and reconstruction. They contend that memory is subjective and is mediated by the circumstances under which memories are both formed and remembered.⁵³ In this chapter I argue that, like the processes that make up memory, photography and the looking at photographs can be thought of as ‘mental time travel’, whereby the present and the past collapse into a single moment in time and space.



Me in the back garden in Millington Road in about c1966 [Image from the collection]

⁵³ Marcel Proust writes of this concept, ‘It seems that the events are vaster than the moment when they take place and cannot hold any entireties to with it. Admittedly, they overflow on the future by the memory that we keep some, but they ask also a place the time that precedes them. Admittedly, it will be said that we then do not see them such as they will be, but in the memory they are not also modified?’, [Proust:483]

1. An Initial Definition of Autobiographical Memory

A recent definition of memory by John Sutton⁵⁴, an eminent psychologist, writing for the *Stanford Encyclopaedia of Philosophy* demonstrates how complex our concepts of memory have become over the last few decades. He says that, ‘Memory’ is a label for a diverse set of cognitive capacities by which humans and perhaps other animals retain information and reconstruct past experiences, usually for present purposes⁵⁵. Our particular abilities to conjure up long-gone episodes of our lives are both familiar and puzzling.’ [Sutton 2003:1] One of the reasons memory is puzzling is that it is a reconstruction of past events which has similarities with but differs from those events.

He continues his general definition of memory and how it differs from other forms of cognitive processes by writing, ‘We remember experiences and events that are not happening now, so memory seems to differ from perception.’⁵⁶ We remember events that really happened, so memory is unlike pure imagination. Memory seems to be a source of knowledge, or perhaps just is retained knowledge. Remembering is often suffused with emotion.⁵⁷ Memories can cause us to feel the pain and happiness of past events, often directly and without us being consciously aware of how this happens. Sutton continues with his definition by writing that, ‘It is an essential part of much reasoning. It is connected in obscure ways with dreaming. Some memories are shaped by language, others by imagery. Much of our moral life depends on the peculiar ways in which we are embedded in time. Memory goes wrong in mundane and minor, or in dramatic and disastrous ways.’ [Sutton 2003:1] He is arguing that memory is and

⁵⁴ John Sutton is Acting head of the Philosophy Department, Macquarie University, Sydney. His research is focussed on the philosophy and sciences of memory, and covers two main areas: philosophy of psychology, and history of science. He is also interested in dreaming, body-image, connectionism, dynamical cognition and the extended mind, cognition and culture, interdisciplinarity, Descartes, Digby, and animal spirits. His book, *Philosophy and Memory Traces: Descartes to connectionism*, came out in 1998; and a collection of essays on Descartes’ *Natural Philosophy* which he edited with Stephen Gaukroger and John Schuster was published in 2000.

⁵⁵ Thomas Suddendorf and Michael C. Corballis say of this, ‘The question of whether there is a discontinuity between humans and other species is one that continues to haunt us. Despite Darwin’s admonition “never to say higher or lower”, most people continue to regard humans as at the top of the evolutionary tree. Perhaps this conceit is simply an example of a “false consensus bias” created by Western scholars raised in the Christian tradition, which perpetuates an unbridgeable gap separating humans from other animals. Certainly, there are other religious traditions that emphasize continuity rather than discontinuity; Hinduism, for example, views animal and human minds as stages differing in merely quantitative fashion in the progression toward Nirvana. [Suddendorf:2]

⁵⁶ Suddendorf Corballis write about this ‘...in addition to knowing something about a past event, one has to meta-represent this knowledge and attribute it to the experience of an earlier self in order to mentally travel into the past. Re-experiencing the event, that is, representing how this information became known, demands some understanding of the contingency between perception and the formation of knowledge.’ [Suddendorf:10]

⁵⁷ As Harold Rosen says ‘It is sometimes forgotten that Freud put great emphasis on the role of emotion in memory in both remembering and forgetting. For him, recollections without affect were not recollections at all since emotions are essential for the creation of memories, shaping them, giving them organisation, placing their significance as events unfold. Others have stressed the ways in which emotion is intrinsic to the process of recalling the past, but they have been less inclined to consider something more than episodic. There are also the colourings of values, attitudes, beliefs and reflections. All of which are inter-related. An ideological stance is always taken up.’ [Rosen:105]

essential part of what makes us human. Without memory we would not be able to live the complex lives we lead today.

He ends his definition by arguing that, 'Although an understanding of memory is likely to be important in making sense of the continuity of the self, of the relation between mind and body, and of our experience of time, it has been curiously neglected by many philosophers.' [Sutton 2003:1] I have found that during my research into memory some critics of photography write about it as if memory is a unitary entity where experience is stored and retrieved as in a computer. This gives a limited view of what memory is and therefore a limited view of the relationship between memory and photographs.

Autobiographical memory is a 'type' of memory system that operates in very different ways to 'working memory' or memory of facts unrelated to the subject's own personal past which is also called 'semantic memory'⁵⁸. Martin A. Conway defines autobiographical memory as:

...a type of memory that persists over weeks, months, years, decades and lifetimes, and it retains knowledge [of the self] at different levels of abstraction, autobiographical memory is a transitory mental representation: it is a temporary but stable pattern of activation across the indices of the autobiographical knowledge base that encompasses knowledge of different levels of abstraction, including event-specific sensory perceptual details, very often – although by no means always – in the form of mental images. [Conway:55]

Autobiographical memory has different characteristics which include long-term recollections of general features of an event and interpretations of an event. There could be some recall of a few specific details of an event. There are different types of autobiographical memory and one type is personal memory which can be an image-based representation of a single unrepeated event of significance in someone's life. There is also an autobiographical fact which is identical to personal memory, except that the memory is not image-based, such as the knowledge that you were born in a certain place. Another type that is called generic personal memory which is similar to a personal memory, except that the event is repeated or a series of similar events occur and are represented in a more abstract form and might be a memory that is difficult to date exactly and might not contain many distinguishing features. Lastly there are flashbulb

⁵⁸ As formulated by Endel Tulving, semantic memory has to do with general knowledge about the world, of the sort that is normally common to people of a given culture, whereas episodic memory represents the individual's personal experiences. Where semantic memories transcend space and time, episodic memories are linked to particular events in one's personal past that are spatially and temporally located. [Suddendorf:3]

memories⁵⁹ which are memories for the circumstances in which you first learned of a surprising and emotionally arousing event. [Brewer:25-49]



Image from the collection. My grandmother plus two unknown women on top of the roof of Kings College Chapel, Cambridge taken in the 1960s

These ways of thinking about memory are contradictory to previously held ideas about how our memory functions. Conway emphasises this break with long held beliefs about memory, when he writes, ‘The idea that there are multiple ‘memory systems’ breaks away from the belief, up until 40 years ago, that there is a single entity that constitutes memory.’[Conway:30] Another researcher, Endel Tulving⁶⁰, who is pre-eminent in the field of cognitive psychology, sums this

⁵⁹ On September 12, 2001, 54 Duke students recorded their memory of first hearing about the terrorist attacks of September 11 and of a recent everyday event. They were tested again either 1, 6, or 32 weeks later. Consistency for the flashbulb and everyday memories did not differ, in both cases declining over time. However, ratings of vividness, recollection, and belief in the accuracy of memory declined only for everyday memories. Initial visceral emotion ratings correlated with later belief in accuracy, but not consistency, for flashbulb memories. Initial visceral emotion ratings predicted later posttraumatic stress disorder symptoms. Flashbulb memories are not special in their accuracy, as previously claimed, but only in their perceived accuracy. [Talarico:455]

⁶⁰ Endel Tulving was born in Estonia in May 1927. As a youth he was passionate about sports, especially track events. He left Estonia when he was 17 and spent time in Germany before moving to Canada to pursue college. He attended the University of Toronto, where he received his B.A. in 1953 and his M.A. in 1954. He then went to Harvard University and earned a Ph.D. in experimental psychology in 1957. Tulving spent most of his academic career at the University of Toronto. He is perhaps best known for his research on episodic memory, much of it summarized in his 1983 book, *Elements of Episodic Memory* (Oxford University Press). Since his retirement as a professor of psychology at the University of Toronto, Tulving has remained an active researcher at the Rotman Research Institute near Toronto. [Tulving 2005:1]

up by saying, 'The [postulated] existence of different 'kinds' of memory [or 'memory systems'] represents the first departure from traditional thought because in traditional thought, as in common sense, memory is unitary in the sense that there is only one 'kind' of memory...' [Conway:270] Tulving defines the way memory had been thought about for many centuries when he writes:

Common sense and everyday thinking about memory, honouring a long tradition that goes back all the way to Plato's aviary metaphor of memory, conceptualised memory in terms of a single measurable capacity, frequently identified with memory 'storage'. Thus, when a layperson or even an expert, speaks of encoding information 'into' memory, the 'memory' in the expression designates the metaphorical 'store' in which 'memories' are held. 'Good memory' is a store with large capacity for holding information. Once the remembered stuff ['memories'] has been effectively acquired, or stored, it can be used ['retrieved'] at will.' [Tulving :271]

Before further elaborating on Autobiographical Memory and how it operates in relation to external stimuli such as photographs, I will look at the way memory has been previously defined.



Detail from a 'Camera Projection'. Boy in tree in Trinidad, 1961.

2. Concepts of Memory: Analogies and Metaphors

Ecphory: [From the Greek *ekphorein* = to make known; reveal.] A valuable, but oft-ignored, term devised by Tulving (1972) to describe a largely pre-conscious process in which retrieval cues are brought into contact with stored information, causing parts of that stored information to be reactivated, and thus remembered. This would be rather like shining a flashlight around a darkened room: the cues are what guides your hand in a particular direction, and the information retrieved is whatever is momentarily lit up by the beam - what you see at any one instant may not be what you are looking for, but may well tell you in which direction to look next. [Smith:8]

One of the key reasons for this ‘neglect’, mentioned above by Sutton, by many philosophers of the complexities of memory comes from the persistence of the earliest metaphors for memory, used by ancient Greek philosophers. Socrates (469-399 BC) describes memory as follows: ‘...suppose for the sake of argument, that there’s an imprint-receiving piece of wax in our minds: bigger in some, smaller in others; of cleaner wax in some, of dirtier wax in others; of harder wax in some, of softer in others... [Plato, Theaetetus 191c-d]’ [Morris 1994:3]. Socrates continues: ‘...if there is anything we want to remember ... we hold it under the perceptions and conceptions and imprint on it, as if we were taking impressions of signet rings. Whatever is imprinted we remember and know ... but whatever is smudged out or proves unable to be imprinted, we’ve forgotten and don’t know.’ [Ibid. 191d] This idea that memory is like some sort of storage device has been the accepted way of thinking about memory until fairly recently.⁶¹

Each generation of philosophers has tended to described memory using the latest form of available technology, for instance, the camera obscura, the telephone exchange, computer, internet, to name but a few. John Sutton says of this:

The concept of some static, permanent, distinct storage form that experiences leave in the organism seems to link old and modern models. There is continuity too in metaphors for the spatial organization of memory as containing rooms, palaces, or purses, as a bottle or a dictionary, as tape recorder or junk box. Critics also point out that external technologies for recording information or for keeping items safe, from wax tablets and aviaries through to the camera obscura and the photograph⁶² to digital computers and holograms, seem to be

⁶¹ The advent of MRI and PET scanning/imaging techniques, that can create images of the activities of the brain whilst a subject is remembering some event, have made it clear that there is not just one region of the brain that is used when remembering.

⁶² Henri Bergson comments on this by saying, ‘The whole difficulty of the problem that occupies us comes from the fact that we imagine perception to be a kind of photographic view of things, taken from a fixed point by that special apparatus which is called an organ of perception – a photograph which would then be developed in the brain matter by some unknown chemical and psychical process of elaboration. But is it not obvious that the photograph, if photograph there be, is already taken, already developed in the very heart of things and at all points of space? No metaphysics, no physics even, can escape this conclusion.’ [Bergson:38-39]

wheeled in almost arbitrarily in the search for a model of internal processes. [Sutton 2003:9-10]

The recent idea that ‘Virtual Reality’ is a useful metaphor for the way the human mind functions, as with all metaphors, only works up to a point. They tend to break down the further they are expanded and although they may be useful as an initial way of simplifying a complex issue in the end they can be a hindrance to thinking about the way human memory functions.

Even into the 20th century some eminent thinkers thought of memory as purely a place where memories are stored intact. Henri Bergson in the first chapter⁶³ of his book *Matter and Memory* uses the analogy that ‘...the brain is no more than a kind of central telephonic exchange: its office is to allow communication or to delay it. It adds nothing to what it receives...’ [Bergson:30]⁶⁴.



Image from the collection. Shadow of my grandfather in India 1967.

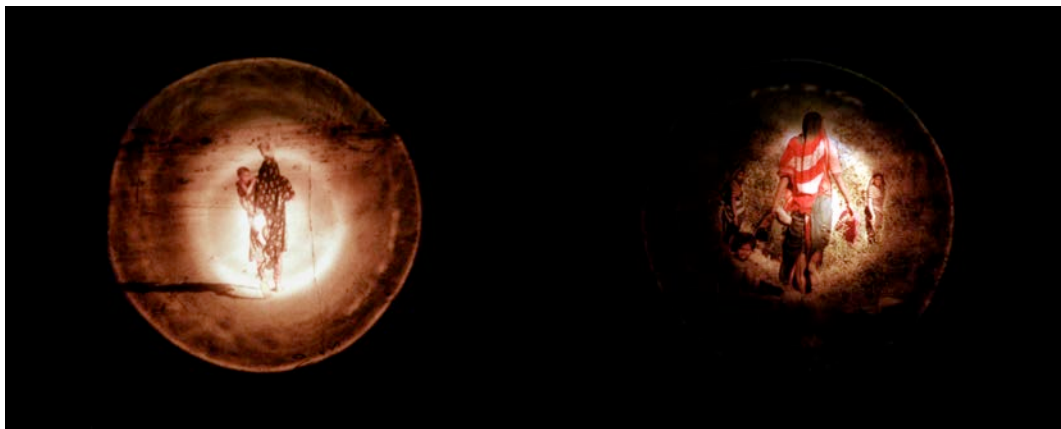
⁶³ The Chapter is called: *Of the Selection of Images for Conscious Presentation. What Our Body Means and Does.*

⁶⁴ It must be noted here that Bergson is going against the idea that memories are stored in the brain and makes a case for a much more complex relationship between the mind and the body he states that, ‘For, in pure perception, the perceived object is a present object, a body which modifies our own. Its image is then actually given, and therefore, the facts permit us to say indifferently [though we are far from knowing our own meaning equally well in the to cases] that the cerebral modifications sketch the nascent reaction of our body or that they create in consciousness the duplicate of the present image. But with memory it is otherwise, for remembrance is the representation of an absent object. [Bergson:236.]

Later on in this book he develops the idea that each individual memory has its own individual place in our minds. He argues that:

Between the plane of action – the plane in which our body has condensed its past into motor habits – and the plane of pure memory, where our mind retains in all its details the picture of our past life, we believe that we can discover thousands of different planes of consciousness, a thousand integral and yet diverse repetitions of the whole of the experience through which we have lived. To complete a recollection by more personal details does not at all consist in mechanically juxtaposing other recollections to this, but in transporting ourselves to a wider plane of consciousness, in going away from action in the direction of dream. [Bergson:241]

According to Harold Rosen author of, *Speaking from Memory: the study of autobiographical discourse*, this idea that ‘...our mind retains in all its details the picture of our past life...’ is contrary to current research into how human memory operates which regards memory as, ‘...not some passive inscription of data on the wax tablet or silicon chips of the brain, but an active process. Furthermore, this points to something the psychoanalysts have long emphasised: that forgetting can be more than the erasure of stored information as in wiping a disk clean. It is also an active process.’ [Rosen 1998:111] This ‘...abandons the idea that memory is a fixed entity which can be recalled verbatim. Memory has to be seen as a process or activity that is under constant construction and reconstruction.’⁶⁵ [Rosen 1998:102]



‘Camera Projections’. Images from India in 1967. Digital Photographic Print. 2m x 80cm. 2002

⁶⁵ Wittgenstein had wondered "whether the things stored up may not constantly change their nature" [quoted in Stern 1991, p. 204].and he also notes, "whatever the event does leave behind, it isn't the memory" [Sutton 2003:7]

These new ways of thinking about memory are emphasised by current research and as John Sutton writes.

Cognitive and developmental psychologists have recently come to a broad but striking consensus about the constructive nature of remembering⁶⁶. To say that memory is a constructive process is not to focus unrealistically on cases where it goes wrong, for there is no reason to think that 'constructed memories' must be false. Careful attention to the phenomenology of remembering supports the idea that truth in memory is compatible with some transformation at the time of recollection. For example, for many quite ordinary and obviously genuine autobiographical memories, most people can "flip" perspectives. Sometimes one takes "the position of an onlooker or observer, looking at the situation from an external vantage point and seeing oneself 'from the outside'"; or one can remember the same scene from one's own [past] perspective, with roughly the field of view available in the original situation, without "seeing oneself" [Sutton 2003:3]

This idea that we flip perspectives in our memory, and can sometimes even be the observed and the observer at the same time, is for me similar to the way we look at photographs of ourselves or the photographs we have taken. When looking at images of myself I can imagine myself being in the situation the photograph was taken in. I see through the 'eyes' of the photograph.

This rethinking of the way memory works has profound consequences for the way human consciousness is thought of in general. If memory can no longer be regarded as a static and unitary function of the mind, but is 'located' in multiple regions of the brain and is affected by the circumstances of the event remembered, and how and when it was remembered, a change in the way we think of the world has to occur⁶⁷. In the next section I look into these changes in the concepts of memory.

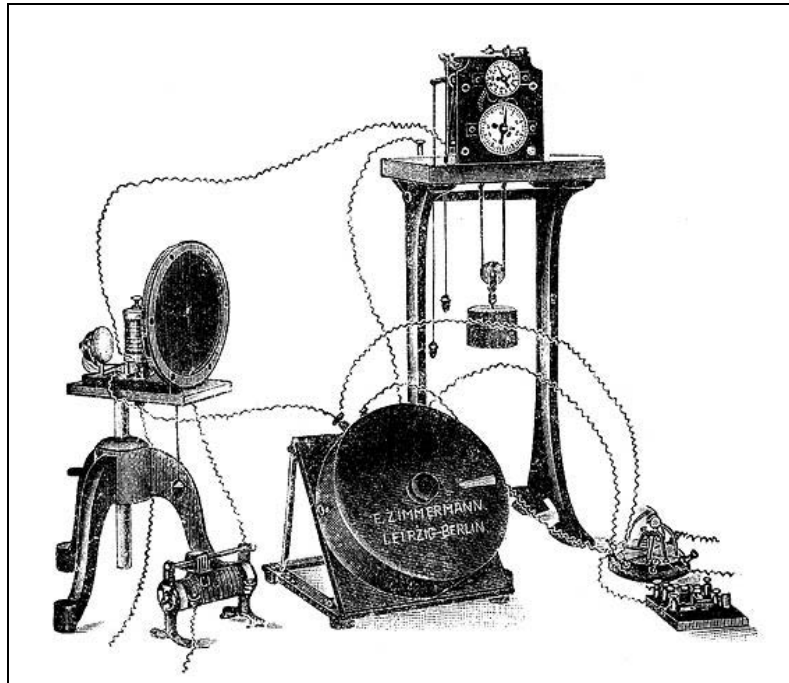
⁶⁶ Suzanne Langer quoted by Harold Rosen says of this idea of memory, 'To remember an event is to experience it again but not in the same way as the first time. Memory is a special kind of experience because it is composed of selected impressions, whereas actual experience is a welter of sights, sounds, physical strains, expectations and minute undeveloped reactions. Memory sifts all material and represents it in the form of distinguishable events.' [Rosen:102-103]

⁶⁷ John Sutton comments on this by saying, 'Cognitive scientific views of consciousness and self will increasingly influence traditional philosophical discussion about memory and personal identity. To what extent does memory construct and maintain the continuity of personal identity over time? In the history of Western philosophy this question was of pressing concern in religious contexts. In order for it to be truly me who is saved or damned at the Day of Judgement, the judged soul had to be numerically identical with the person who committed sinful or praiseworthy acts in this life: for Christian philosophers like John Locke, this meant that we had to retain personal memory in the afterlife. In our materialist age, the issue remains urgent because many moral and legal practices require a robust notion of continuous responsible agency. Some philosophers argue on conceptual grounds that memory cannot be the basis of personal identity because remembering presupposes a self who remembers. But others, notably philosophers who see the self as less unified, stable, and integrated than is acknowledged in traditional philosophical theories of personal identity, urge attention to real case studies of, for example, amnesia and dissociative identity, or to better cognitive theories of the selective and constructive nature of autobiographical memory.' [Sutton 2001:1]



Details of images from *Grand Tour* in the Fantastic! Exhibition 2003.

3. Changes in Concepts of Memory.



Advert for Memory device from the 1890s. Psychological experiment with Hipp chronoscope for investigating perception, association, and memory according to Ranschburg (1923)

One of the first psychologists in the field of memory research in the nineteenth Century, Hermann Ebbinghaus⁶⁸, came to the conclusion that ‘...we use different metaphors – stored up ideas, engraved images, well-beaten paths. There is only one thing that is certain about these figures of speech and that is that they are not suitable.’ [Morris 1994:12] He started to observe, through his experiments, that memory operates in many different ways, although he still thought

⁶⁸ Ebbinghaus, Hermann - [b. 1850, Wuppertal, Germany, d. 1909, Halle, Germany, Ph.D. Philosophy, University of Bonn, 1873]. In pursuit of his ambition to apply the scientific method to the study of ‘higher’ cognitive processes, Ebbinghaus invented a new method for the study of memory. Ebbinghaus taught at the University of Berlin [1880-1893], the University of Breslau [1894-1905], and the University of Halle [1905-1908]. In pursuit of his ambition to apply the scientific method to the study of ‘higher’ cognitive processes, Ebbinghaus invented a new method for the study of memory. To avoid the pre-established associations of ordinary verbal materials, Ebbinghaus devised some twenty-three hundred consonant-vowel-consonant combinations, or nonsense syllables. Using himself as sole subject, he learned lists of nonsense syllables to mastery and recorded the amounts retained, or the trials necessary for relearning, after a passage of time. This methodology is still standard in human learning laboratories today. In 1885 Ebbinghaus published the classic monograph *Über das Gedächtnis* [English translation, *Memory*, 1913]. In 1886, he opened the psychological laboratory at the University of Berlin. To publish work emanating from places other than Wundt’s Leipzig laboratory, Ebbinghaus and König founded the *Zeitschrift für Psychologie und Physiologie der Sinnersorgane* in 1890. After this Ebbinghaus began to study vision, publishing a colour-vision theory in 1893. At Breslau, Ebbinghaus established another laboratory [1894] and published a new method for testing the mental ability of schoolchildren, the ‘Ebbinghaus completion test,’ [1897] which is still used. Also in 1897, Ebbinghaus published the first volume of a highly successful textbook of psychology, *Grundzüge der Psychologie*, which saw three editions by 1911. [Zusne]

memories were all retained permanently, in some way, in the brain. He began to distinguish between different forms of forgetting and he states that:

Mental states of every kind, -- sensations, feelings, ideas, -- which were at one time present in consciousness and then have disappeared from it, have not with their disappearance absolutely ceased to exist. Although the inwardly-turned look may no longer be able to find them, nevertheless they have not been utterly destroyed and annulled, but in a certain manner they continue to exist, stored up, so to speak, in the memory. We cannot, of course, directly observe their present existence, but it is revealed by the effects, which come to our knowledge with a certainty like that with which we infer the existence of the stars below the horizon. These effects are of different kinds.' [Green 2004:1]

He describes these different kinds 'effects' as having three main manifestations. The first is where we consciously remember an event. He states, '...we can call back into consciousness by an exertion of the will directed to this purpose the seemingly lost states [or, indeed, in case these consisted in immediate sense-perceptions, we can recall their true memory images] that is, we can reproduce them *voluntarily*.'⁶⁹ [Green 2004:1]

Secondly, Ebbinghaus describes a type of involuntary memory: 'Often, even after years, mental states once present in consciousness return to it with apparent spontaneity and without any act of the will; that is, they are reproduced *involuntarily*'⁷⁰. Here, also, in the majority of cases we at once recognise the returned mental state as one that has already been experienced; that is, we remember it. Under certain conditions, however, this accompanying consciousness is lacking, and we know only indirectly that the "now" must be identical with the "then"; yet we receive in this way a no less valid proof for its existence during the intervening time.' [Green 2004:2]

Thirdly, he describes a type of unconscious remembrance or recognition of some past event wherein the memory itself does not enter consciousness. He explains this by saying, 'The vanished mental states give indubitable proof of their continuing existence even if they themselves do not return to consciousness at all, or at least not exactly at the given time.

⁶⁹ Proust says of this, "For me voluntary memory, which is, above all, memory of the intellect and of the eyes, gives us only the appearance, not the reality, of the past. But when a smell or a taste, rediscovered in totally different circumstances, reveals the past for us, in spite of ourselves, we feel how different this past is from what we thought we remembered, and what our voluntary memory painted for us, like bad painters who have their colours but no truth." [Proust 2004:2-3] Deleuze writing in 'Proust and Signs' argues that, '*Voluntary* memory proceeds from an actual present to a present which 'has been,' to something which was present and is no longer. The past of voluntary memory is therefore doubly relative: relative to the present which it has been, but also to the present with regard to which it is now past. Which is to say that this memory does not apprehend the past directly: it recomposes it with different *presents*.' [Deleuze 1999]

⁷⁰ In *Swann's Way*, Proust writes, 'When from a long-distant past nothing subsists, after the people are dead, after the things are broken and scattered, still, alone, more fragile, but with more vitality...the smell and taste of things remain poised a long time like souls, ready to remind us, waiting and hoping for their moment, amid the ruins of all the rest; and bear unfaltering, in the tiny and almost imperceptible drop of their essence, the vast structure of recollection.' [Proust:50]

Employment of a certain range of thought facilitates under certain conditions the employment of a similar range of thought, even if the former does not come before the mind directly either in its methods or in its results.’ [Green 2004:2] In recent research this kind of state has been described as ‘knowing’ that some thing has happened but without exactly remembering where that knowledge has come from.⁷¹

After the extensive investigations of psychologists such as Ebbinghaus in the late 19th century, research into autobiographical memory fell out of fashion for many years. According to Martin A. Conway, ‘There is one peculiarity in the history of autobiographical memory...although much original research was performed in the late 1880s and early 1900s, there is a gap in the research record between the 1900s and the early 1970s and in which only a handful of studies were reported. This is what Cohen ... refers to as the “hundred years of silence”.’[Conway 2001:16]

Although with some notable exceptions most eminent researchers in the field of memory during the first half of the 20th Century took a ‘behaviourist’⁷² stance towards the subject. It was not until the resurgence in research into memory in the 1950s that ideas started to be postulated that there existed more than one type of memory system.⁷³ One of the first researchers to develop this idea was the psychologist, mentioned earlier, Endel Tulving.

⁷¹ Martin A. Conway working in the Department of Psychology at Durham University explains these different states of ‘knowing’ and ‘remembering’ by saying. ‘Rememberers ‘just know’ they attended a specific school, had a particular job, lived with a certain person and so on. A possibility here is that the ‘knowing’ or ‘just knowing’ feeling state is one that, in terms of cognitive effort, is less costly than recollective experience and although it may occur when the system is in retrieval mode as specific memories are constructed, it can also occur in other states that do not feature retrieval mode. [Conway:60]

⁷² Behaviourism holds that the mind isn't the cause of behaviour, it actually is the behaviour. Mental states are, on this view, a disposition to behave in a certain way in a certain situation. They can therefore be written out like conditional rules.

⁷³ Thomas Suddendorf and Michael C. Corballis, in their article, Mental Time Travel and the Evolution of the Human Mind, write that, ‘The idea that there is at least a dual memory system arose from work on amnesia. The famous subject H.M. has dense amnesia for events and knowledge dating from his temporal lobe surgery in 1953, and indeed for memories dating some years prior to that, yet his behaviour can still be influenced by past events without his being aware of it. His amnesia seems to apply only to so-called explicit memories, or...declarative memories; these represent memories that can be declared, or brought into conscious awareness. Memories that seem to be unaffected in amnesia are those that we are not aware of, and include those implied by such phenomena as learned motor and cognitive skills, classical and operant conditioning, priming, habituation, and sensitization. Such memories have been called implicit or non-declarative memories.’ [Suddendorf:3]

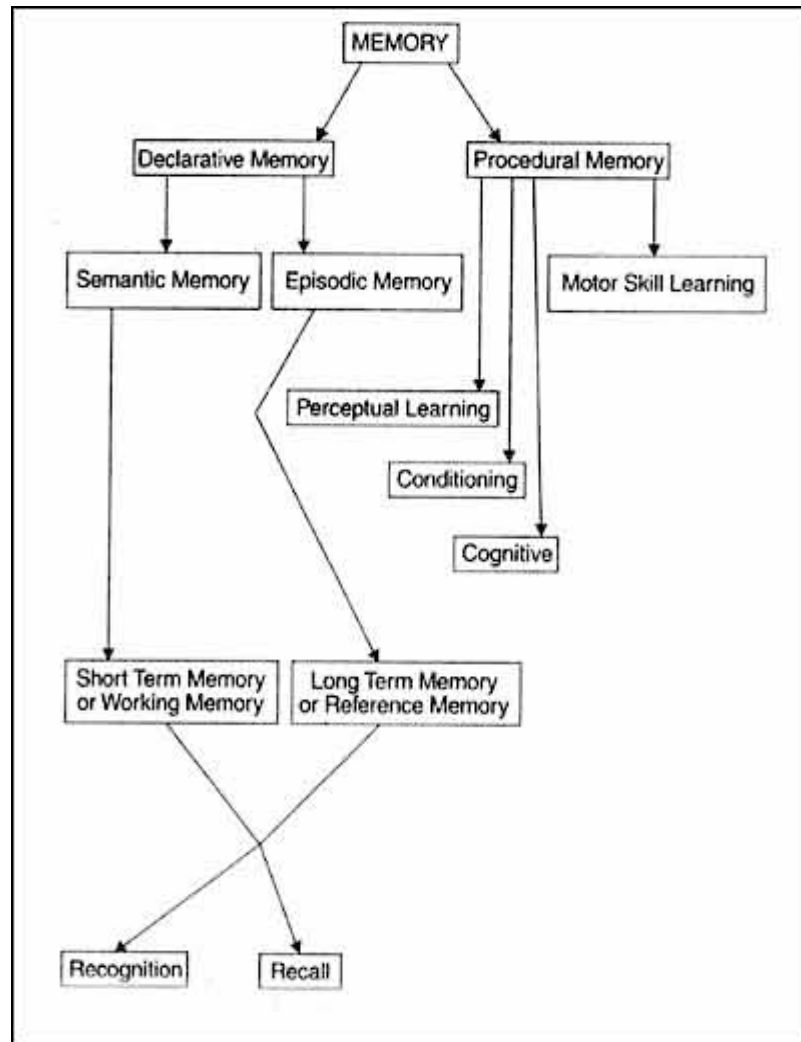


Trinidad and Wallpaper, Projected slide on wallpaper used in video *PALAVÉ*. 2003

Tulving's theories stem from extensive research conducted since the 1950s at Toronto University, Yale University and the Toronto-based Rotman Research Institute. Through this research he divides conscious 'declarative memory' into two components 'episodic memory' and 'semantic memory'⁷⁴. Declarative memory is our memory for facts. Episodic memory is a memory for past and personally experienced events and Semantic memory is knowledge for the meaning of words and how to apply them.⁷⁵

⁷⁴ Joan Gay Snodgrass of New York University describes these different terms used by Tulving by saying, 'In 1984, Endel Tulving, in a Distinguished Scientific Contribution Award address presented at the meeting of the American Psychological Association, asked the question: "How many memory systems are there?" In answer to this question, he proposed a three-tiered system, arranged much like a wedding cake, in what he called a monohierarchical arrangement. The bottom layer, common to both the remaining two, he called "procedural memory"; the second layer, a specialized subsystem of the first, he called "semantic memory"; and the top layer, a specialized subsystem of the second, he called "episodic memory."' [JGS p135]

⁷⁵ The physical areas of the brain declarative memory are associated with are in general, the hippocampus and temporal cortex. More specifically, declarative memory primarily involves the diencephalon of the brain. This portion of the brain refers to the anterior to midbrain regions and is comprised of the thalamus and hypothalamus. The two additional areas that are associated with declarative memory are the peripheral cortex and the amygdala. Another area that is associated with declarative memory is the neocortex. In particular, this includes the right frontal & temporal lobes for the episodic component, and the temporal lobes for the semantic component. [Tulving 1990: 301-306]



Taxonomy of memory. After Larry Squire

Tulving notes that in episodic memory the subject not only has the memory, but can remember something about the setting in which the memory was learned. Conversely, he says that for semantic memory, the subject cannot recall the context of the initial learning. This has also elsewhere been called working memory. He also argues that episodic memory is the system that was tested in most memory experiments which required subjects to recall lists of words, as Ebbinghaus used in his experiments in the 19th Century.⁷⁶

⁷⁶ Ebbinghaus comments on this method: 'In order to test practically, although only for a limited field, a way of penetrating more deeply into memory processes -- and it is to these that the preceding considerations have been directed -- I have hit upon the following method. Out of the simple consonants of the alphabet and our eleven vowels and diphthongs all possible syllables of a certain sort were constructed, a vowel sound being placed between two consonants. These syllables, about 2,300 in number, were mixed together and then drawn out by chance and used to construct series of different lengths, several of which each time formed



A memory testing device of the 1890s

Tulving says that if a subject of these sorts of memory ‘tests’ failed to recall a word in a particular list, it was due to their failure to recall a particular episode during the test. For example they had forgotten a certain list and not the meaning of the word. These ‘failures’ caused Tulving to make the distinction between memory for ‘meanings’ [semantic memory] as distinct from memory for ‘episodes’ or experiences [episodic memory]⁷⁷. Tulving also proposes a further division between semantic and episodic memory systems, and he suggests that this distinction lies within the declarative system. This distinction is shown in the diagram on page 84.

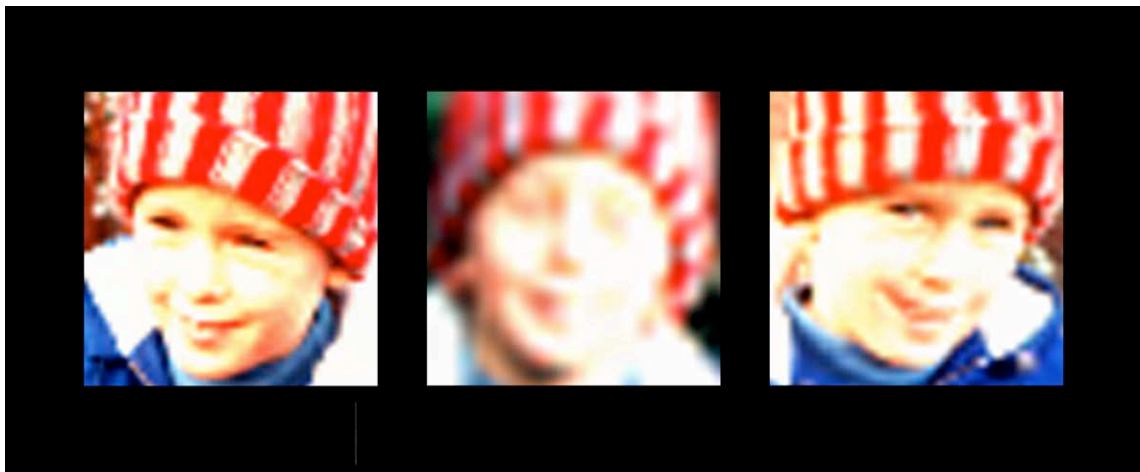
the material for a test. At the beginning a few rules were observed to prevent, in the construction of the syllables, too immediate repetition of similar sounds, but these were not strictly adhered to. Later they were abandoned and the matter left to chance. The syllables used each time were carefully laid aside till the whole number had been used, then they were mixed together and used again. The aim of the tests carried on with these syllable series was, by means of repeated audible perusal of the separate series, to so impress them that immediately afterward they could voluntarily be reproduced. This aim was considered attained when, the initial syllable being given, a series could be recited at the first attempt, without hesitation, at a certain rate, and with the consciousness of being correct.’ [Ebbinghaus:]

⁷⁷ Tulving had introduced the episodic and semantic systems more than 10 years previously, and all three systems are outlined in his 1983 book *Elements of Episodic Memory*.

Thomas Suddendorf, from the School of Psychology University of Queensland and Michael C. Corballis, a professor in the Department of Psychology at the University of Auckland, New Zealand, expand on this definition of episodic memory by writing:

There is evidence that episodic memory is not simply a memory system, but is critically dependent on other mental capacities, and it may even be these capacities, rather than the nature of the storage involved, that distinguishes humans from other species. This is opposed by the non-declarative system whereby the subject is unaware of the memory, as in habitual or instinctive action. Semantic memory has to do with general knowledge about the world, of the sort that is normally common to people of a given culture, whereas episodic memory represents the individual's personal experiences. Where semantic memories transcend space and time, episodic memories are linked to particular events in one's personal past that are spatially and temporally located. [Suddendorf:6]

They continue by writing, 'Unlike retrieval of facts, retrieval of past episodes usually recodes, or updates, the information. Thus, active reconstruction, rather than mere retrieval, appears to be essential to episodic memory, and this necessitates the involvement of certain cognitive faculties.' [Suddendorf:6]



3ME Photographic print. Images of myself taken by my grandfather 1966/67

Tulving has also proposed an official term for, and definition of, the idea that some types of memory are forms of 'mental time travel'. He has defined this state as 'chronesthesia'⁷⁸ or a

⁷⁸ Chronesthesia is a hypothetical brain/mind ability or capacity, acquired by humans through evolution, that allows them to be constantly aware of the past and the future. [Tulving]

conscious awareness of subjective time. This has been described as ‘a hypothetical brain/mind ability or capacity, acquired by humans through evolution, which allows them to be constantly aware of the past and the future.’ [Murrey 2003:1] Tulving has also noted that not all forms of memory, are time-related. He has written that the "episodic" kind of memory, involving recollection of past personal experience, is time based, but that the "semantic" kind, involving acquisition, retention and retrieval of facts, is not. [Tulving 2001]

Tulving states that the higher-order process of chronesthesia, ‘...allows people to update information critical to surviving, thriving and dealing with changes in their world. In addition, it aids semantic memory by attaching personal stories to facts, giving people's experiences temporal and emotional dimensions, which make them more believable.’ Tulving has also explained how and why humans have adapted chronesthesia, a learned capability absent in other animals and human infants, to advance their survival. Tulving writes that, ‘...over time people discovered that recalling past events helps them learn what to avoid and how to behave in the future, and in social relationships it enables them to distinguish friends from foes; in the occupational and food-gathering arenas, it helped them to develop tools that worked well and to discard ones that didn't.’ [Murrey 2003:2]

Continuing Tulving's work into the way memory operates, over the last few years, researchers such as Martin Conway and Alan Baddeley have been developing a multi-system model of memory by combining their understanding of neuro-psychology and neuro-anatomy with behavioural studies. This new development began with a study of oral traditions of remembering⁷⁹ and was then extended to autobiographical memory. Daniel L. Greenberg and David C. Rubin working in the Department of Psychological and Brain Sciences at Duke University use the term ‘autobiographical memory’, to refer to memories that have several properties. They write that, ‘First, like episodic memory, autobiographical memory “receives and stores information about temporally dated episodes or events and temporal-spatial relations among them.”’ Secondly they say ‘...such memories involve something more than the mere retrieval of stored data: the person remembering the memory must be conscious of the prior conscious experience, a self-reflective mental state that Tulving terms *autonoetic consciousness*.’ [Greenberg 2004:2] Tulving defines this as: ‘The term *autonoetic* [from the Greek *Gnosis*] consciousness means awareness of subjective experiences in the past, present and future. *Autonoetic consciousness* is a special feature of episodic memory; the different

⁷⁹ See Harold Rosen, *Speaking from Memory: the study of autobiographical discourse*. Trenthan Books, 1998

types of consciousness associated with semantic memory and procedural memory are termed noetic [knowing] and anoetic [without knowledge] respectively.’ [Tulving 1999:1]



Image from installation, ‘Ships That Pass’ Camera Projectors. 2004

Greenberg and Rubin go on to comment that: ‘As with many of the other cognitive processes.... auto-noetic consciousness is not sufficient for autobiographical memory [it plays a role in other processes, such as prospective memory...but it is a necessary feature: many philosophical accounts...and the reports of some amnesiacs ...suggest that an autobiographical memory should be accompanied by a sense of reliving as well as the belief that the remembered event actually occurred.’⁸⁰ They go on to define an autobiographical memory ‘...as a memory of a

⁸⁰ Tulving says of this, ‘Experimentally, one can ask subjects whether they "remember" something or "know" it, thereby distinguishing between auto-noetic and noetic [i.e., without the re-experiencing the event] awareness. Others have shown dissociations in the brain regions involved, as well as electrophysiological features, depend upon whether the memory was rated as "remembered" or "known." Such studies suggest that the prefrontal and hippocampal brain regions are involved in auto-noetic awareness.’ [Tulving 1999:1]

personally experienced event that comes with a sense of recollection or reliving. Autobiographical facts, on the other hand, are bits of personally relevant information that are retrieved without this sense of reliving.’ [Greenberg 2004:2] This leads them to question the importance of external stimuli in an understanding of the way autobiographical memory works. They ask the question: ‘Are such stimuli as photographs more akin to autobiographical memory or autobiographical facts?’ In the final section of this chapter I will explore the idea of ‘External Memory’ and how this relates to the development of autobiographical memory.

4. Concepts of External Memory



Camera projector in action 2004

M. Deric Bownds⁸¹ writes, on the concept of external memory: ‘Each human brain becomes part of a network when it operates in the context of an external symbolic storage system. Its memory structures are expanded, and the location of cognitive control shifts. Memory can

⁸¹ Dr. Bownds is Emeritus Professor of Molecular Biology and Zoology at the University of Wisconsin, Madison and obtained his training at Harvard University (B.A., '63; Ph.D. in Biology, '67). After postdoctoral work at Harvard Medical School, he joined the U.W. Madison faculty, and from 1969 until 2001 was Professor of Molecular Biology and Zoology, serving as chair of the Zoology department from 1997-2001. In July 2001 he took Emeritus status and began to devote his full time effort to the Biology of the Mind Program. [Bownds 2005:1]

reside at many locations in the network. In early cultures, only the elite [such as scribes] were trained to deal with this system, while most of the population remained fundamentally oral-mythic, dominated by ritual and tradition. In modern society this has changed; even episodic event reporting is heavily dependent on electronic media [as when we watched the first moon landing live on television].’ [Bownds 1999:5] This concept of an external memory that Bownds develops has implications for the way autobiographical memory is thought about. It cannot be seen purely as an independent function of the brain but inextricably linked to other media, such as photographs, that tell and remind us of our pasts.

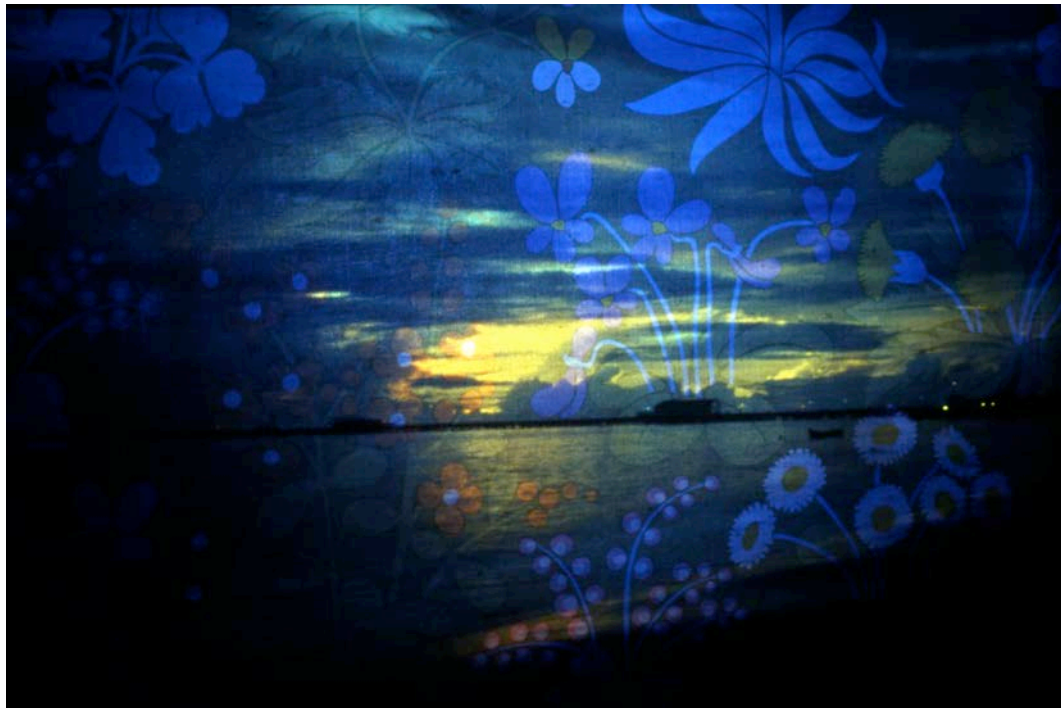
Writers with different perspectives in the field of memory research have pointed to the importance of various ways in which remembering often relies on information left in the external world. ‘These writers,’ John Sutton comments, ‘have argued that we should see the internal aspects of memory more as an active resonance or attunement to information of certain kinds than as the encoding and reproduction of determinate images. These ideas have had considerable influence on recent theorizing in dynamical cognitive science, and on views of memory and mind as embodied, embedded, and extended.’ [Sutton 2003:8]

Bownds expands on these concepts by writing: ‘Because of the limitations of our consciousness, the connection between an individual's memory and external memory stores is always brief, but it can be repeated frequently, and any truly creative thought is an iterative process, where the thinker returns to the external database again and again – verbalizing, sketching ideas, thinking internally or aloud, referring to past outputs, revising, and cleaning up – until a satisfactory resolution is reached. This is very different from having the working-memory system of our frontal lobes being our only arena for performing complex mental tasks.’ [Bownds 1999:5-6]

Sutton elaborates on these points further when he writes, ‘If memories are not fixed mental images or discrete items of any kind, permanently stored in the individual mind or brain, then the relatively unstable individual memory may need support from more stable external scaffolding or props. Experience attunes us to certain information or regularities or artefacts, which we can exploit in the present. This is not to deny the importance of our capacity sometimes to remember experiences which are not retained in some external medium, but to suggest that we may only understand such capacities fully by attending also to our habitual uses of present resources on which to anchor our versions of the past. Both cognitive anthropologists and philosophers drawing on dynamical and situated approaches to cognition have suggested the need for such a general framework for memory science to make sense of traces both inside and outside the individual.’

[Sutton 2003:11] Sutton then stresses the point that one type of memory does not replace the other nor are they analogous. He states, ‘This is not to collapse the distinction between external and internal representational formats: for a connectionist⁸² in particular, the kind of “storage” mechanisms employed by the brain are quite distinct in format and process from those of most external linguistic or digital systems. The point rather is to see brain traces and external traces as potential parts of temporarily integrated larger systems, used by us so as more successfully to exploit and manipulate information in the environment.’[Sutton 2003:11]

He reiterates this point by explaining that ‘... the best explanations of the form and content of specific personal memories may often refer not simply to the past episode itself, but to multiple causes which span internal and external factors.’ [ibid] Sutton is arguing that we cannot look at ‘biological memory’ alone without looking at the external influences that help us remember past events. He is positing a position of interconnectedness between aspects of human cognitive activity.



Wallpaper Trinidad. Image used in PALAVER video 2003.

⁸² Sutton says of this idea, ‘Connectionism offers one way to cash out the more flexible and dynamic understanding of the format of stored mental representations which we saw was required to deflect direct realist and phenomenological criticisms. The internal plasticity of memory which ‘distributed’ models suggest is one of the most curious and characteristic features of human memory, and one which clearly differentiates our cognitive systems from the ‘memories’ of current digital computers. [Sutton 2003:9]

Bownds also emphasises the point that there is a strong link between the internal workings of our mind and external information systems, he argues that, 'Expansion of the power of the brain's working memory is made possible by exchanging information back and forth with local devices, such as personal computers and books, and also with more global information stores, such as libraries and worldwide computer networks. Memory and cognitive control comes to reside in the whole network.' [Bownds 1999:6] Bownds summarises his arguments by writing:

When we connect to our external memory networks--- that is, when we read, write, draw, or calculate – we really are like computers plugged into a network, and our skills and powers are determined by both the network and our own biological inheritance. These networks can be assembled from many different kinds of hardware, some of which we barely recognize as technological: books, costumes, posters, traffic signs, vinyl audio recordings, punched paper tape, knotted strings, CD-ROM. When we deal with one of these objects or read a book, we enter a cognitive state in which our biological minds can be brought temporarily under the dominance of an external memory device: Our minds can literally be "played" by a book, moved into a state crafted by the author. The same thing happens when we succumb to the fascination of surfing the World Wide Web. [In this sense, cyberspace is a few thousand years old and doesn't so much replace literary culture as make it much more widely available.] [Bownds 1999:6-7]

Sutton explains the way external memory might function, when he writes, 'Linked in various forms of "continuous reciprocal causation", brain and world are often engaged in an ongoing interactive dance through which adaptive action results. The vehicles of representation in memory, as well as the processes of remembering, may spread out of the brain and be left in the world. Just as our problem-solving abilities depend in part on "our abilities to dissipate reasoning" by building "designer environments", so our capacities to access, manage, and manipulate large bodies of information depend on the technological and cultural symbolic networks we've constructed to plug ourselves into.' [Sutton 2003:12]

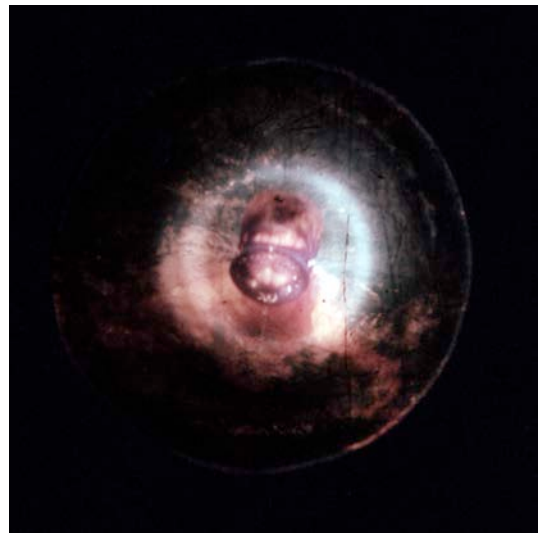
Warren Neidich⁸³ a neuro-scientist and artist emphasises this point when he discusses the idea that external media have played a part in 'sculpting the brain'. 'The history of spectacular instrumentation,' he writes, 'commencing with the camera obscura and continuing through the photographic and cinematic camera, traces the continued refinement of simultaneous parallel and tangential processes. On the one hand, the progress of ever more refined instrumentation makes "visible" ever more sophisticated networks of social, psychological, economic and technological relations manifesting in concrete aesthetic and cultural productions.' [Neidich:2001] He continues this theme by saying, '...the optical activation of these complex relations have created implicit and explicit temporal/spatial relations impressed upon the

⁸³Warren Neidich, who is based in New York and Los Angeles, has studied medicine, neurobiology, biology and psychology..

material and immaterial world that play important roles in the construction of the patterns of neural networks. One possible implication is that as the brain changes it actually creates or invents new technologies, in this case optical technology, to make visible its own new conditions or ones that are still unseen in the texture of the real virtual interface.’ He then states that, ‘Perhaps in the future cinematic images will totally replace real images as the template for the neural networks forming memories in the brain.’ He also writes, ‘We should note here the idea that external influences, especially photography and the cinema, are more than just aide-memoirs, but have actively reshaped the way our brains function.’ [Neidich:2001]

Sutton makes a case for external memory being more than just an analogy: ‘The claim that “external memory” is no mere metaphor does not rest on the idea that some external “representations” [such as information in notebooks] are identical to internal mental representations, provided that they meet certain criteria of accessibility and reliability. Instead, the core idea is that quite disparate internal and external elements can be simultaneously co-opted into integrated larger cognitive systems, which have properties distinct from those of either inner or outer elements alone.’ [Sutton 2003:12]

Sutton then looks at the ways in which this interface might be researched in the future: ‘So, biological working memory,’ he writes, ‘is often best seen as a loop in processes that transform information in external structures. But different environmental media for the storage, transmission, and transformation of information have their own peculiar virtues. The various kinds of memory scaffolding which humans use, from knots, rhymes, codes, diagrams, slide-rules, and sketchpads to artificial memory techniques, photographs, books, rituals, and computers, have quite different properties, so that the resources of the historian, media theorist, and social scientist may again have a role within cognitive science.’ [Sutton 2003:12] He then goes further and suggest that external memory systems, like photography, are more than in a symbiotic relationship with ‘biological memory’ but affect the structures within our brains. ‘Our interaction with different forms of external symbol systems, and “cognitive technologies” may in some contexts alter our cognitive capacities.’ [Sutton 2003:11] I will analyse these concepts in more detail in chapter four of this thesis where I look at the influence photographs have had on the way we remember the past.



Camera Projections 2002

Conclusions

It now seems that there is a general agreement that the idea of memory being a single monolithic function of the mind is no longer tenable. It is thought that memory is made up of many processes and systems. This is crucial to my argument that photography has affected the way we remember the past. Most writing on memory and photography still sees memory as a storage device, albeit with many layers of consciousness, that although affected by emotions works in a singular way. Research into this topic now has to take account of the new ideas put forward by neuroscientists and others in the memory research field. Some of these researchers

are also realising that to gain a greater understanding of the way these types of memory work they will have to look at the way artefacts such as photographs function in relation to memory.

I have found that contemporary research into memory has come to the conclusion that within what is termed autobiographical memory there are different ways it functions and it is not entirely separate from other forms of memory. These processes of memory overlap and mingle. My knowledge of 'autobiographical facts' go hand in hand with my autobiographical memory and rely on each other to a certain extent. The records of my life affect my memories of my life.

If I think about a holiday I went on to Spain in the early 1970's I remember some of the events that took place, ice creams, large tomatoes, snorkelling in the shallow sea, but it is the few photographs taken on that holiday which I remember most. I have also found out since that it was the place where Walter Benjamin committed suicide in 1940. I have a blurred photograph of myself holding a stick insect on a hill over looking Port Bou, which I have imagined was the same hill as the last place Benjamin saw. The photographs and my memories are separate entities and cause different types of reactions, but they have intermingled over the years so when I remember that holiday I have memories of the lived experience and of the photographs. When I look at the photographs they also conjure up my memories. The memories seem more stable because of the photographic record.

This idea that there are different kinds of memory means that the way photographs interact with these types of memory is different in each case. Photographs can help working memory in as much as they become aids to remembrance but they can affect autobiographical memory in a different way by creating a link with the past that is expansive. Photographs, because of the way they depict events, become more memorable and affect the way we remember the past. They are what Paul Virilio calls a phatic image⁸⁴ which stay in memory more easily and it is now being posited that they change the way our biological minds are being developed.

It is also thought, 'that active reconstruction, rather than mere retrieval, appears to be essential to episodic memory, and this necessitates the involvement of certain cognitive faculties.' [Sutton 1998:6] If this is the case then if cognition extends out into the world, as is being posited by many researchers of memory, external stimuli such as photographs could play a key

⁸⁴ Virilio describes the phatic image as '...a targeted image that forces you to look and holds your attention-is not only a pure product of photographic and cinematic focusing. More importantly it is the result of an ever-brighter illumination, of the intensity of its definition, singling out only specific areas, the context mostly disappearing into a blur.' [Virilio:14]

role in helping reconstruct the past we are unable to retrieve through biological memory alone.

If, as I set out in chapter 4, photographs have many histories and many ways of being interpreted, each type of photograph and context for photographs will act differently with each type of memory system and process. A familiar photograph will act differently with autobiographical memory than and an iconic photographs acts with semantic memory. The differences maybe subtle but because different types of memory are being used, which have different properties, then what we remember and the way we remember are significantly different.



Me up a tree in Cambridge 1966/67. [Image from the collection]

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Chapter 3.

The Vertigo of Time Defeated⁸⁵

Ways of looking at Photographs

Introduction

And yet, because it was a photograph I could not deny that I had been there [even if I did not know where]. This distortion between certainty and oblivion gave me a kind of vertigo, something of a “detective” anguish [the theme of Blow-Up was not far off]. [Barthes 2000:85]

Our past lives on in our memories, and photographs are embodiments of these memories. Rather than photographs being closely associated with death, as many writers have suggested, I see them as evoking but also contradicting autobiographical memory. Photographs are a living testament of our complex and elusive past.



Me Seven Sisters Wallpaper 1966. Photographic Print. 20cm x 30cm. 2004.

⁸⁵ From Camera Lucida, Roland Barthes. p94

I begin this chapter with a detailed description of my grandfather's collection of photographs. This mode of description is taxonomical⁸⁶ in form based upon the subject matter in the transparencies. As Martha Langford⁸⁷ says in her book, *Suspended Conversations* [2001], the problems of analysing family photographic collections are complex and manifold. She writes:

Questions about gaps are all too familiar to the student of private photographic albums. In the mind of photographic historian Timm Starl⁸⁸, the apparent absence of rational interconnectedness between elements discourages integral or biographical readings of albums; statistical analysis of the contents by types of subject is the only sensible course. [Langford 2001:18]

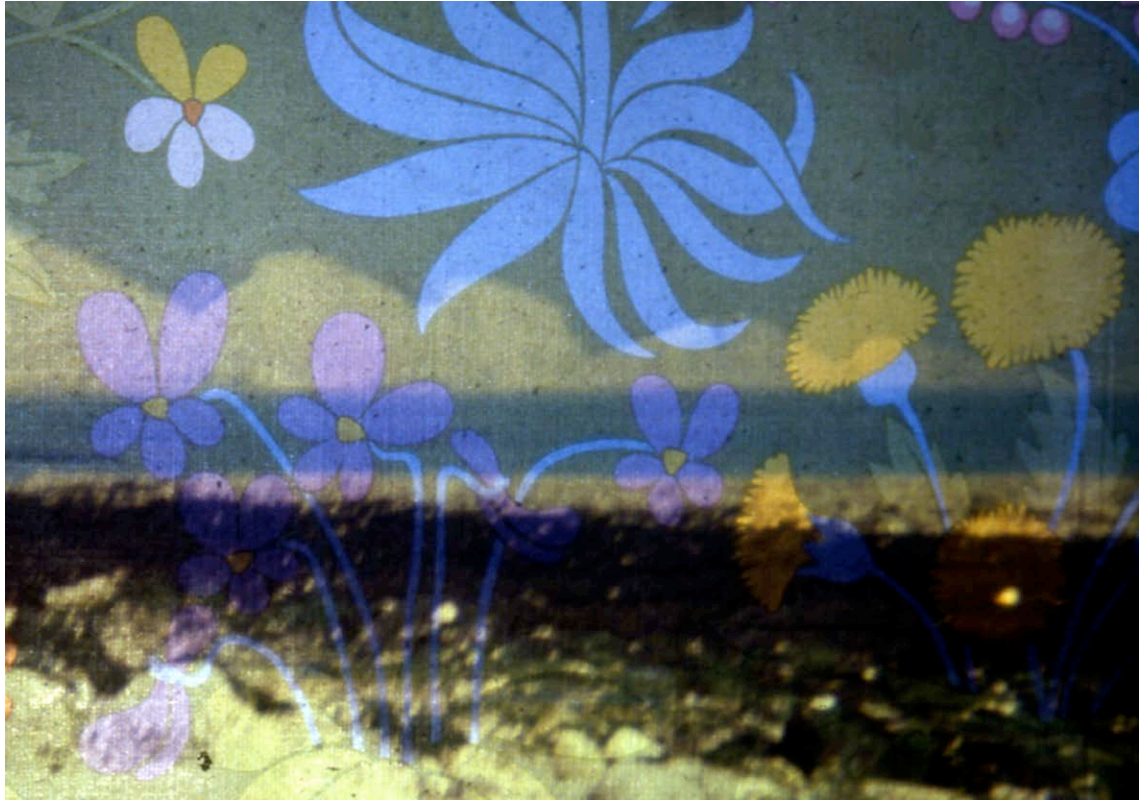
I use this taxonomical approach so I can continually access the collection more easily and to gain a greater understanding of its contents. But I also question whether a statistical analysis of the collection is too rigid and whether it only offers up a limited amount of significant information.

I have based the categorisation, ordering and arranging of the photographs in the taxonomy on my previous viewings of the collection, which suggested certain predominant subjects that interested my grandfather. This initial taxonomical approach constructs a specific reading of the collection and elicits a specific type of information. This is helpful to the overall purpose of my thesis, as it puts into question ideas of the way autobiographical memory is constructed as analogous to collections and archives of photographs.

⁸⁶ Dr. Thomas D. Watson describes a taxonomy as, '...a controlled vocabulary of terms and or phrases. A taxonomy is an orderly classification of information according to presumed natural relationships. The most typical form of a taxonomy is a hierarchy. At the top level, general terms or descriptive phases are used. Each of the general terms has beneath it a set of terms that provide more refinement of the top-level term. Each of these second level terms may have a set of refining terms beneath it. [Watson:1]

⁸⁷ Martha Langford is a Research Associate, McCord Museum of Canadian History; Research Fellow in Canadian Art, National Gallery of Canada; and Visiting Instructor, M.I.S.C.

⁸⁸ Timm Starl is the co-author of *Icons of Photography: The 19th Century* with Freddy Langer and Wilfried Wiegand.



Me Seven Sisters Wallpaper 1966. Photographic Print. 2004. [Detail]

1. A Description and Taxonomy of the Collection

95% of my grandfather's collection consists of 35mm colour transparencies, the remainder being black and white prints and negatives. Three quarters of the transparencies are without slide mounts and are in rolled strips [See next image]. There are about 172 of these rolls, some of which have been cut into various lengths of between 2 and 40 frames each. The rest of the transparencies [25%] are in various types of slide mounts and are in 36 boxes. These boxes range from one box with just 2 transparencies to one with 54. In total, there are about 4,000 individual images in the collection in 208 different rolls or boxes.



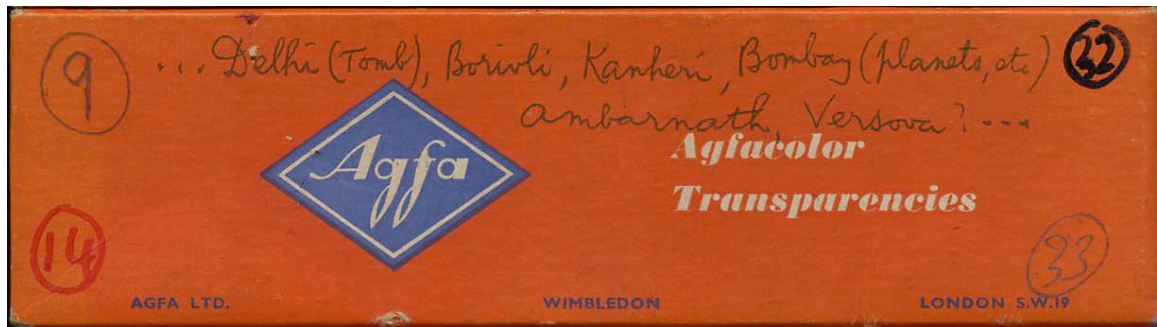
The existing collection in a storage box. 2003-2005



The collection in a storage box 2003-2005. [Detail].

The individual images, when they came into my possession, were not catalogued and there is not a complete record of where or when they were taken. There are a few annotations on the boxes of transparencies which help to locate them [See next image]. My grandmother made these annotations, probably after my grandfather's death. These annotations often refer only to the places, dates and people involved. Only about 10% of the slide mounts and boxes have this type of information attached to them. Using this information, I have dated the earliest transparency to 1947, with my grandfather continuing to take photographs until his death in 1967.

The manufacturer's printed information on the slide mounts, transparencies and slide boxes also gives clues to where and when these were taken. Some of the films were bought while abroad and the country of manufacture is printed on the transparencies. Others have the date they were developed. There are also some boxes bearing a postmark.



Slide box of transparencies from India 1966/67

There are also some 230 black and white photographs and 116 black and white negatives in the collection, which appear to have been developed in the attic darkroom and the prints produced by my grandfather using his home made enlarger. [See Chapter 1]

From my own memory and anecdotal evidence this is a tiny fraction of the black and white photographs he took. I have been told that a large number of these photographs were thrown away some time after my grandmother's death. Some of them were taken before he used colour transparencies. I know this because there is a photograph of my father as a young child and none of the colour transparencies are from that period.



Three black and white photographs from the collection taken in the 1940s/50s

The detail of a photograph following shows my father when he was about 4 or 5 so it would have been taken in the late 1930s or early 1940s. There is no physical or anecdotal evidence that my grandfather was taking colour photographs at the time.



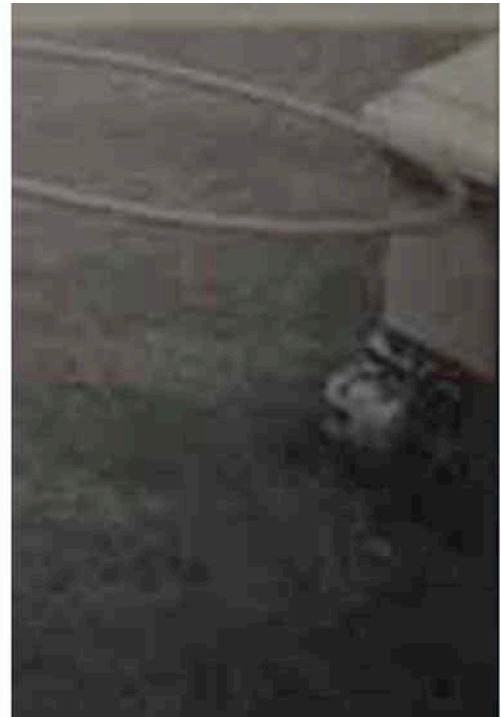
My grandfather and my father in the Millington Road garden circa 1940.

They are also more ‘experimental’ and cruder than the transparencies, with more repetitions of individual images, clearly indicating to me he was still perfecting his darkroom techniques.

The black and white negatives include images of mathematical papers, one of a ‘Peanuts’ cartoon and miscellaneous curiosities, suggesting he was also experimenting with the camera. He continued to take black and white photographs throughout his life and also include images he took by projecting the colour transparencies on to a wall and re-photographing them. He then printed these up into black and white photographs. They are very curious and I can only speculate as to why he wanted to do this. The image below is taken from a transparency which is still a part of the collection. Because of the central area being lighter than the outside and being circular I speculate that the transparency was projected then photographed using black and white film.



Black and white photograph from the collection 1950s



Detail of photograph showing light and dark areas

Overall, the quality of the images is fairly good. They are mainly all in focus and taken at the correct exposure. He did seem to have problems with some indoor subjects where the transparencies are under exposed and he seemed to have the same problem at some sporting events where he has been unable to judge the correct light levels. In general, however, they

display careful attention to composition and suggest someone trying to make an interesting image.

Almost all the transparencies seem to have been taken without the use of a tripod as the photographs are rarely posed and are in the main informal. About three-quarters of the transparencies are not set up or posed, with even the family shots seemingly candid. In almost half of the transparencies featuring people, including those of children, the subjects are not looking directly at the camera. Some of the transparencies have the informality of the snapshot: in other cases he seems to have wanted to capture movement and people defying gravity, as for example when he is photographing children playing, doing handstands, cartwheels and jumping over ropes. The photographs below give an example of these 'action' type shots.



Images from the collection. Girls playing in the Millington Road garden and a field in Cambridgeshire. 1950s/60s

The photographs are often taken when he was taking a walk as if a 'flâneur'⁸⁹. This is especially the case when he was taking photographs on his travels. He did not seem to stay still for very long and did not wait for things to come to him. This gives the transparencies, which in the main are still in strip form, the sense of a disjointed journey, 'jump-cutting'⁹⁰ from one subject to another, while occasionally pausing on some exotic plant or insect. They also seem to have been

⁸⁹ 'There was the pedestrian who wedged himself into the crowd, but there was also the flâneur who demanded elbow room and was unwilling to forego the life of the gentleman of leisure. His leisurely appearance as a personality is his protest against the division of labour which makes people into specialists. It was also his protest against their industriousness. Around 1840 it was briefly fashionable to take turtles for a walk in the arcades. The flâneurs liked to have the turtles set the pace for them.' [Benjamin]

⁹⁰ 'The jump cut... sets the place above the action. By cutting out a part of the temporal continuity of a take, the acting person is found again in a different position in the same cadre. This jumping of the person does not correspond to a rational explanation. The pure form of the jump cut does not necessarily signify a lap of time. It stands for a static vision of the world. The person is thrown into a space, which is extraneous to it. Its movement does not make any sense. It is absurd, contradicted by a space that cannot be changed by action anyway.' [Speckenbach:3]

thoughtfully composed and not taken in a rush. It is as if he was wandering around looking for things to photograph. In some cases, it seems that the walk was for the sake of taking the photographs rather than the other way around. The two images below come from a piece of work I made which looked at the way a sequence of images was taken on one roll of film. Each image on the roll was cut in half and placed next to half of the following image. I was interested in looking at the way my grandfather took his photographs and what he was interested in looking at. They seemed to be documents of a walk by a man who was curious about where he found himself. These photographs were taken in 1961 in Trinidad in the year after I was born.



Jump Cut Trinidad [Detail]. Photographic Prints. 2001



Jump Cut Trinidad [Detail]. Photographic Prints. 2001

The condition of the photographs is, in the main, very good. There has been little change in colour over the years and from their condition they seem to have been carefully handled. There are exceptions to this where the transparencies have been scratched or there are finger marks on the surface, but this is a rarity. My grandfather was careful, if a bit clumsy, and would have taken care with the way the transparencies were stored.

From anecdotal evidence he would also have rarely looked at the photographs again once they had been shown in one of his presentations. Since his death they have been stored in dark, cool and dry places. This has contributed to the good quality of their present condition.

What is most striking about the collection is that, in most cases, it is not possible to anticipate what the subsequent image on a roll might depict. In some cases the photographs on a single roll represent different countries or seasons. It is also noticeable that he very rarely attempted to take the same shot twice. In fact, I have found only one example of this in the collection – two shots of the same mountain that are virtually identical. He seems to have been confident in his abilities as a photographer.



The Alps 1950s/1960s.

To arrive even at this description I have had to arrange the photographs in some sort of order so they could be more easily analysed. Initially this ordering consisted simply of separating out the physical constituent parts of the collection. This then enabled me to gain a greater understanding of its form. In the process of this ordering I became generally aware that my grandfather seemed to be particularly interested in certain subject matter. I used this knowledge as a starting point for a taxonomical approach to subject of, and the action happening in the photographs.



Image from the collection. India 1967



Slides showing a variety of subject matter taken between 1963 and 1967.

2. A Taxonomy

This initial taxonomy⁹¹ of the collection is an attempt to enable me to more thoroughly analyse its contents. I have tried to construct an orderly classification of the photographs using what I already know about the collection's form and content. The classification has been determined by, and is reliant on, my own autobiographical experiences of the collection. I knew before I looked at the collection again, for instance, that I expected there to be a large number of photographs of flowers and plants. The categorisation starts with general terms and then continues with refinements of these terms. At this stage the taxonomy relates to the subject of the photographs. Firstly, I looked for where the photographs were taken, who is depicted and what is happening. These divisions are made so I can understand more fully my grandfather's motivations for taking the photographs. This ordering also helps me locate the photographs in a certain time and place to which I can relate my own memories of when these pictures were taken.

Using my previous knowledge of the collection and of my grandfather's life, I have initially divided the taxonomy into two categories, which becomes my first level of classification. The transparencies can only be in one category or the other. The first category consists of the photographs my grandfather took in this country, which I call the 'Home Transparencies'. The second category is of photographs he took abroad, which I call the 'Away Transparencies'. In the following text I have abbreviated these categories either to 'Home' or 'Away'.

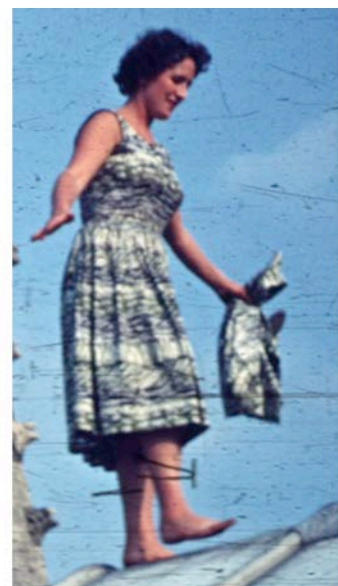
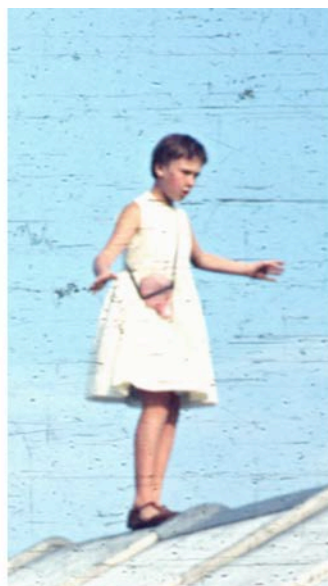
This categorisation divides the collection roughly in half, with 46% being taken in this country and 54% abroad. I have made this division because, although there are similarities between the two groups, they do have different qualities, which gives an insight into his various motivations

⁹¹ 'Taxonomy may refer to either a hierarchical classification of things, or the principles underlying the classification. Almost anything—animate objects, inanimate objects, places, and events—may be classified according to some taxonomic scheme. Mathematically, a taxonomy is a tree structure of classifications for a given set of objects. At the top of this structure is a single classification—the root node—that applies to all objects. Nodes below this root are more specific classifications that apply to subsets of the total set of classified objects. So for instance in Carolus Linnaeus's Scientific classification of organisms, the root is the Organism [as this applies to all living things, it is implied rather than stated explicitly]. Below this are the Kingdom, Phylum, Class, Order, Family, Genus, and Species, with various other ranks sometimes inserted. Some have argued that the human mind naturally organizes its knowledge of the world into such systems. This view is often based on the epistemology of Immanuel Kant. Anthropologists have observed that taxonomies are generally embedded in local cultural and social systems, and serve various social functions. Perhaps the most well-known and influential study of folk taxonomies is Emile Durkheim's *The Elementary Forms of Religious Life*. The theories of Kant and Durkheim also influenced Claude Levi-Strauss, the founder of anthropological structuralism. Levi-Strauss wrote two important books on taxonomies; *Totemism* and *The Savage Mind*. Such taxonomies as those analyzed by Durkheim and Levi-Strauss are sometimes called folk taxonomies to distinguish them from scientific taxonomies that claim to be disembedded from social relations and thus objective and universal. The most well-known and widely used scientific taxonomy is Linnaean taxonomy which classifies living things and originated with Carolus Linnaeus. In recent years taxonomic classification has gained support from molecular systematics, a branch of bioinformatics that employs the method of gene sequencing to construct phylogenetic trees.' [Wikipedia:1]

for taking photographs. I have also made this division so the collection becomes a more manageable entity.



My grandmother and an unknown girl and woman on top of the roof of Kings College Chapel, Cambridge. [From collection]



My grandmother and an unknown girl and woman on top of the roof of Kings College Chapel, Cambridge. [Detail]



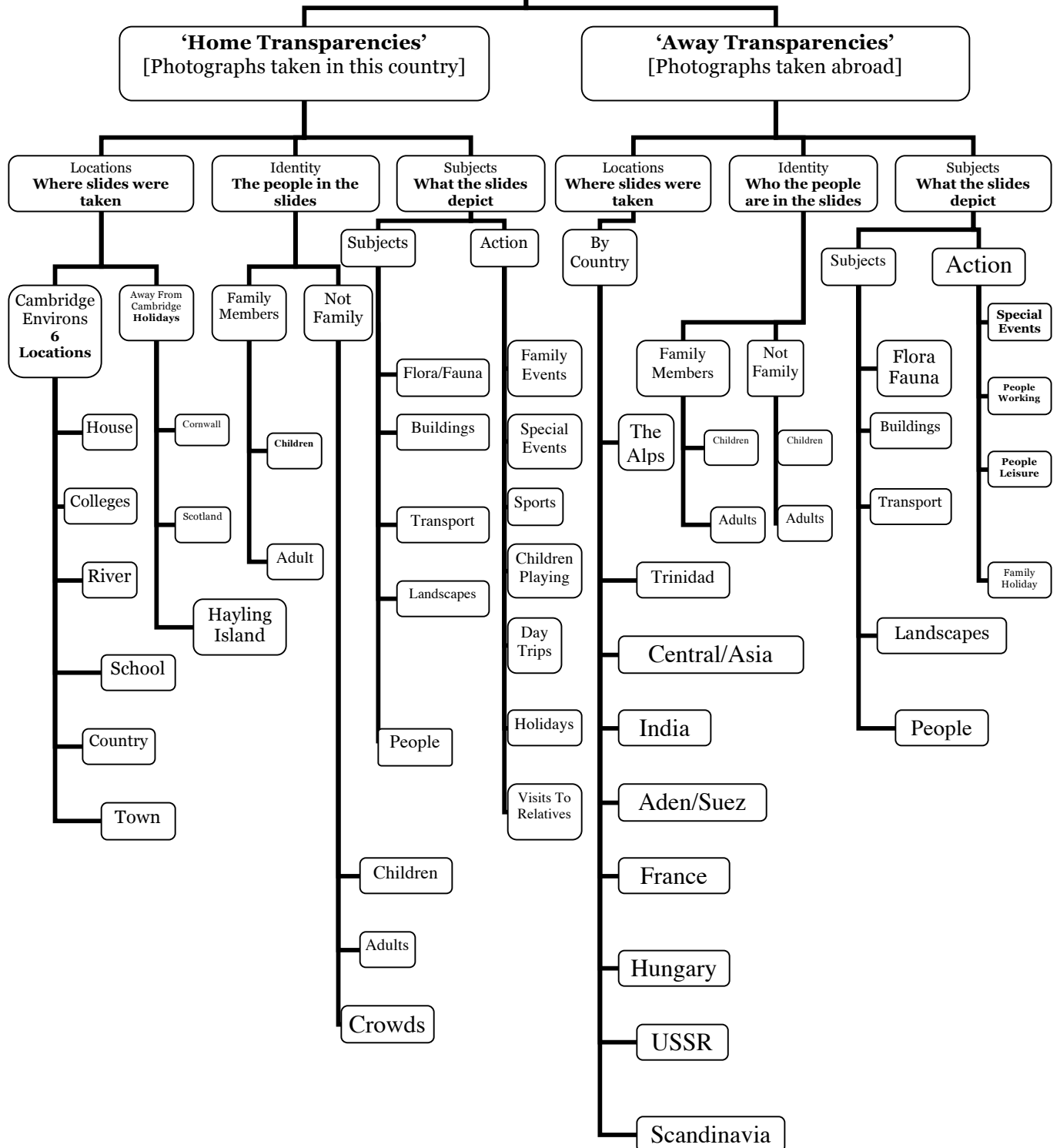
A Sports Day at Kings College Choir School, 1963 [Image from the collection]



Indian market, 1967 [Image from the collection]

A Taxonomy of A.E. Ingham's Collection of Photographs

Transparencies



The taxonomy I have constructed considers the ‘Home Transparencies’ under three headings. Firstly, I have divided them topographically, by the locations where the transparencies were taken. Secondly, they are divided by the people in the transparencies and their identity. And thirdly, by subject matter including what is taking place in the transparencies. These terms make up my second level of classification. The subjects in the three headings overlap, and one slide may appear under all three headings. For example, a slide of children playing in a garden in Cambridge at a family reunion will appear under all three headings: place where photographed / identity of those photographed / activity of those photographed. I have treated ‘Away’ Transparencies similarly.

The percentages in the following sections often have two values. The first value is the percentage of transparencies in relation to the *total* number of transparencies in either the ‘Home’ or ‘Away’ sections. The second value, which is in brackets, refers to the percentage of transparencies in relation to the specific category being dealt with. An example of this would be 'sporting activities' which make up 14% of the 'Home' Transparencies and constitute [21%] of the 'events' category.



Open Day 1963 [Images from the collection]

3. The Locations, People and the Subject Matter in the Transparencies.

Over half [46%] of photographs in my grandfather's collection were taken while he was in this country, and there is very little ambiguity about their location. This partly because they are either in rolls or boxes, therefore even if there is doubt about a single image's location this can be verified by reference to the other photographs adjacent to it.

I have divided the locations into two categories which are, transparencies that were taken in and around Cambridge and ones taken while my grandfather was away from his home in Cambridge but still in this country. Three quarters of the transparencies were taken in and around Cambridge, where my grandfather lived for all of his adult life.

I have then divided the transparencies taken in and around Cambridge into six main locations. The first of these locations is my grandfather's house, 14 Millington Road, Cambridge, where 6% of the 'Home Transparencies' were taken which constitute 10% of the location transparencies.



Images from the collection. Millington Road garden 1960s.

They are mainly taken in the garden and are often of children playing or of the flora and fauna. Very few depict the house itself.

The second location is the Colleges of Cambridge University and their grounds. King's College is predominant, where he had his 'rooms', his study, and worked for nearly forty years. This set of transparencies constitute 8% [14%] of this section. 10% of these transparencies were taken from his study window of the grounds and fields, which overlooked the river Cam and are known as the 'Backs' as the river runs along the back of the colleges.

A significant number, 18% [31%], of the transparencies include the river Cam and its tributaries as part of the image. These were mostly taken on numerous punting trips and picnics. The fourth location is in and around King's College Choir School and its grounds and makes up 11% [19%] of the 'home' section. These photographs were almost exclusively taken at sporting events, sports days and prize giving ceremonies. The fifth location is the woods and countryside around Cambridge, 5% [8%], and is mainly of flora and fauna. The last location is the streets of Cambridge and the local recreation ground and other parks. These constitute 11% [18%] and are mainly of events that took place in these locations.



Tributary of the River Cam and A Rag Day parade in Cambridge. 1960s. [Images from the collection]

A quarter of the transparencies were taken when he was away from his Cambridge home. These were visits to relatives, mainly in Colchester and Oxford. About half were taken during day trips to zoos, air shows and on holidays in Scotland and Cornwall.

A large percentage [95%] of the 'Home Transparencies' were taken outside. Those taken inside are mostly of the family during birthday parties and other family events. There are also some of the inside of churches and other buildings, but these are infrequent.

Relations from the family account for 20% [27%] of the people depicted in the 'Home Transparencies'. These family photos are largely of his grandchildren, including myself from infancy to six years old, my brother and cousin. There are also images of the extended family, his nephews, nieces, cousins, etc. The second categorisation is of children not related to the family and makes up 21% [29%] of the 'Home Transparencies'. The third section is of people I do not recognise and are mainly of crowds at sporting and other events. This makes up 25% [34%] of

the home section. There are only five images of my grandfather in the whole of the 'Home' section, and ten of his wife, my grandmother. There are only 50 transparencies of his two sons, my father and uncle, constituting only 3% of the 'Home Transparencies'. None of the transparencies are of when they were children.

Initially I have divided the subject matter into transparencies featuring people and those which do not. 57% of the 'Home' transparencies have people in them. Other than that, the transparencies consist mainly of flora and fauna, buildings, transportation, landscapes/seascapes, and 'events'.

There are a great number of transparencies of flora and fauna, in some cases taking up an entire roll of film. Of the 'Home Transparencies' 46% of the rolls and boxes of transparencies contain images of plants, trees, flowers, insects, birds and various other animals. 24% [25%] of the individual transparencies in the Home section are of flora and fauna.

The transparencies of buildings tend to be of King's College and other Cambridge Colleges, houses in Cambridge, churches and other architecture taken mainly on his holidays. This makes up 9% [10%] of the home category. 3% [4%] of the transparencies contain some sort of transportation. 50% of these transparencies are of punts on the river Cam and the rest are mainly of lorries that have been made into floats for 'rag weeks'.

Landscapes make up a small percentage, about 3% [4%], of the transparencies in the 'Home' section. They seem to have been mainly taken in the Cambridgeshire countryside and on the few holidays my grandfather took with his family in this country.



Frog on spoon 1960s. [Image from the collection]

What is happening in the transparencies is divided firstly into: family events, special events, sporting activities and children at play and secondly on day trips, holidays and visits to relatives. 10% [12%] of the transparencies were taken at family events taking place in his house, on picnics and punting trips, day trips and visits to relatives.

The photographs of special events include: a visit to Cambridge by the Queen, the river Cam freezing over in 1962 and it flooding, various 'rag weeks', bonfires and fireworks displays, and college ceremonies. 17% [21%] of the Home section contains this type of image.

The photographs of sporting activities are mainly of cricket, rugby, athletics and football being played by boys at the local school and on the local recreation ground. He also took transparencies of cricket matches at the local ground, Fenners, and at Lords. This section makes up 14% [21%] of the 'Home Transparencies'.

The children at play section makes up 13% [16%] of the 'Home' transparencies. These are the most candid of all the transparencies and are mainly of girls playing in the garden of the house or on punting trips on the river Cam.



The Queen visiting Cambridge and the Cam frozen over from the 1960s.

The 'Away' Transparencies Locations, People and Subject Matter.

As with the home transparencies I have divided the 'Away' transparencies into the three categories of where the photographs were taken, who the photographs depict, and subject matter.

The location are divided into the countries or regions my grandfather visited when he was abroad. These transparencies were taken on the numerous walking holidays he took with his wife, while he was at a mathematical conference and on other holidays.

48% of the transparencies in the 'Away' section were taken in the Alps and are mainly of Alpine scenes photographed during his regular walking holidays. 13% were taken when he and his wife visited their youngest son, my father, mother and I in Trinidad during 1961 before my brother was born. 5% of the transparencies were taken in Central Asia where he visited mathematician colleagues he knew from Cambridge. 5% were taken during a mathematical conference in the USSR, where he appears not to have ventured far outside Moscow.



Images from the collection. Central Asia and Moscow 1950s/60s

He made a trip to Hungary via Vienna where he took 5% of the photographs – mostly in and around Budapest. On his trip to the USSR he passed through Scandinavia where he took 3% of the transparencies. A further 3% were taken in France on a family holiday. In 1966, travelling by boat to India, he passed through the Suez Canal and disembarked in Aden: 3% of the 'Away' transparencies were taken in these two locations, with a further 14% being taken upon his arrival in India.



Suez Canal, taken in 1966 or 1967. Image from the collection [detail].

There are only two sets of transparencies in the 'Away' category in which any of the family appear. As previously stated, one set was taken when he visited Trinidad with his wife in 1961, shortly after I was born. The other family set is of his other son, my uncle, and his wife and newborn baby taken on a visit to the South of France. In total these two sets make up 2% of the 'Away category.



Family in France and Trinidad. 1960s. [Images from the collection]

There are very few images of himself or his wife. In total there are 20 transparencies that include them both which seem to have been taken by a third party.



A picnic in Cambridgeshire, taken in 1966, by my mother, showing my grandfather, grandmother, myself and my brother.

Most of the people he photographed seem to have been the local inhabitants of the places he visited and 22% [87%] of the transparencies contain such images. Of these transparencies nearly 25% are of children

I have divided the subject matter up into five categories: people, flora and fauna, landscapes, buildings and transportation and 'events'. All together 24% [20%] of the transparencies in the away category include people.



Image from the collection India 1967

As with the home section he took of transparencies of flora and fauna, with 17% [14%] of the transparencies falling into this category. Unlike the home category he took many transparencies of landscapes. In some cases nearly a whole roll of film would be taken up with views of the local countryside and 34% [28%] of the 'Away' transparencies can be categorised as landscapes, mountains, and seascapes. 42% [34%] of the transparencies are of buildings and monuments. These are often of churches, temples, palaces and other grand buildings. 5% [4%] are of forms of transportation: buses, boats, planes and horse drawn carts.



Image from the collection. India 1967

The action taking place in the transparencies are mainly of street scenes, markets, people at work and play, and crowds at special events. 8% [22%] are of the local people working and 15% [39%] are of them during their leisure activities. 2% [6%] were taken at special events, including the Beating of the Retreat⁹² in New Delhi and other official ceremonies. He also took photographs of parades and of local celebrations.

⁹² Republic Day is a public holiday on 26 January that celebrates the anniversary of India's establishment as a republic in 1950; there are activities in all state capitals but most spectacularly in Delhi, where there is a colourful military parade along Rajpath. As part of the same celebration, three days later a Beating of the Retreat ceremony takes place near Delhi's Rashtrapati Bhavan, the residence of the Indian president.



Beating of the Retreat, India, Delhi., 1967. Republic Day Parade. [Image from the collection]



Beating of the Retreat, India, Delhi., 1967. Republic Day Parade. [Image from the collection]

4. Observations on the Taxonomy and Description.

The taxonomy of the collection, in conjunction with the historical, visual, and anecdotal evidence, suggests that my grandfather was more interested in certain subject matter and locations than others. Below I discuss these in more detail and the implications this might have for my concerns in this thesis.

In the ‘Home’ section of transparencies, the most frequent place he took photographs was in, around, and on the river Cam. These were often taken on the punting trips and often have children in them playing or picnicking. The family owned its own punt, called ‘Pete’, which was moored in one of the tributaries of the Cam and was used regularly during the summer months. Some of these transparencies remind me of another Oxbridge academic and mathematician turned photographer, Charles Dobson/Lewis Carroll, and his stories of *Alice’s Adventures in Wonderland* and *Through the Looking Glass*. I know that my grandfather would have known these stories as my grandmother, read them to my brother and me. Whether he knew of Dobson’s interest in photography and photographing young girls I cannot know.

In the Home section nearly a third of the transparencies are of children not related to the family. If these images are added to photographs of children from the family nearly half of the transparencies that include people are of children. This confirms the anecdotal evidence and sheds light on a passage from his obituary, which says, ‘Like many shy people he loved small children and was at his ease with them, wholly off his dignity...’⁹³ The photographs of children have a ‘snapshot’ feel to them, as if taken for fun and pleasure. In these photographs he seems to be relaxed and enjoying himself. As mentioned earlier, they are performing acrobatic tricks and in some cases they seem to be performing for the camera/my grandfather and possibly being encouraged by him.

Other than children, his favourite subject was flora and fauna. When he took these photographs he used two types of shot. The first is where he locates the subject in its environment – the second is the close up. The latter is especially the case when he is photographing insects, small plants and animals, and details of larger plants. These have the feel of a scientific investigation, methodically

⁹³ A.E. Ingham’s Obituary. [See Appendix 1 Chapter 1].

and carefully taken. These may have been taken at the behest of his wife, who, as has been previously noted, was a trained botanist.⁹⁴ [Stewart 1993:138.]

The largest number of transparencies in the 'Home / event section' is of sporting activities. They were mainly taken at the local school. My grandfather was very attached to this school, having sent both his sons there. My brother and I also attended this school for a period in the late sixties and early seventies.

The most notably aspect of the transparencies taken abroad is the preponderance of Alpine scenes. This is consistent with anecdotal evidence that some of his slide talks would consist almost entirely of photographs of snow covered mountains. Following in the tradition of the Romantics, he seems to have been enamoured by the spectacle of such scenes. He and my grandmother went on many walking holidays in the Alps, invariably taken in September before the college term started. They would trek across the mountains with their knapsacks and spirit lamp stoves, jumping naked into lakes when the opportunity arose. He never seems to have tired of the scenery. Certain of these transparencies have the feel of a late-eighteenth century poet discovering them for the first time and wondering at the majesty of the scenery.



RMJI Alps From Installation Ships That Pass 2004.

⁹⁴ Before the invention of photography botanical specimens were recorded, either by collection or illustration. Photography has now taken over much of this work. Susan Stewart says of this, 'The photograph as souvenir is a logical extension of the pressed flower, the preservation of an instant in time through a reduction of physical dimensions and a corresponding increase in significance supplied by means of narrative.' [Stewart 1993:138.]

The many transparencies of architecture, buildings, and structures he took when he was abroad are those of a tourist visiting famous places and recording buildings of interest. He seemed to like strong repetitive formal elements: columns, arches, windows, and patterns. He was known for his clarity when solving mathematical problems and was unfussy in his approach to all aspects of his life. This may account for his penchant for clear and simple structural components.

Although there are a great many photographs of buildings, landscapes, and flora and fauna he was also interested in people and where they lived. Looking at the people he photographed, he seemed to have been fascinated by the contrast between the environs in which people lived and the conditions they inhabited. These images are roughly divided between images where the people know they are being photographed and other that are more voyeuristic, often of people's backs. I have been told that when he photographed people he did not want them to pose. He wanted to photograph them going about their everyday business. Unfortunately for him the subjects *did* often pose, their curiosity aroused seemingly by his presence and by that of the camera. He liked to catch people off-guard, without them knowing they were being photographed.

By creating this taxonomy, I have gained an insight into the way my grandfather photographed his subjects. There is a consistency here. The family photographs are the most posed, and sit in stark contrast to those of other people and children, which are more off-the-cuff. The ones of flora and fauna conform to a more scientific methodology of photographic investigation; 'specimens' to be taken home and investigated further.

Subjecting the collection to this taxonomical study has been illuminating in many ways. It has confirmed the existing anecdotal evidence of his interest in mountains, flora and fauna and small children. It has also made me aware of his other photographic interests, such as architecture when he was abroad, and sporting events when he was at home. He was very consistent in what he photographed and he very rarely ventured away from these subjects. As opposed to some of the anecdotal evidence, which had suggested that the quality of the photographs varied greatly, they are generally well taken and well composed. The quantity of the slides I now have in my possession is not huge compared to other photographic collections. He was a careful photographer and avoided taking many repetitions of the same specific subject. He took far more black and white photographs which have now been thrown away.

By using a personal collection of photographs taken by my grandfather, which has both intrigued and moved me, and subjecting it to different methods of analysis, from the anecdotal to the statistical and from the empirical to the historical, I have discovered more about the relationship between photographs and autobiographical memory. Each way of looking at the collection has its strengths and weaknesses and each one gives up a certain amount and type of information.

Some writers on photography such as Timm Starl, mentioned before, writing on photography have suggested that the type of statistical analysis I carried out to create a taxonomy of my grandfather's photographs is the only way to analyse a collection of personal photographs. Statistics rationalise collections and produce a certain type analysis: if the protagonists, events and places in are unknown, at least we glean an understanding of the mechanics of a collection. With my grandfather's collection, I have been able to use historical information and memories of family and friends, and my own memory of events, in conjunction with the information gained from the taxonomy, to come to a fuller understanding of my grandfather's interest in photography. It is only by combining these different orders of information that I have been able to start to analyse the way photography has had an influence on memory. It has also helped me to gain an awareness of the power of photography to conjure up autobiographical memory. Whether this is because of my particular relationship⁹⁵ with the collection or for other reasons to do with photography itself is explored in the next section of this chapter.

Susan Stewart⁹⁶ in her book, *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* takes a position that photographs become a generalised substitute for memory. She states that:

The photograph as souvenir is a logical extension of the pressed flower, the preservation of an instant in time through a reduction of physical dimensions and a corresponding increase in significance supplied by means of narrative. The silence of the photograph, its promise of visual intimacy at the expense of the other senses [its glossy surface reflecting us back and refusing us penetration], makes the eruption of that narrative, the telling of its story, all the more poignant. For the narrative of the photograph will itself become an object of nostalgia.

⁹⁵ Susan Sontag says of this, '...this is not because a photograph cannot evoke memories [it can, depending on the quality of the viewer rather than the photograph] ...' [Sontag:6]

⁹⁶ Poet and critic Susan Stewart was born in 1952 and has published several collections of poetry, including *Columbarium* (University of Chicago Press, 2003) which won the National Book Critics Circle Award, *The Forest* (1995), and *Yellow Stars and Ice* (1981). Her books of criticism include *Poetry and the Fate of the Senses* (University of Chicago Press, 2002), which won the Christian Gauss Award for Literary Criticism from Phi Beta Kappa and the Truman Capote Award in Literary Criticism; *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection* (1993); *Crimes of Writing: Problems in the Containment of Representation* (1991); and *Nonsense* (1989). Her collected essays on art, *The Open Studio: Essays in Art and Aesthetics*, will be published by the University of Chicago Press in 2004. She also co-translated Euripides' *Andromache* with Wesley Smith, and the poetry and prose of the Scuola Romana painter Scipione with Brunella Antomarini. [Stewart 2005:1]

Without marking, all ancestors become abstractions, losing their proper names; all family trips become the same trip – the formal garden, the waterfall, the picnic site and the undifferentiated sea become attributes of every country.’ [Stewart 1993:138]

She continues by saying, ‘...the photograph, which has made possible the dramatization and classification of the individual life history. Such “still shots,” say, before the family car or the Christmas tree, are always profoundly ideological, for they eternalise a moment or instance of the typical in the same way that a proverb or emblem captions a moment as an illustration of the moral working of the universe. Thus, while these photographs articulate the individual, they do so according to a well-defined set of generic conventions. It is not simply that the family album records an individual’s rites of passage; it does so in such a conventionalised way that all family albums are alike.’ [Stewart 1993:138] This idea that all family albums are the same is criticised by Martha Langford [2001]. She writes, ‘...a personal photographic album is not typical, but rather, that, it has been formed in a conscious or unconscious sense of atypicality that wanted, and wants still, to communicate...this rather ordinary observation flies in the face of the literature, where a general idea of album seems to have replaced the actuality. Where the album becomes an oasis of typicality in the over heated worlds of socialization, propagation, memory and desire.’ [Langford 2001:23]. My grandfather’s collection has photographs that are typical of many photographic albums I have seen before, but because of the usual subject matter and the obsessive nature of the way he took photographs I see his ‘album’ as not typical at all.



Butterfly Cambridgeshire. 1950s/60s. [Image from the collection]

5. Appendix

A series of graphs showing the breakdown of what the transparencies depict.

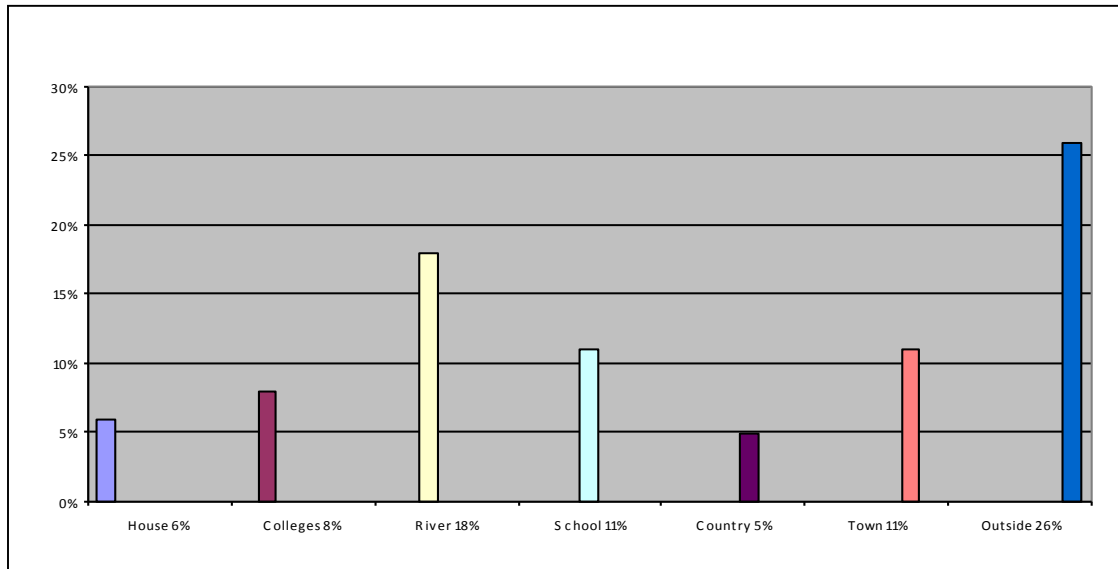


Fig. 1. Graph of 'Home' Slide Locations.

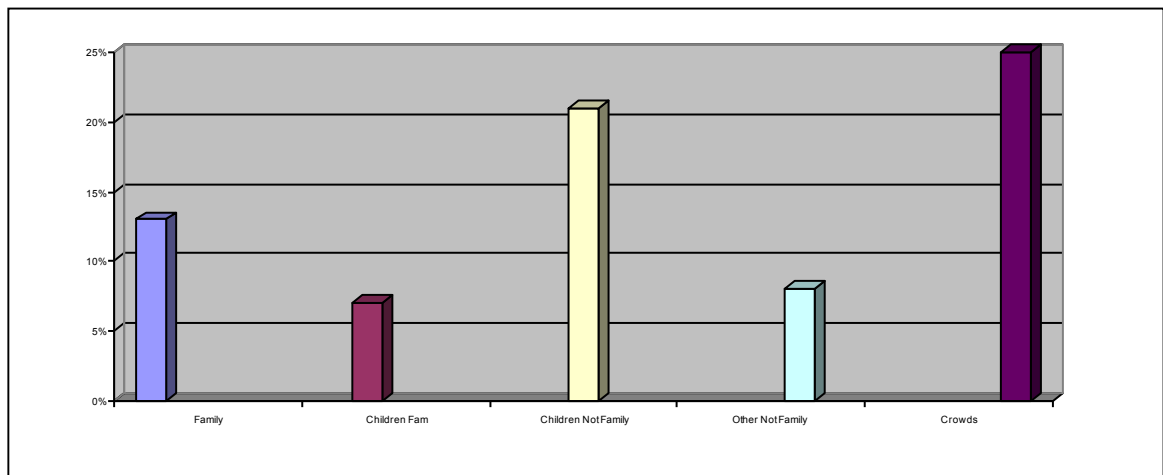


Fig 2. Graph of people in the 'Home' Slides.

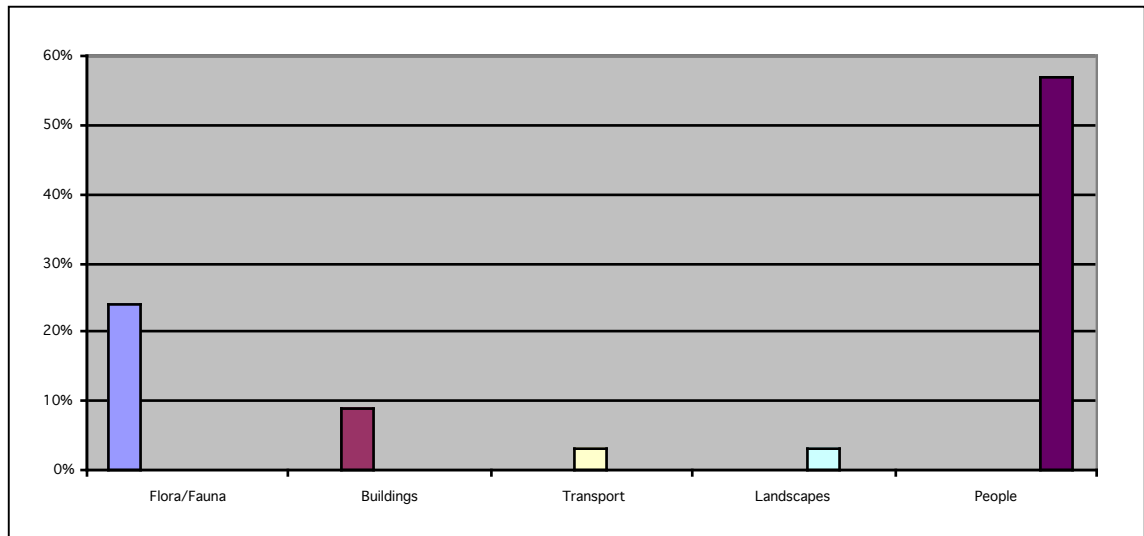


Fig 3. Graph of Subject Matter. In the 'Home' Slides.

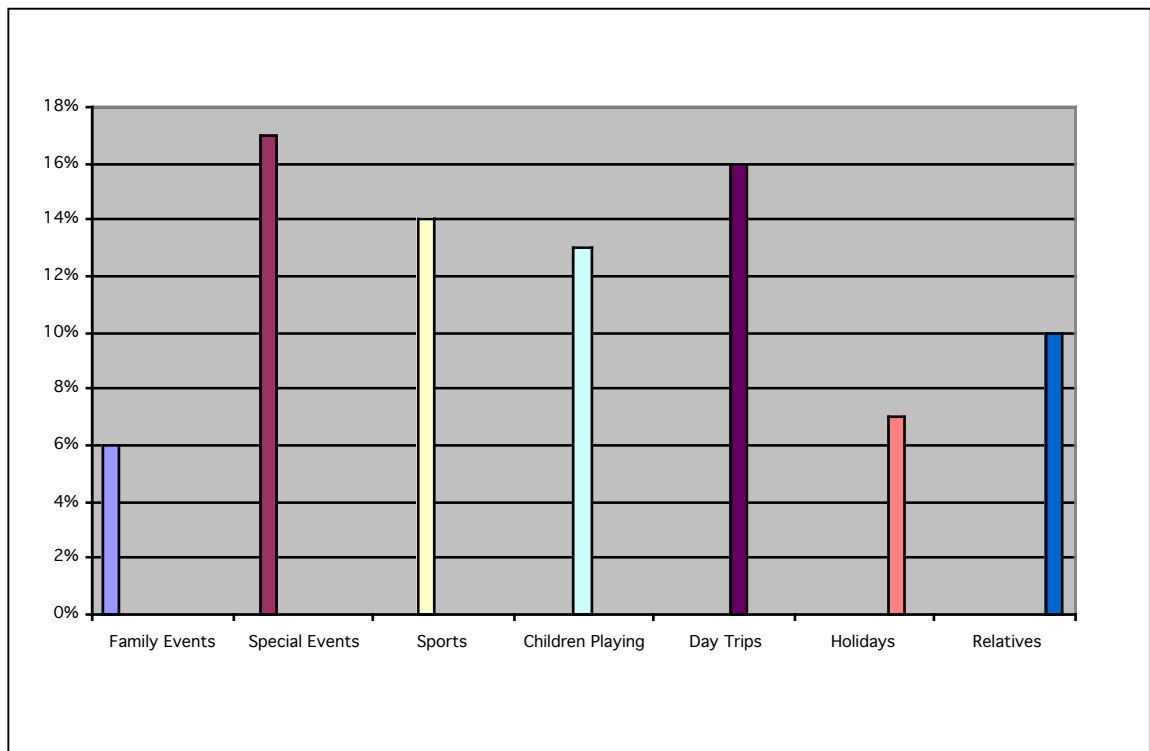


Fig 4. Graph of events in the 'Home' Slides

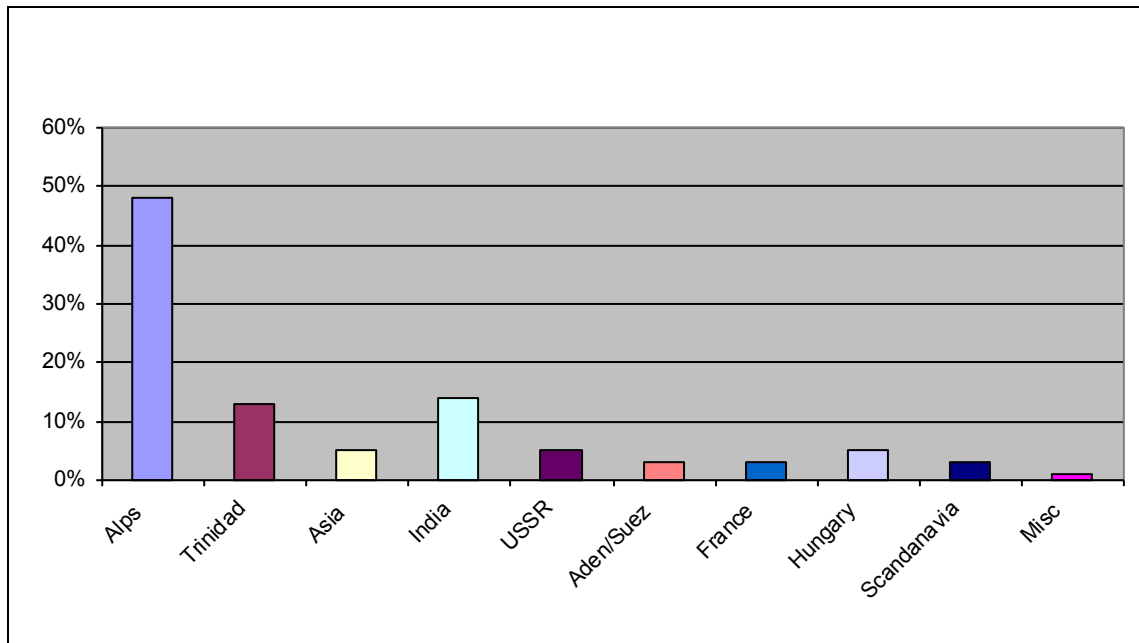


Fig 5. Places the slides were taken when abroad.

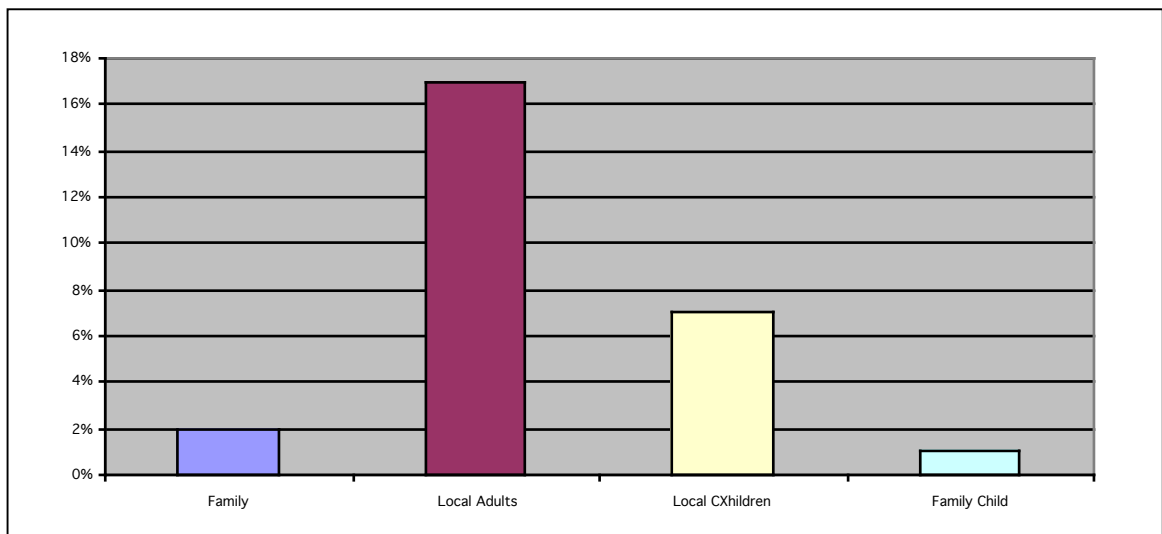


Fig 6. Identity of people in 'Away' slides.

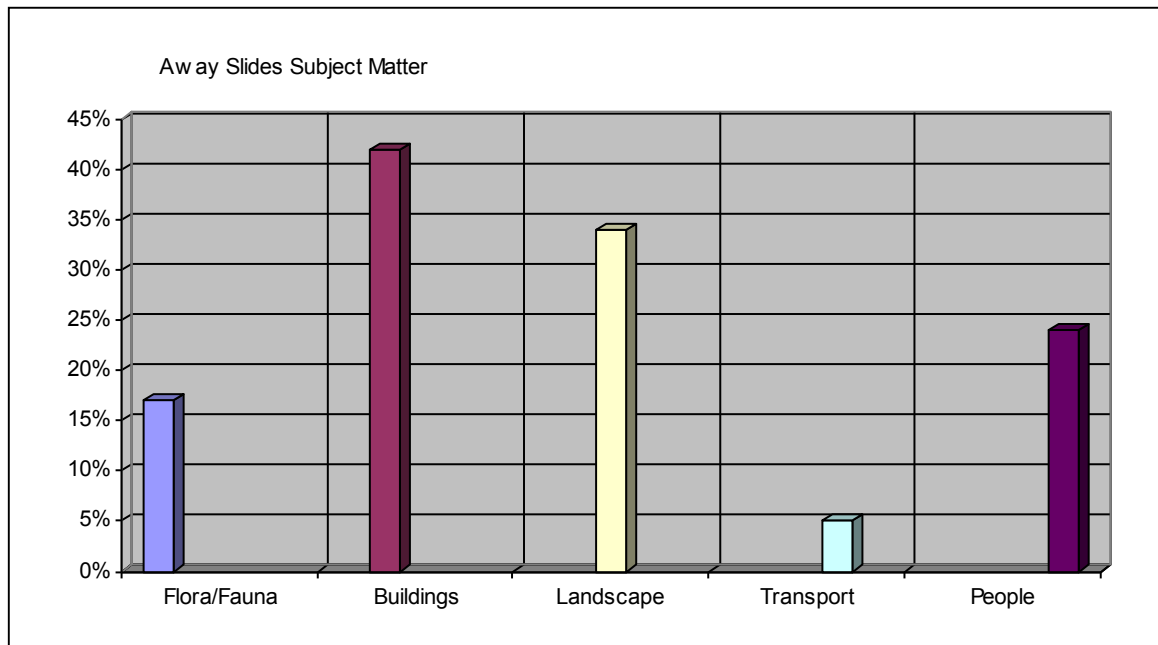


Fig 7. What subject matter is in the 'Away' slides.

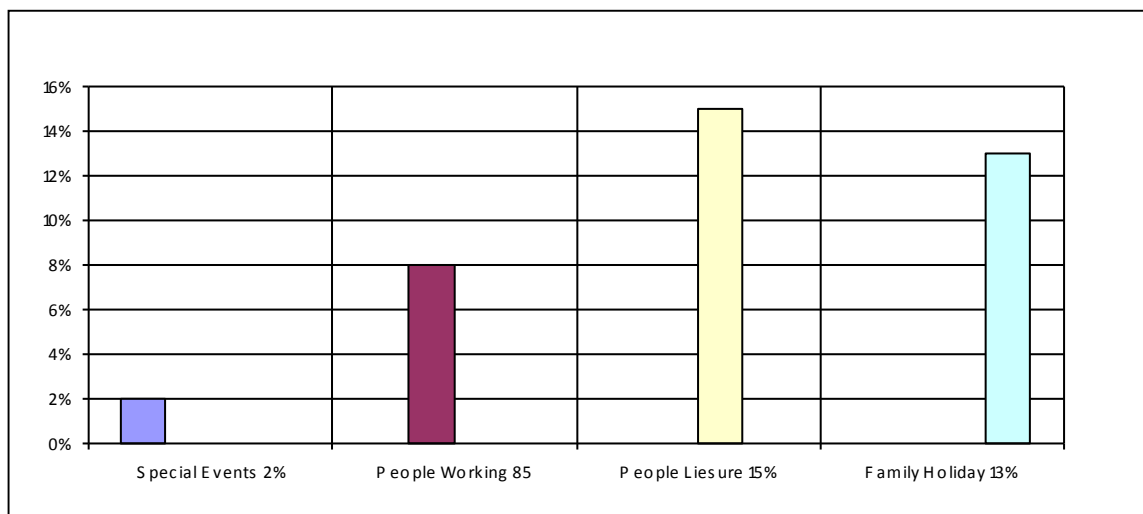


Fig 8. Action in the 'Away' slides.

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Chapter 4.

Light Rooms

Roland Barthes and 'the dizzying of consciousness'⁹⁷

Introduction



1807 engraving of a camera lucida in use.

In this chapter I discuss the evolution of theories on photography and especially those of recent years. I discuss photography's 'identity', both as a system of representation and as a social practice/phenomenon. I analyse current thinking about photography and examine photographs as being 'objective' records of the past and their supposedly indexical qualities, being somehow 'stencilled from reality'.⁹⁸ [Sontag 1979:154] I look at in detail the ideas on photography Roland Barthes writes about in book *Camera Lucida* as a means of analysing the above questions.

⁹⁷ "Three tenses dizzy my consciousness," writes Barthes, "my present, the time of Jesus, and that of the photographer, all this under the instance of 'reality'." [Barthes 2000:94]

⁹⁸ Susan Sontag argues that, "...a photograph is not only an image [as a painting is an image], an interpretation of the real; it is also a trace, something directly stencilled off the real, like a footprint or a death mask." [Sontag:7]

I will discuss the way photographs and photography have been written about in the last forty years or so, and how the changes in thinking about the photographic have changed the way the relationship between the photograph and memory has been thought about. Alongside this discussion I will intimate how my practice and my thoughts about my practice have developed through this research.

1. Recent Discussions on Photography

Some writers and thinkers about photographs in the last twenty years have begun to question the way in which different schools of thought question each other's ways of thinking about photography. Geoffrey Batchen⁹⁹ in his insightful book on photography, *Burning with Desire: The Conception of Photography* [1999], describes this question by saying,

Both post-modernists and formalists presume to know what photography is [and what it isn't]. Their argument is about the location of photography's identity, about its boundaries and limits, rather than about identity per se. [Batchen 1999:5].

The question of 'what is photography' has puzzled and troubled most writers who have written about photography since its conception. John Tagg, for instance, makes the claim that photography has no identity as such, as there is no unified coherent history of photography. For these writers there are many histories and 'its nature as a practice depends on the institutions and agents which define it and set it to work.' [Tagg 1988:63]

Broadly speaking this argument can be seen as a post-modern view that rejects any sort of 'essence' for photography. These writers argue that all of photography's meaning and power is contingent upon the contexts and institutions it operates within. They strongly oppose the 'formalist/modernist' ways of thinking about photography that attempt to essentialise photography.

These writers make a case for photography's identity by looking at the special qualities that

⁹⁹ Professor Geoffrey Batchen teaches at the Graduate Center and Hunter College, having previously taught at the University of New Mexico and the University of California, San Diego. His first book, *Burning with Desire: The Conception of Photography*, presents a critique of postmodern and formalist accounts of photography by way of a detailed analysis of the medium's emergence in the late eighteenth and early nineteenth centuries. This was the first study of photography to make extensive use of the work of Michel Foucault and Jacques Derrida. His second book, *Each Wild Idea: Writing, Photography, History*, comprises a collection of his essays on photography and electronic culture, further demonstrating the critical possibilities offered to art history by deconstruction. Among other projects, he is currently working on an exhibition for the Van Gogh Museum in Amsterdam devoted to the relationship of photography and memory, due to open in March 2004. This will be accompanied by an illustrated catalogue offering an alternative 'vernacular' approach to the history of photography. [Batchen 2004:1]

differentiate photography from other forms of visual representations. They look at what for them are the peculiarities of photography... 'The Thing Itself, The Detail, The Frame, Time, and Vantage Point.' [Szarkowski]

During the second half of the twentieth century photographs have been written about in ways that differ from the debates of the previous century. Carol Squiers¹⁰⁰ in the introduction to the book, *Critical Image: Essays on Contemporary Photography*, sums up the difficulties and differences in attitudes in recent critical analysis of photography. She states, 'Despite our greater understanding of photography, modern attitudes toward the medium are still substantially defined by those early polarities of wonder and contempt.' [Squiers 1991] She continues, 'In fact, for much of the one hundred and fifty years of its existence, photography has been haunted by critical disagreement as to its nature and by defensiveness about its cultural status. Despite intermittent outpourings of verbiage about photography, consensus about its importance, function, and effect has never been achieved.' Another problem she identifies is photography's relation to the 'real': 'Disagreement as to the relation between reality-out-there and reality-as-transcribed-in-a-photograph remains a central issue in debates about photography.'¹⁰¹ [Squiers:7-8]

It is this difference of the reality-out-there and reality-as-transcribed-in-a-photograph that makes the photograph more memorable to some writers. 'The phatic image', writes Paul Virilio¹⁰² in *The Vision Machine* is, 'a targeted image that forces you to look and holds your attention. More importantly it is the result of an ever-brighter illumination, of the intensity of its definition, singling out only specific areas, the context mostly disappearing into a blur.' [Virilio:14] The idea that the photograph can affect the way we see the world is important to the idea that autobiographical memory has significantly changed since the advent of photography. Warren

¹⁰⁰ Carol Squiers teaches on the B.A course at University of Illinois. ICP curator. Former curator of photography, P.S. 1 Contemporary Art Center [1980-84]; senior editor, *American Photo* [1990-2000]. Contributor to numerous publications including *New York Times*, *Artforum*, *Vanity Fair*, *Aperture*, *Art in America*, *Village Voice*, in addition to numerous exhibition catalogues, including *Peek: Photographs from the Kinsey Institute and Barbara Kruger: A Retrospective*. Edited *The Critical Image: Essays on Contemporary Photography and OverExposed: Essays on Contemporary Photography*.

¹⁰¹ Bertrand Russell says of this idea of what is reality 'We think that grass is green, that stones are hard, and that snow is cold. But physics assures us that the greenness of grass, the hardness of stones, and the coldness of snow, are not the greenness, hardness, and coldness that we know in our own experience, but something very different. The observer, when he seems to himself to be observing a stone, is really, if physics is to be believed, observing the effects of the stone upon himself'. [Gregg:1]

¹⁰² Paul Virilio was born in Paris in 1932. He studied architecture in Paris, and in 1963 he became the president and the editor of the *Architecture Principe* group's magazine. He was teacher at the École Speciale de Architecture until 1968, becoming Director of Studies in 1973. At that same year, he became the director of the magazine *L'Espace Critique*, published by Galilee, from Paris. In 1975 he was the General Director of the ÉSA and in 1989 Chairman of the Board. In 1975 he co-organised the Bunker Archeologie exhibition at the Decorative Arts Museum of Paris. 1987: Grand National Prize for Architecture Critique. 1989: director of the program of studies at the College International de Philosophie de Paris, under the direction of Jacques Derrida. In 1992, he became a member of the High Committee for the Housing of the Disadvantaged. Among other projects, he is presently working on metropolitan techniques of time organisation and the building of the first Museum of the Accident. [Futoransky:1]

Niedrich uses this idea of the phatic image to make a claim that these types of images alter the way our brains function. He comments on the above Virilio quote, ‘As such these artificially contrived images compete more effectively for neural space than their natural or organic counterparts and as such build sets of neural relationships or neural networks that are in a sense artificial.’ [Niedrich 2004] These thoughts are explored further in Chapter 4 of this thesis.



Delhi/Suez [Projections]. Photographic Print. 1m x 3m. 2003

The preceding photographic print comes from a series of works that used an image projected through a SLR camera which had a transparency from my grandfather's collection inserted into it. The projection was created using a torch which is why the images are circular. The resulting photographs I took of these images pick up the image of the transparency and the bulb and reflector of the torch. For me this created an intensity and a 'heat' that emphasised certain regions of the photograph and alluded to the way memory can be thought about as focussing on small areas or fragments of an event. Sometimes when I think back to times in my life certain images seem to be highly illuminated whereas other parts of the scene are hazy at best or even completely dark.



Delhi/Suez [Projections] Detail. Photographic Print. 1m x 3m. 2003

The preceding image is a detail from *Delhi/Suez [Projections]* made in 2003 and shows the way the torch illuminates the image. In places the image become indistinct and in others is 'burned' out taking away any of the details. For me this became an approximate analogy to the way my memory seemed to work. Images I had in my mind do not 'look' like this but it gives a sense of the way recall can be partial and uneven. These images reflect my understanding of Virilio's description of the phatic image.



Details of Boy Up Tree. Camera Projection. 2003

A similar affect occurs in the above two images whereby the background becomes too light to be discernable and the foreground is the clearer ‘memory’.

2. Camera Lucida.

One of the first writers to comment on the different ways of thinking about photography was Roland Barthes¹⁰³. In the opening of his essay, *Rhetoric of the Image*, he writes that:

Thus from both sides the image is felt to be weak in respect of meaning: there are those who think that the image is a extremely rudimentary system in comparison to language and those who think that signification cannot exhaust the image’s ineffable richness [Barthes 1964:32-51].

He continues this line of argument from a more personal perspective in *Camera Lucida*.¹⁰⁴ I discuss this book in some detail in this section as a way of examining my own reactions when looking at my grandfather’s collection of photographs.

Camera Lucida is Barthes’ attempt to find the ‘essence’ of photography. He says his aim is to discover what it is that separates photography from other forms of image. His approach is openly subjective, holding to question photographs he loves in order to learn if photography has a ‘genius’ of its own [Barthes 2000:3]. In the opening chapters he describes his dissatisfaction with how photography is written about and he writes that:

¹⁰³ Roland Barthes was born in Cherbourg, Manche. After his father's death in a naval battle in 1916, Barthes' mother Henriette Binger Barthes moved to Bayonne, where Barthes spent his childhood. In 1924 she moved with her son to Paris, where Barthes attended the Lycée Montaigne [1924-30] and Lycée Louis-le-Grand [1930-34]. In 1927 Henriette gave birth to an illegitimate child, Michel Salgado, Barthes' half-brother. When Barthes' grandparents refused to give her financial help, she supported her family as a bookbinder. At the Sorbonne Barthes studied classical literature, Greek tragedy, grammar and philology, receiving degrees in classical literature [1939] and grammar and philology [1943]. In 1934 Barthes contracted tuberculosis and spent the years 1934-35 and 1942-46 in sanatoriums. During the Occupation he was in a sanatorium in the Isère. Numerous relapses with tuberculosis prevented him from carrying out his doctoral research, but he read avidly, founded a theatrical troupe, and began to write. Barthes was a teacher at lycées in Biarritz [1939], Bayonne [1939-40], Paris [1942-46], at the French Institute in Bucharest, Romania [1948-49], University of Alexandria, Egypt [1949-50], and Direction Générale des Affaires Culturelles [1950-52]. In 1952-59 he had research appointments with Centre National de la Recherche Scientifique, from 1960 to 1976 he was a director of studies at École Pratique des Hautes Études. In 1967-68 he taught at Johns Hopkins University in Baltimore, and from 1976 to 1980, he was the chair of literary semiology at Collège de France. [Barthes 2005:1]

¹⁰⁴ The Camera Lucida was designed in 1807 by Dr. William Wollaston, was an aid to drawing. It was a reflecting prism which enabled artists to draw outlines in correct perspective. No darkroom was needed. The paper was laid flat on the drawing board, and the artist would look through a lens containing the prism, so that he could see both the paper and a faint image of the subject to be drawn. He would then fill in the image. However, as anyone who has tried using these will know only too well, that too required artistic skills, as Fox Talbot also discovered. [Leggat:1]

Some [books] are technical; in order to “see” the photographic signifier, they are obliged to focus at very close range. Others are historical¹⁰⁵ or sociological; in order to observe the total phenomenon of the photograph, these are obliged to focus at a great distance.’ [Barthes 2000:7].

He states his dissatisfaction with these two opposing approaches, because they both overlook or dismiss what it is, for him, something that is fundamental to photography and the photographic experience, for he is interested in photographs that give him ‘pleasure or emotion’. [Barthes 2000:6-7] For Barthes these writers evade questions of what photography is ‘in itself’ by discussing aspects such as composition or the context in which the photograph was taken or exhibited [Barthes 2000:14-15]. Writers like John Tagg take the idea that photography became a social necessity and was bound up in the development of bourgeois culture in the early part of the nineteenth century [Tagg 1988]. Laszlo Moholy-Nagy¹⁰⁶ sees the development of photography as scientifically based and a part of industrialisation [Moholy 1940]. While still others such as Peter Galassi¹⁰⁷ see photography as an extension of what had been happening in painting in the late eighteenth and early nineteenth centuries [Galassi 1981]. Some of these ‘histories’ have tried to combine these different ways of looking at photography, whether they are social, political, scientific or cultural in orientation, into a more complex understanding of the reasons for its ‘invention’. [Batchen 2000]

Barthes uses a method of analysing photography, from a subjective standpoint, by using photographs he ‘knows’, [personal photographs] from his collection. He talks about the ‘vertigo of time defeated’ and ‘the dizzying of consciousness’ when he looks at certain photographs. He uses a ‘casual phenomenology’, which he bends to accommodate ‘...the object [photograph] which was immediately steeped in desire, repulsion, nostalgia, euphoria.’ [Barthes 2000:14-15]

When I first looked at my grandfather’s collection of photographs I had all of the above emotions and others that were perhaps less dramatic. I was bored. Some of the rolls of

¹⁰⁵ A multitude of different ‘histories’ of the photographic image and photography have been written over the last 160 years. In many cases, they start with stories of the ‘origins’ of photography. Most of these ‘histories’ begin with a discussion of the camera obscura and its history and then work their way through ideas of renaissance perspective and scientific discoveries related to the development of the photographic process. They then go on to tell the story of how photography was ‘invented’ and of the ‘inventors’ of photography, the main protagonists in this story being, Nicéphore Niépce, Louis Daguerre, and William Fox-Talbot. After these histories have been explored, which are fairly standard and are told without much argument, the reasons for photography coming into being and at a certain time [1826-1839] are written about.

¹⁰⁶ After studying law in Budapest, Laszlo Moholy-Nagy took an interest in photography and painting after World War I. He blended the two media while associating with the Dadaists and Constructivists while in Vienna and Berlin. He developed images that he called “photograms,” non-objective works made from a subject without a camera. Moholy-Nagy joined the Bauhaus under Gropius in 1925, and provided the building blocks for the New Photographer’s movement. [Moholy-Nagy]

¹⁰⁷ Peter Galassi is the chief curator of the department of photography at New York’s Museum of Modern Art.

transparencies seemed to me dull and repetitive and did not, at first, grab my attention. The more I have worked with the collection the more these images have come to fascinate me. By their very banality they become resonant of my grandfather and my relationship with him and his photographs.

Interestingly to me Camera Lucida is divided into two parts, which echoes my own approach to the analysis of my grandfather's photographs. The first part deals with the why and how of his undertaking and uses a series of photographs, which are in the public domain and which are in the main illustrated, to further his arguments. The second part is a reassessment of the first and uses a single private photograph of his mother as a child, which is deliberately not shown to us, as a starting point for his analysis.¹⁰⁸ Barthes writes that he cannot reproduce this photograph of his mother because it '...would be nothing but an indifferent picture...' for anybody else. [Barthes 2000:73] I started my research by taking a highly structured approach to the collection by using a taxonomical method. Although this has been important for me to find out more about the collection and my grandfather's photographic practice, it is the photographs that have resonated and agitated me that have become my focus.



Wallpaper and image of me on a sledge. Projected slide onto wallpaper. 2003

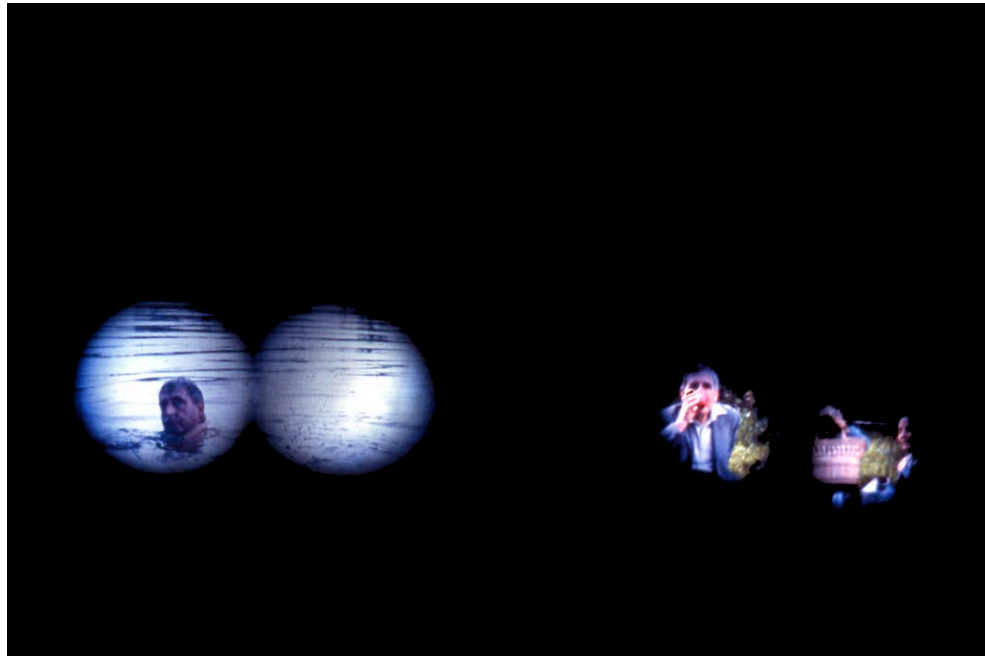
¹⁰⁸ The book is illustrated with 24 black and white photographs mainly taken by well-known photographers. The photograph from Barthes's private collection is of her mother when she was five years old and is called the 'Winter Garden Photograph' throughout the book.

I am also interested in the way the book is structured into forty-eight discrete titled sections and the way they are loosely linked to form a narrative for his arguments. These partial sections for me became like my memories of my life, fragmented and seemingly unconnected. This way of writing has been described as:

...in accordance with Barthes's aesthetic of the fragment, suspicion of the cohesive discourse, with its apparently inevitable flow; and again since continuity is associated by Barthes with the cinematic image, the text of *La Chambre Claire* is by contrast determined as photographic, the verbal equivalent of a string of discrete images. [Moriarty:200]

This gives the book the feeling of being a series of 'snap shots' which illuminate his ideas along a journey to discover the essence of photography. This structure also alludes to one of the themes of the book, which is the difference between photography and film. For me it can also be related to the way autobiographical memory processes can work: fragmented, disjointed and sometimes elusive.

The following image is taken from an installation called 'Ships That Pass' and shows two camera projections of my grandfather which uses SLR cameras and torches. As I have said before my recollection of my grandfather is fuzzy, yet I have a distinct impression of his presence.



Detail from *Ships That Pass*, Installation. 2004. [Detail]

Barthes writes at the beginning of the book at being amazed that he can look at someone in a photograph who has looked upon someone from an even more distant past. In his case this is a photograph of someone who has looked at the 'Emperor'. He feels he is the only person to have this kind of amazement and therefore asks, 'Who can help me?' [Barthes 2000:4]. Firstly he notices, after he has found out that photography is 'unclassifiable' and therefore 'disordered', that he does not 'see' the photograph as such but only what it is that is photographed. He sums this up by saying, 'It is as if the photograph always carries its referent with itself, both affected by the same amorous or funereal immobility, at the very heart of the moving world: they are glued together...' [Barthes 2000:6]. He sees this as the main difficulty that pervades books that deal with photography. For him these books evade the question of what is photography 'in itself'¹⁰⁹ by discussing aspects such as composition or the context in which the photograph was taken or exhibited [Barthes 2000:6-7]. He is dissatisfied with these two opposing approaches because they both overlook or dismiss what it is, for him which is fundamental to photographs and looking at photographs.

I share Barthes' reservations, and it is precisely the ideas that photographs are either read through the 'culture' they come from, or operate in, or are analysed in terms of their 'nature' through conventional historical and aesthetic methods that I am questioning here. Barthes believed that photography is always contingent upon something else, its referent, but at the same time he feels that there is something 'special' about the photographic image that separates it from other forms of representation.

Early on in *Camera Lucida* Barthes takes the decision to 'learn for himself' ['a heuristic principle']¹¹⁰ about photography by inquiring into a few photographs he was 'sure that existed' for him. He decides to take himself, 'as mediator for all Photography', and as the measure of 'photographic "knowledge".' [Barthes 2000:8-9]. He takes this personal approach because he now finds that the critical discourses used in his previous work – whether sociological, semiological, or psychoanalytic – are of no help to him in finding what it is about photography that 'moves' him. He describes this personal approach in term of 'emotion as departure' [Barthes 2000:8], starting his analysis with photographs that make him *feel* something, rather than imposing a reductive system of critical discourse upon photography. Barthes justifies this

¹⁰⁹ In an often-quoted passage, John Tagg criticises the idea that there can be an 'essence' of photographs. He says, 'Photography as such has no identity. Its status as a technology varies with the power relations, which invest it. Its nature as a practice depends on the institutions and agents that define it and set it to work. Its function as a mode of cultural production is tied to definite conditions of existence, and its products are meaningful and legible only within the particular currencies they have. Its history has no unity. It is a flickering across a field of institutional spaces. It is this field we must study, not photography as such.' [Tagg :63]

¹¹⁰ A "heuristic principle" is a principle of thinking or reasoning which is not judged based upon its truth but rather its pragmatic consequences. It is assumed to be true for the purposes of some problem or inquiry. [Cline]

personal approach by saying, ‘It was better, once and of all, to make my protestation of singularity into a virtue – to try making what Nietzsche called the “ego’s ancient sovereignty” into a heuristic principle.’ [Barthes 2000:8].



Trinidad Wallpaper. Photographic Print. 2004

This echoes my own inquiry into the way photographs have altered autobiographical memory. I am using a personal collection of photographs which has both intrigued and moved me. I am subjecting it to different methods of analysis, from the anecdotal to the statistical and the empirical to the historical, to find out more about the relationship between my grandfather’s photographs and my autobiographical memory. Each ‘methodology’ has its strengths and weaknesses, and each gives up a certain amount of information, but it is by combining such a range of methods that the central concern of my practice as an artist is illuminated more fully.

The above image combines a photograph my grandfather took on his trip to Trinidad in 1961 and the wallpaper that covered over his study that became my bedroom when I moved to Millington Road in 1967. I have very hazy and fragmentary memories of Trinidad, but very

strong memories of the wallpaper and the room it was in. Now though, I am remembering the images from the collection very vividly. I experienced being where the photographs were taken in Trinidad, yet as I was so young they seem not to have remained in my biological memory. With this work I am trying to convey the sense that memory is malleable and is affected by the external sources by which we are helped to remember our pasts, in this case my grandfather's photographs.

In *Camera Lucida* Barthes divides photography into three practices. This is so he can narrow down the field of his inquiry. He names these as: the operator [the photographer], the spectrum [the photographed], and the spectator [the viewer of the photograph]. After rejecting looking at photography from the photographer's point of view, as he is not a photographer himself, he meditates on what it is like to be photographed. He is uneasy when he is photographed and is dissatisfied with the resultant images of himself. They never capture who he thinks he is or wants to be [Barthes 2000:10-15]. Because of this he sees, 'the Photograph is the advent of the other: a cunning dissociation of consciousness from identity.' [Barthes 2000:12].

He also thinks that, looking at oneself in a photograph creates a different way of viewing the world and finds it 'odd that no one has thought of the *disturbance* [to civilisation] which this new action causes.' This rupture occurs because for the first time people have been able to see their image in a fixed and 'unmediated' state as a photographic object and because of this he wants a new way of 'thinking about looking' and even a 'History of looking.' [Barthes 2000:12]. It is this 'disturbance' that Barthes talks about in relation to the way photography has changed the way we perceive the world, which is crucial to my concern with autobiographical memory and photographs. I argue this same 'disturbance' has also altered our relationship with autobiographical memory. It has changed the way we look at ourselves and therefore changes the way we think about ourselves. As a consequence of these changes autobiographical memory has also changed. My project is about how and why this alteration has occurred and how it can be the subject for my art.



A torch illuminating a transparency projected through a camera and then projected on to a wall.

Barthes eventually makes the decision to investigate photography from the viewpoint of the spectator. To emphasise this he says:

The disorder which from the very first I had observed in photography – all practices and all subjects mixed up together – I was to rediscover in the photographs of the *Spectator* whom I was and whom I now wanted to investigate [Barthes 2000:16].

He starts this investigation by choosing certain photographs that ‘agitate’ him and cause an ‘adventure’ to occur, referring to this attraction to certain photographs as an ‘animation’. ‘The photograph itself is in no way animated [I do not believe in “lifelike” photographs], but it animates me: this is what creates every adventure.’ [Barthes 2000:18-20].

When I look through my grandfather’s collection, I experience a similar type of ‘animation’ to that which Barthes describes. One photograph in particular – the boy somersaulting into a swimming pool – set me off on an ‘adventure’ that created an associative chain of memories. At first I remembered the pool, the coldness of the water, the school uniforms, but it was only later on, when I had put the photograph away, that I remembered the metal rail that went around the

pool just above the water's surface. It was this detail that sparked further memories. In *Camera Lucida* Barthes calls this the 'punctum'. A term I shall define shortly.

The next image is a detail of the transparency which depicts the boy somersaulting into a pool. It is the metal rail for me that becomes my 'punctum'. When describing the punctum he writes that, 'Very often the *Punctum* is a "detail", i.e., a partial object.' [Barthes 2000:43]



Detail of Kings College Choir School swimming pool taken in 1963.

To investigate his own photographs Barthes uses what he calls a 'casual phenomenology', which he bends to accommodate '...the object [photograph] ...' He feels he is unable to use the classical phenomenology of his youth as it has never 'spoken of desire or mourning.' [Barthes 2000:20-21]. Photographs excite and perplex, make us uneasy and ecstatic, reveal and conceal, lie and tell some sort of 'truth'. It is these paradoxical qualities in photography that interest Barthes, in much the same way as they interest me. This is how he sums up his desire to look at photography:

As *Spectator* I was interested in Photography only for “sentimental” reasons; I wanted to explore it not as a question [a theme] but as a wound: I see, I feel, hence I notice, I observe, and I think [Barthes 2000:20-21].

Up until this point in *Camera Lucida* Barthes mentions very few specific photographs and only one has been illustrated.¹¹¹ Then by chance he comes across a photograph that makes him pause. The photograph is from a conflict in Nicaragua and shows two nuns passing behind three soldiers on a rubble-strewn street. He realises that the reason he paused on this photograph was because of a ‘duality’ of ‘...the co-presence of two discontinuous elements, heterogeneous in that they did not belong to the same world’ and therefore he ‘...foresaw a structural rule...’ in this combination of elements [Barthes 2000:23].

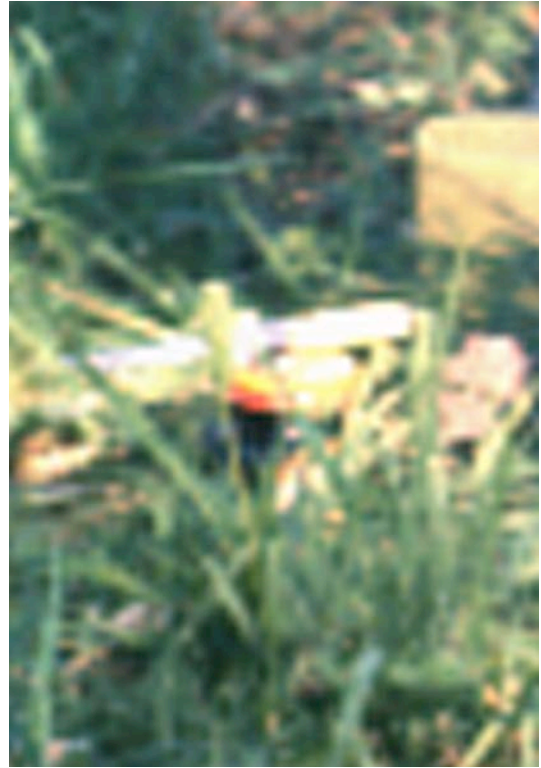
Barthes then sets out the two key elements of this ‘duality’ in photography that arouses him. They are the *Studium* and the *Punctum*. The *Studium* is defined as ‘...application to a thing, taste for someone, a kind of general, enthusiastic commitment, of course, but without special acuity,’ This interest in the photograph comes from a prior concern outside of the photograph itself and is bound up with culture. The *Studium* is something one likes but does not love. [Barthes 2000:25-27]. The *Punctum* on the other hand is of a different order completely. Barthes describes it as ‘...the element which rises from the scene, shoots out of it like an arrow, and pieces me’. It is ‘...that accident which pricks me [but also bruises me, is poignant to me]’. [Barthes 2000:27].

After the ‘discovery’ of this distinction between liking and loving, Barthes reviews the type of photographs that, for him, have a *Studium* and why they interest him. These are the types that ‘inform’, ‘surprise’, ‘signify’ and ‘awaken desire’. He calls these ‘unary’ photographs, by which he means they have: ‘...no duality, no indirection, no disturbance,’ they are ‘... not traversed, lashed, striped by a detail [*punctum*] which attracts or distresses...’ [Barthes 2000:28-42].

¹¹¹ The first photograph to be illustrated in the book is: The Horse-Car Terminal. New York, 1893. By A. Stieglitz.. Barthes comments, ‘Further: I realized that I have never liked all the pictures by any one photographer: the only thing by Stieglitz that delights me [but to ecstasy] is his most famous image.....’ [Barthes 2000:16-17].



Image from the collection of my brother 1966



Detail from previous image. 1966

He then goes on to describe the Punctum variously as a ‘partial feature’ [a detail], unintentional, a flash that awakens, coming from silent contemplation and often from remembering the photograph, creating an external life from memory, a need or an action. He says of this: ‘Nothing surprising then, if sometimes, despite its clarity, the Punctum should be revealed only after the fact, when the photograph is no longer in front of me and I think back on it.’ He sums up by saying, ‘The Punctum, then, is a kind of subtle *beyond* – as if the image launched desire beyond what it permits us to see.’ [Barthes 2000:43-59].

This gives the Punctum a potential Proustian quality. It is involuntary, both in respect of the photographer and the viewer, and impossible to quantify. In Proust’s *A La Recherche du Temps Perdu* it is often some time after the initial event has caused an awakening of memory that the specific details of that memory, through thought, come to light.¹¹² Barthes emphasises these points when he says: ‘However lightning-like [a fulguration] it may be, the *Punctum* has, more

¹¹² It seems that the events are vaster than the moment when they take place and cannot hold any entireties to with it. Admittedly, they overflow on the future by the memory that we keep some, but they ask also a place the time which precedes them. Admittedly, it will be said that we then do not see them such as they will be, but in the memory they are not also modified? [Proust 1984:483]

or less potentially, a power of expansion. This power is often metonymic.’ [Barthes 2000:45]. The detail which constitutes the Punctum is therefore a substitute or association, but closely linked to that from which it derives its power to evoke memories and thoughts.¹¹³

The two preceding images illustrate this point. When I first looked at this photograph I was initially stuck by the quiriness of the pose and by my grandfather’s boots. I found it humorous and a little strange. I was not until much later that I was drawn to a section of the photograph that had a Marmite jar, a plastic cup and bone handled knife. It was the knife that evoked a whole series of memories. These were the same knives that I used when I lived at the Millington Road house and therefore I started to remember when I used them. I remembered the mealtimes, but I also remembered that we had to use this cutlery because the ‘silver’ had been put away because it was not suitable for ‘the boys’.

The following image is from a series of doublings of a selection of images from the collection, which I called ‘Döppelgangers’, in which I copied the transparencies and reversed on of them and overlapped it with the other. In some cases, for me, this created an uncanny feeling. I felt that by turning the image around I had got behind what was going on in the scene. The image became confused as to which way around it had originally been. I saw it as like the way memories can become confused and mixed up.

In the last section of part one of *Camera Lucida*, which he calls *Palinode*,¹¹⁴ Barthes writes that ‘[he has]...perhaps learned how [his] desire worked, but I had not discovered the nature [the *eidōs*]¹¹⁵ of the photograph.’ He is dissatisfied with the results of his search and thinks that, ‘...my pleasure was an imperfect mediator, and that a subjectivity reduced to its hedonistic project could not recognize the universal.’ To further his quest for the essence of photography he decides to descend ‘deeper’ into himself so he can find ‘...that thing which is seen by anyone looking at a photograph and which distinguishes it in his eyes from any other’. And to do this he has to ‘recant’ what he has said previously. [Barthes 2000:60].

¹¹³ This echoes strongly ideas of Freud and the uncanny and writing in an article entitled *Knots* Dr David Corker of UEA says of this, ‘From the work of Freud, Heidegger and Lacan we can put together a definition of the Uncanny as that state of mind which we experience when the unbroken and coherent appearance of the so-called ‘common-sense’ world is broken or disrupted by evidence of its ‘made’ quality, as a constructed world. This gives rise to feelings of being disturbed, disgusted or horrified, or to great levels of anxiety or vertigo as certainties are threatened and the very structure of everyday and normal life seems to give way.’ [Corker 2004:1]

¹¹⁴ A palinode is a poem in which the poet retracts a view or sentiment expressed in a former poem.

¹¹⁵ *Eidos* is a Greek term for what is seen—figure, shape, or form. In the philosophy of Plato, the *eidos* is the immutable genuine nature of a thing, one of the eternal, transcendent Forms apprehended by human reason {Gk. *nōu* V [nous]}. Aristotle rejected the notion of independently existing Forms and understood them instead as abstract universals. By extension, Husserl used the term “eidetic” for the phenomenological apprehension of essences generally. [Kemerling]



Döppelgänger: Tom Tom Biscuit. Photographic Print. 2004.

A great deal of what Barthes says in the first part of *Camera Lucida* is resonant and useful to me in my investigation into memory and photography. Barthes' concern is to find out what is photography 'in itself', which means finding something that is universal to all photographs. Although this is not my own goal, it has nevertheless helped me understand the complexities and contradictions that arise when photographs are analysed. Photographs change how and to what extent we can view the world. They also alter the way we think about ourselves.

Photographs are not the same as memory or a remembrance, but I argue they are radically connected, and it is this connection to which my concerns are directed.

His new quest in part two of *Camera Lucida* starts after he has been looking through some photographs of his mother, who had died just over a year earlier, and finds that none of the photographs give him the true essence of his mother's being. They do not 'speak to him', are caught in 'History', and he only recognizes fragments of her, never her essence. [Barthes 2000:63-67]. Barthes therefore sets out to see if he can find the essence of photography and the 'essence of his dead mother' by looking at photographs of her. It is through the combination of these two investigations that he is eventually able to come to a conclusion as to his thoughts about photographs and feelings for his mother.

Barthes writes about finding a very old photograph of his mother taken when she was five years old. He describes his feelings when looking at this photograph as finding the 'essence of his mother'. He says that: 'For once, photography gave me a sentiment as certain as remembrance.' He likens this to when Proust writing in *A La Recherche du Temps Perdu* says, 'leaning over to take off his boots, there suddenly came to him his grandmother's true face whose living reality he was experiencing for the first time'. [Barthes 2000:67-71] His strong feelings for this photograph, which he calls the 'Winter Garden Photograph', makes Barthes decide, 'to "derive" all Photography [its "nature"] from the only photograph which assuredly existed for me, and to take it somehow as a guide for my last investigation'. He has found that he cannot 'interrogate the evidence of photography' in terms of his pleasure, as he had done previously in Part One of the book, but the interrogation had to be in relation to 'Love and Death.' [Barthes 2000:73].

Death is a predominant and recurring theme throughout the book. He describes this connection as '...that terrible thing which is there in every photograph: the return of the dead'. When being photographed he becomes a spectre and experiences 'a micro-version of death [of parenthesis].' [Barthes 2000:10-15]. This is a common theme in writing about photography and harks back to the idea that the camera takes something away; the 'soul', or in Balzac's case the ghost-like layers that of which he thought bodies were made.

He reassesses the idea that he posited at the beginning of the book that the photograph is inextricably bound up with its referent. It is this co-presence, in his opinion, that separates photography from other forms of representation.

First of all I had to conceive, and therefore if possible express properly [even if it is a simple thing] how photography's Referent is not the same as the referent of other systems of representation. I call "photographic referent" not the *optionally* real thing which an image or a sign refers but the *necessarily* real thing which has been placed before the lens, without which there would be no photography [Barthes 2000:76].

This, link with its referent, is for him the essence of Photography and he calls it the 'That-Has-Been'. In the next six sections of the book he goes on to explain how this seemingly simple idea works. First of all he describes what he calls the 'Pose' of the photograph, the act of freezing time. He says,

For the photograph's immobility is somehow the result of a perverse confusion between two concepts: the Real and the Live: by attesting that the object has been real, the photograph surreptitiously induces belief that it is alive, because of that delusion which makes us attribute to Reality an absolutely superior, somehow eternal value; but by shifting this reality to the past ["this-has-been"], the photograph suggest that it is already dead. [Barthes 2000:78-79].

For Barthes the photograph has the two tenses [times] of the 'here-and-now' of the viewed photograph and the 'there-and-then' of the photographed object. It can also have a third tense, another time, the past of the photographed place or object e.g. when looking at the eyes that once looked upon the 'Emperor' or a photograph of a road leading to Bethlehem which takes him back to another time and place. For Barthes, this collapsing of time into a single moment is what makes photographs fundamentally different from other forms of representation and this happens because a photograph can 'authenticate' a past presence.

Barthes goes on to suggest that the possibility of photography having this special referent – 'That-Has-Been' – is due to the scientific discoveries that made photographs '... print directly the luminous rays emitted by a variously lighted object'. He emphasises this by saying. 'The photograph is literally an emanation of the referent. From the real body, which was there, proceed radiations which ultimately touch me, who am here.' [Barthes 2000:80]. This strongly echoes Susan Sontag's view of the photograph as described in 'On Photography' written 2-3 years earlier, where she says '...a photograph is never less than the registering of an emanation [light waves reflected by objects] – a material vestige of its subject...' [Sontag 1979:154-155]

This is a development of Barthes's observations, at the beginning of the book, about the photograph being contingent upon its referent. In the light of these developments he changes what he had said previously about what happens when he looks at a photograph. 'The Photograph does not call up the past [nothing Proustian in a photograph]. The effect it produces

upon me is not to restore what has been abolished [by time, by distance] but to attest that what I see has indeed existed.' He emphasises this change in his thinking when he says:

The Photograph does not necessarily say *what is no longer*, but only and for *certain what has been*. This distinction is decisive. In front of a photograph, our consciousness does not necessarily take the nostalgic path of memory [how many photographs are outside of individual time], but for every photograph existing in the world, the path of certainty: the Photograph's essence is to ratify what it represents. [Barthes 2000:82-85].

He further reiterates this point by saying: 'Not only is the photograph never, in essence, a memory [whose grammatical expression would be the perfect tense, whereas the tense of the Photograph is the aorist [the aorist is a past tense of a verb which does not contain a reference to duration or completion of the action], but it actually blocks memory, quickly becomes a counter-memory.' [Barthes 2000:91].

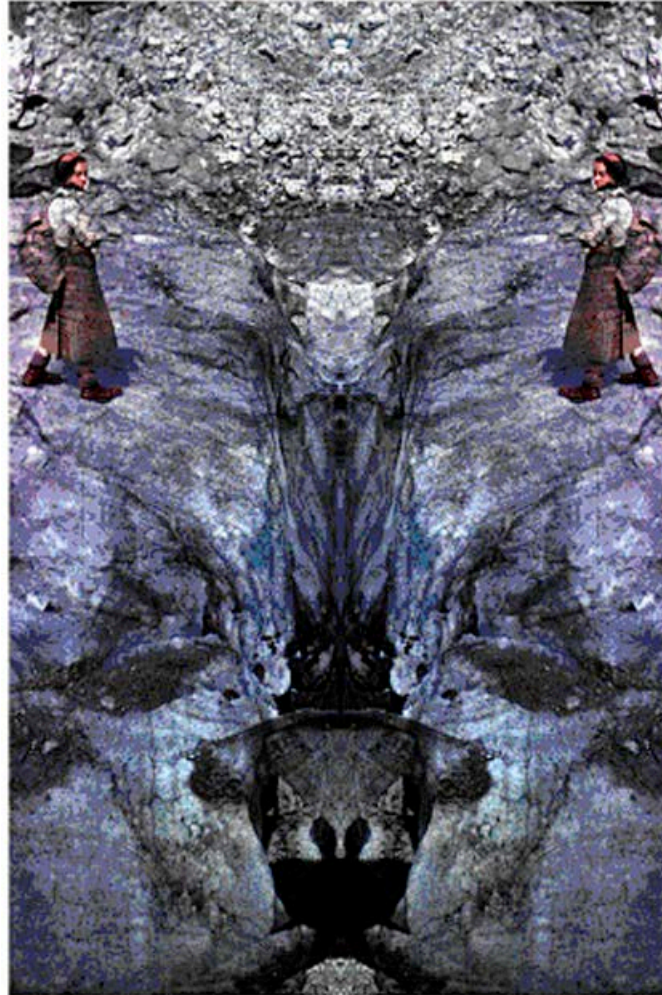
Barthes believes that photographs can be so dominant that they can take away memory and replace it only with a memory of the photograph. I would argue that photography not only performs this feat of 'blocking memory' and creating a 'counter-memory', but that it can also enhance memory and be a part of memory. A photograph is a thing within itself and however transitory it is also an object/event and therefore a part of the world.

The idea that photography replaces memory is pursued by Barthes:

Earlier societies managed so that memory, the substitute for life, was eternal and that at least the thing which spoke Death should itself be immortal: this was the Monument. But by making the [mortal] Photograph into the general and somehow natural witness of "what has been," modern society has renounced the Monument. A paradox: the same century invented History and Photography. But History is a memory fabricated according to positive formulas, a pure intellectual discourse which abolishes mythic time; and the Photograph is a certain but fugitive testimony; so that everything, today, prepares our race for this impotence: to be no longer able to conceive *duration*, affectively or symbolically... [Barthes 2000:93].

This idea that photography is in counter distinction to history, and altered perception of time itself, is central to my inquiry into photography's role in the changing of memory. This 'certain, but fugitive testimony' does not only block, but also confirms, and causes us to doubt, the veracity of our own memories. Photography creates a new order of looking and therefore a new way of thinking about the world. It is not just because there are more 'experiences' to remember courtesy of photography's ability to show more of the world, but these experiences are of a different nature. It is this difference that is crucial to my thinking about how and why

photography has altered memory.



Döppelgänger: RMJI Alps Shadow. Photographic Print. 60cm x 40cm. 2004.

Following on from these ideas, Barthes introduces a new definition of the punctum. He says, 'This new *punctum*, which is no longer of form but of intensity, is Time, the lacerating emphasis of the *noeme*¹¹⁶ ["that-has-been"], its pure representation.' [Barthes 2000:96]. To illustrate this

¹¹⁶ Noemes are mental and physical representations or manifestations of Hyponoesis. The make-up and configuration of different kinds of Noemes determines our inner and outer world of knowledge and experience. The divergent philosophies regarding the existence of an independent physical world are reconciled through Hyponoetics by postulating the mind and the world as a dynamic, and interrelated system. Both mind and world determine each other mutually in a constitutive manner. [Arnold]

point he describes his thoughts when looking at a photograph of a young man waiting in his cell to be hanged.¹¹⁷ He says, 'The photograph is handsome, as is the boy: that is the *studium*. But the *punctum* is: *he is going to die*. I read at the same time: *This will be* and *this has been*; I observe with horror an anterior future of which death is the stake. By giving me the absolute past of the pose [aorist], the photograph tells of death in the future. What pricks me is the discovery of this equivalence.' [Barthes 2000:96]. He concludes by saying: 'Whether or not the subject is already dead, every photograph is this catastrophe. [Barthes 2000:96]. This 'catastrophe' as Barthes describes it, is the collapsing of different times into a single image, which was simply not possible before photography. In the photograph there is the time of the viewer, the time of the photographer and the time of the thing photographed. The thing photographed has had a past and will have a future, but when viewed it is no longer there, it has ceased to 'exist'. This folding of time into a single instant is described by Barthes as the, '...vertigo of time defeated.' and as 'dizzying his consciousness'.

I have experienced similar phenomena when looking at my grandfather's photographs, finding myself in a space between what is in the photograph and my experience of looking at it. It is a space in which I am both self-conscious and unaware of where I am. This simultaneity of experiences is akin to the feelings generated when some memories of past events surface in my mind.

In the concluding two sections of his book Barthes sums up what he feels about his 'discovery' of the essence of Photography. He writes that:

The photograph is an extended, loaded evidence – as if it caricatured not the figure of what it represents [quite the converse] but its very existence. The image, says phenomenology, is an object-as-nothing. Now, in the photograph, what I posit is not only the absence of the object: it is also, by one and the same movement, on equal terms, the fact that this object has indeed existed and that it has been there where I see it. [Barthes 2000:115].

For me this means that Barthes has switched his attention away from what is in the photograph that is the *punctum* to the idea that what is different about the photograph is the element of time in it. He continues his argument by writing:

Here is where the madness is, for until this day no representation could assure me of the past of a thing except by intermediaries; but with the Photograph, my certainty is

¹¹⁷ The photograph is called 'Portrait of Lewis Payne' and is by Alexander Gardner, photographed in 1865.

immediate: no one in the world can undecieve me. The photograph then becomes a bizarre *medium*, a new form of hallucination false on the level of perception, true on the level of time: a temporal hallucination, so to speak, a modest, *shared* hallucination [on the one hand "it is not there," on the other "but it has indeed been"]: a mad image, chafed by reality.' [Barthes 2000:115].

Dead and alive, present yet absent, photographs create ambiguities and paradoxes. They have changed our conception of time as linear, of one thing following another. They have confused time, created different times, expanded our thinking of what the world is and they have created new memories and new ways of remembering. Barthes concludes *Camera Lucida* by saying:

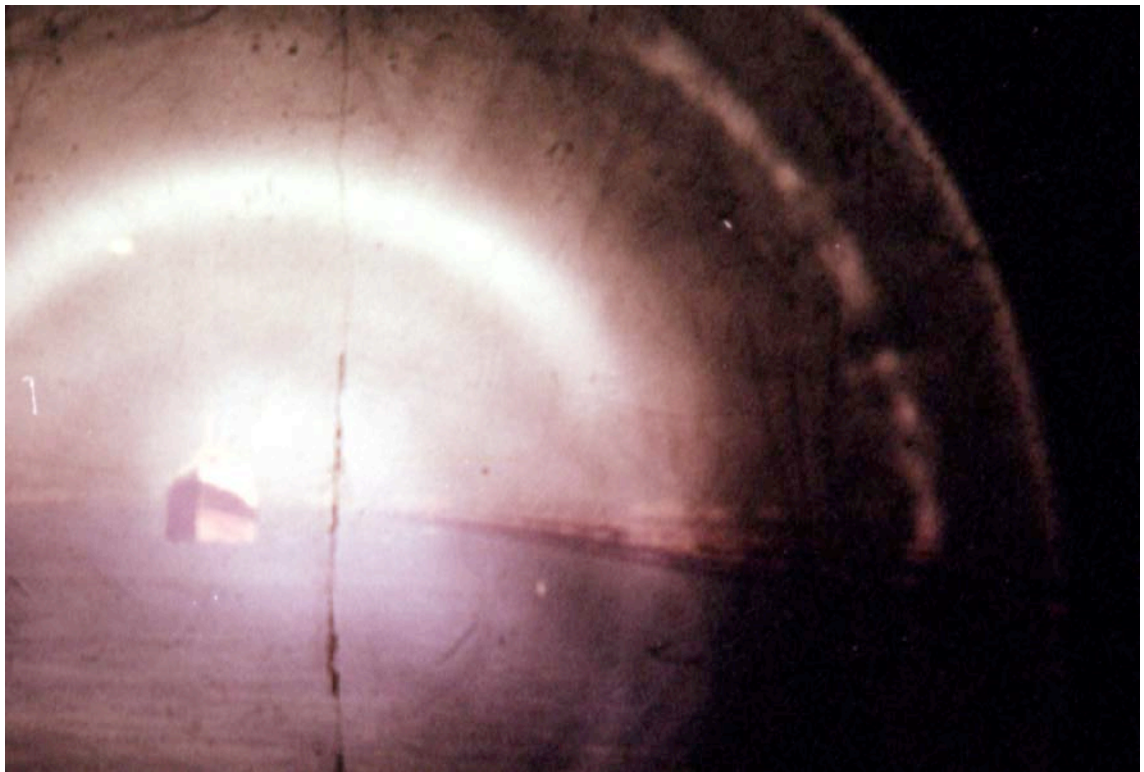
Mad or tame? Photography can be one or the other: tame if its realism remains relative, tempered by aesthetic or empirical habits [to leaf through a magazine at the hairdresser's, the dentist's]; mad if this realism is absolute and, so to speak, original, obliging the loving and terrified consciousness to return to the very letter of Time: a strictly revulsive movement which reverses the course of the thing, and which I shall call, in conclusion, the photographic ecstasy. Such are the two ways of the photograph. The choice is mine: to subject its spectacle to the civilized code of perfect illusions, or to confront in it the wakening of intractable reality [Barthes 2000:119].

Barthes's quest for the essence of photography led him to the conclusion that it is photography's ability to warp time that sets it apart from other forms of images or representations. He has gone from finding out how his pleasure works when looking at a photograph, to seeing photography as a living ghost of the past, here and not here at the same time, which creates a fundamental shift in the way the world is perceived and conceived. It is this shift in our consciousness that has not only altered the way we remember the past but has changed the way our memories function.

For me it is this 'power' of photographs to alter our conception of time and bring the past so clearly into our present lives that has consequences for the way our memory functions. Our autobiographical past is doubly disturbed by photographs. They take us back in time which we are then able to remember, but they also place us in that time personally. We are able, to a certain extent, confirm our past and create our own identities. I also think that this 'power' has affected the way our biological memory functions. This is taken up further in the next chapter.

3. Conclusions

I am interested in the *effect* photography has had on the way our memories function. I think that photographs have had a profound effect on the way we look at the world and therefore think about the world and, as a consequence of this, the way we remember the world. The idea that the photograph is somehow indexically linked to what it depicts defines the way photography acts in the world in a binary and origin based mode of thinking. I would suggest that these arguments do not take into account ideas that the ‘origins’ or referents are in themselves a part of ‘field of representations.’



Detail of Suez II, Camera Projection 2004

The photograph has multiple personalities and it is in this multiplicity where photography’s power lies. It is a chameleon, a parasite, a host and a doppelganger, disguising itself and invading our memories. Photography has created a change in the way we think about the world and ourselves. It can be used by anybody and in many different situations. And the fact that it

does not seem to have a unified history, for me, does not preclude it from being analysed in terms of what effect it has had on our memories.

David Lowenthal discusses the photograph's role in the way the past is conceived by saying, 'The impact of photographs on our sense of the past involves more than this, however. To some they depict only frozen, static moments severed from lived experience, conveying no sense of diachronic connection. Others regard photos as instant antiques, adjuncts to the generalized pathos of looking back.' [Lowenthal 1985:257]

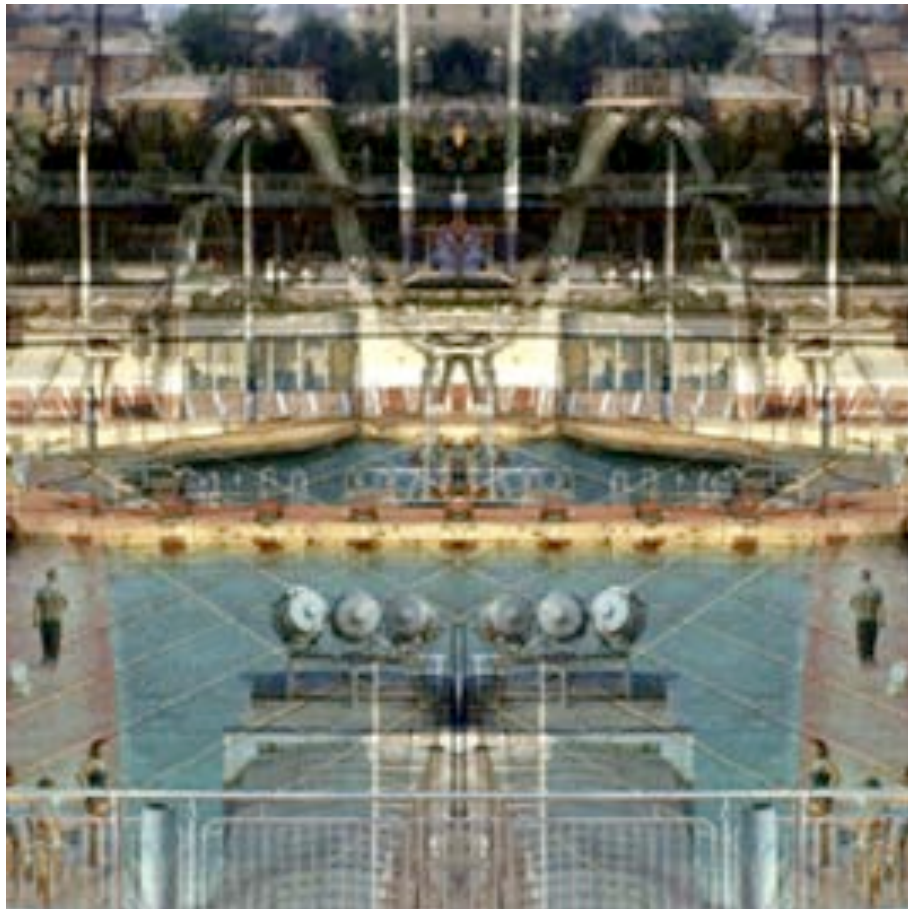
Since its conception in 1839¹¹⁸ as an object, photography has created many more questions than answers. It has created a whole series of paradoxes that today seem unresolved or even irresolvable. Some writers dismiss it as a plague that substitutes lived reality with images that debase the way we look at the world. Other writers such as Tagg see it as a powerless tool that institutions of the state use to control and manipulate people. Barthes sees it as a kind of objective truth – proof that something has happened in the past. While others see it as entirely fake. Recent writers like Batchen have tried to create a non-hierarchical system whereby photography is a part of reality, just with a different status.

One of the major problems I have found when looking at writing on photography is that there seems to be a need to create a unifying, even universal, theory about what it is or does. This, for me, extends to debates that see photography as having no unifying history at all. They create a totalising argument about photography having no power. Within their terms of reference this may well be true but they seem to forget that photography can affect and has affected individual consciousness. Photography is a fragmentary practice, and has multiple personalities and functions. It is used widely and for often seemingly contradictory purposes. This is where its power lies. A photograph can be both exceedingly banal and strangely wondrous, depending on the circumstances of the looking and the identity of the viewer. It can create stories, unblock and block memory, and invent new memories. It is no more 'truthful' than any other form of communication, for it can also create falsehoods. When photography is released from its burden of representing reality, as photography has helped painting to do, then it can be used and

¹¹⁸ Thomas Wedgwood had already made photograms before this date- silhouettes of leaves and other objects - but these faded quickly. In 1827 Joseph Nicéphore de Niepce had produced pictures on bitumen, and in January 1839 Louis Daguerre displayed his 'Daguerreotypes' - pictures on silver plates - to the French Academy of Sciences. Three weeks later Fox Talbot reported his 'art of photogenic drawing' to the Royal Society. His process based the prints on paper that had been made light sensitive, rather than bitumen or copper-paper. [BBC]

analysed in far more expansive and inventive ways.

Current debates in digital technology have brought these arguments to the fore. With the advent of these new technologies, no image can now be trusted as being 'real' and therefore truthful. But I see photography as having always been a manipulation. It is extra-real, an addition to what is already here. Sometimes bad, sometimes good, often ugly and occasionally beautiful, photographs can be both throwaway and sensational. Photography has created nostalgia for a time when we had to go and see for ourselves what was out there. Photography is not just another form of visual representation that has a lineage predicated upon the discoveries of perspective and beyond. Just as film and the moving image should not only be seen as a direct descendant of photography, photography 'itself' has created its own special disturbance in the way the world, ourselves and even time are conceived.



Döppelgänger: USSR Pool [Detail]. Photographic print. 1.5m x 2.25m 2004

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Chapter 5.

Photoamnesia:

External Memory Systems and Autobiographical Memory

Introduction

Information in notebooks, sketchpads, and word-processing systems, whether really external or interiorised, may normally sit passively on call, awaiting mobilization. But other kinds of memory objects are themselves dynamic, like pets and landscapes and cars and friends and ghosts, or will themselves decay or fade or break, like films and knots and bowls and buildings and unreliable machines. Information and emotional memory are held also in rituals which occur only once, or in the dynamic singularity of a group performance, or in other human minds, unpredictable and fragile. It's just because our bodies and brains are porous, our memory thus opened up to time, sensation, and pain, that objects don't just trigger and unlock memory retrieval, but can also stagger it, halt it, haphazardly twist it, and leave it in disarray. [Sutton 2002]

As Clark puts it, "...our brains make the world smart so that we can be dumb in peace"
[Sutton 2002:2]

This chapter investigates the idea that human memory functions outside of the mind in external memory systems [EMS] such as photographs. This is a concept increasingly posited by neuroscientists, philosophers and others involved in ideas of the way our minds work. I will analyse the recent literature concerning this issue so that it can be connected, in the final section of this text, to ideas of photography and autobiographical memory set out in chapter 2.

One of the researchers at the forefront of thinking on this subject is Andy Clark, Director of Cognitive Science Programme at Indiana University.¹¹⁹ Clark explores ideas of external memory in his 1997 book on the evolution of the brain,¹²⁰ in which he writes, 'Where, then, is the mind? Is it in the head, or has mind now spread itself into the world? The question seems strange at first sight. After all, individual brains remain the seats of consciousness and experience. [...] Every thought is had by a brain. But the flow of thoughts and the adaptive success of reason are now seen to depend on repeated and crucial interactions with external resources. In this sense, human reasoners [sic] are truly distributed cognitive engines.' In

¹¹⁹. He has written extensively on Artificial Neural Networks, Robotics and Artificial Life. His is the author of 'Microcognition: Philosophy, Cognitive Science and Parallel Distributed Processing Associative Engines' and 'Being There: Putting Brain, Body and World Together Again.'

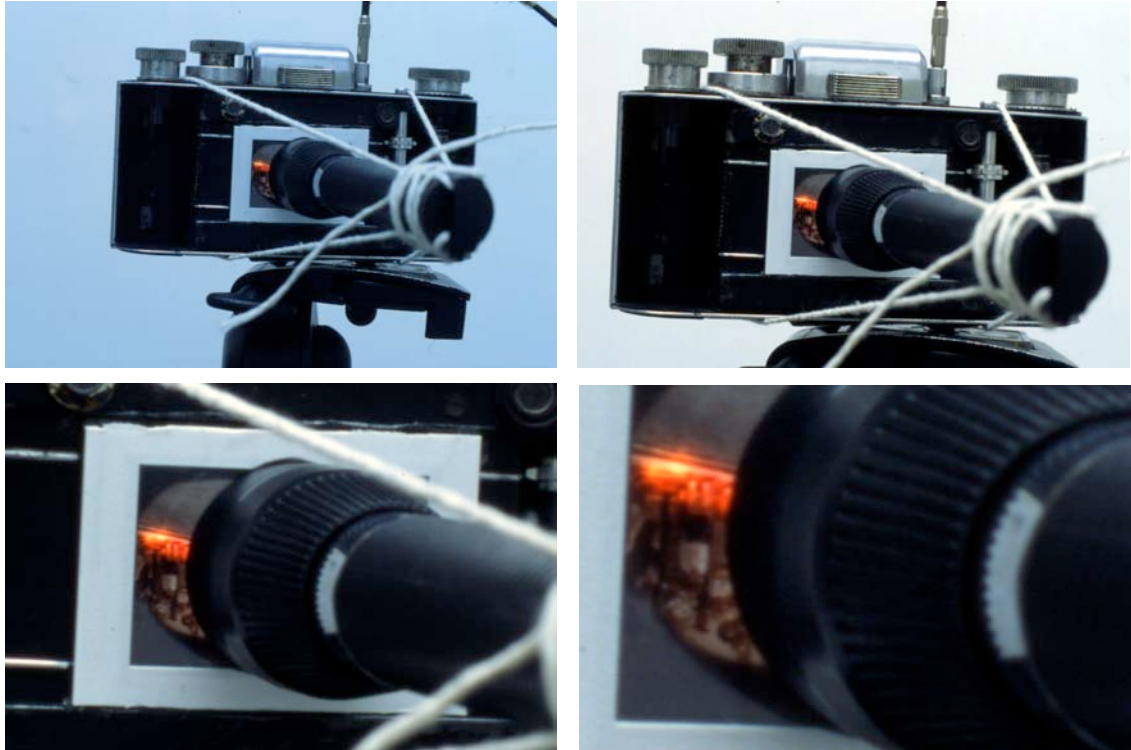
¹²⁰ Clark in this book claims that brain, body and world are united in a complex and extended computational activity. The book weaves these several threads into one and goes on to address foundational questions concerning the tools and techniques needed to make sense of the embodied mind.

response to these ideas Clark posits that: ‘The true engine of reason... is bounded neither by skin nor skull.’ [Clark 1997:4] Clark and other writers argue that throughout their existence humans have relied on external sources to enhance their memory and cognitive capacities. These sources range from notches on sticks to CD-ROMs and shows that human memory has always been interwoven with the cultural artefacts of its age. This relationship, they argue, becomes more marked when forms of recording such as writing, printing and later photography were developed.

In the first section of this chapter I will give an overview of the relationship between our biological memory and external sources of memory, which enables more particular analysis and understanding of the specific qualities of artefacts, such as photographs, in external memory systems. Clark has written that external memory systems that help us to interact with the world are ‘...best seen as alien but complementary to the brain's style of storage and computation. The brain need not waste its time replicating such capacities. Rather, it must learn to interface with the external media in ways that maximally exploit their peculiar virtues.’ [Clark 1997:220]. This research in general has become ‘inter-disciplinary’, so that cultural artefacts and systems outside of the biological brain have also to be investigated for a deeper understanding of the way cognition and memory functions. Sutton argues that, ‘The idea of extended memory systems leaves room for, or positively invites, the correlative extension of the cognitive sciences of memory to include historical, technological, and cross-cultural investigations.’ [Sutton 2004:14]

In the second section I will initially explore the relationship between the mind and the world, the way one ‘leaks’ into the other, and how memory is not bounded by ‘skin or skull’. These ideas will be linked to the concept that external memory systems are a form of ‘scaffolding’ for memory and that they become props or depositories to help memory. Lastly in this section I will discuss how memory traces in the brain and cultural artefacts are symbiotically linked through ideas of ‘engrams’ and ‘exograms’¹²¹

¹²¹ John Sutton points out when reviewing Douwe Draaisma’s book, *Metaphors of Memory: a history of ideas about the mind*, ‘Systems of ‘exograms’ like photographs, computers, and indeed languages are themselves, among other things, tools for remembering: and their history, like the histories of fashions, rituals, rhymes, monuments, counting, and mourning, thus becomes an integral part of a historical and comparative cognitive science, rather than a humanistic curiosity.’ [Sutton 2001:2]



Images showing my first 'Camera Projector' and how it works.

The previous images are of a 'Camera Projector' in prototype form. The camera is one of my grandfather's which would have been one of the ones that took the transparency being projected. The 'black box' of the camera that initially captured the image becomes a 'light box' that projects the image back into the world. The photograph is clear and precise, nearer to a memory closer to the time of the event. The projection is distorted highlighted in places darkened in others. For me a visual analogy to the way we sometimes remember our past lives.



Camera Projectors 2004



Ships That Pass. Installation using Camera Projectors. 2004.

1. Inter-disciplinary/Multi-disciplinary Research¹²²

One of the original premises set out in Chapter 1 of this thesis was that photographs affect the way our memory and especially our autobiographical memory functions. Far more than aide-mémoires, for me my grandfather's photographs altered the way I thought about my past life. I was curious to see if this change in the way one thought about one's past might change the processes and functions associated with memories. This meant that my enquiry had to become inter-disciplinary. I was intrigued to find that researchers into memory and cognition, from a more scientific point of view, were also interested in other areas of research and thinking.

An example of cognitive scientists starting to look at other disciplines, such as 'physiology and social, cultural, and technological studies', for their research is given by John Sutton, mentioned in Chapter 2. He writes about the relationship between objects in the world that have a strong connection with the way the mind functions. He argues that rather than working as separate entities, photographs and autobiographical memory become inextricably linked in a two-way relationship.



A series of details of my head taken from my grandfather's transparencies.

¹²² In multidisciplinary studies, separate disciplines undertake to study a particular topic, each from their own perspective. In interdisciplinary studies, the approach itself blends different disciplines into a new, integrated whole [see "Coveting Your Neighbor's Discipline" by Marjorie Garber, *Chronicle of Higher Education*, 12/12/01; a version of the essay also appears in her book, *Academic Instincts* [Princeton University Press, 2000]. As Garber quotes Roland Barthes [1972]: "Interdisciplinary studies... do not merely confront already constituted disciplines [none of which, as a matter of fact, consents to leave off]. In order to do interdisciplinary work, it is not enough to take a 'subject' [a theme] and to arrange two or three sciences around it. Interdisciplinary study consists in creating a new object, which belongs to no one. "Although most academics are trained in only a single discipline, the human ecology of memory requires an interdisciplinary effort that transcends guild barriers. [Kihlstrom]



A series of details of my head taken from my grandfather's transparencies.

When I look at and think about photographs from my past I see them as having become a part of my autobiographical memory. I remember certain photographs without them being present. I can now remember what I looked like throughout my life because of these records. Before photographs became a way of recording, images of our past were more rare and in most social milieu non-existent. This in no small way has affected the way we remember ourselves and the way we remember events from our lives. They have had an impact on the way we identify ourselves in relation to the world we live in.

The previous images are from a work called, *ME*, which is made up of all the images my grandfather took of me that are in his collection. They have been cropped so that my face fills the frame as much as possible in each case.

Clark writes on the idea that research into memory and the mind has to become interdisciplinary if it is to have a deeper understanding of the way it functions in the world. He makes the comments that:

Whatever the metaphysical niceties, there are immediate and pressing methodological morals. If the embodied, embedded perspective is even approximately right, cognitive science can no longer afford the individualistic, isolationist biases that characterized its early decades. We now need a wider view – one that incorporates a multiplicity of ecological and cultural approaches as well as the traditional core of neuroscience, linguistics, and AI [Artificial Intelligence]. And we need new tools with which to investigate effects that span multiple time scales, involve multiple individuals, and incorporate complex environmental interactions. [Clark 1997:9]

This is a shift away from memory being an area of research purely in the biological or psychological domains to one where memory is in the context of the material environment and implies a revision our view of human beings as functioning in complex ways with and within the environments they have created. I would further argue that research carried out in the arts and social sciences also has to take account of the developments going on in neurological and cognitive sciences.¹²³ I think that if this does not happen a 'commonsense' idea of memory prevails which harks back to memory being a storage device and singular in its function.

Sutton, commenting on another researcher in the field of memory, continues to emphasises the need for this inter-disciplinary approach when he writes about that there are 'loops' that connect the world with the mind. He states that:

Marius Kwint,¹²⁴ recently urging us to address the sensuous and physiological dimensions of embodied memory, puts the point thus: "human memory has undergone a mutual evolution with the objects that inform it; ...the relationship between them is dialectical. Not only does the material environment influence the structure and contents of the mind, but the environment must also have been shaped along the lines of what persists in the mind's eye." Kwint acknowledges that the attempt to fathom such loops must be specific, historically anchored, and insistently interdisciplinary. [Sutton 2002:2]

The suggestion here is that the relationship between photographs and autobiographical memory has been one of 'mutual' development, creating a dynamic effect between the two, whereby one is seen as affecting the other. So to understand the effect of the environment on the mind, the mind and the environment have to be studied, and the relationship between them investigated. Sutton writes that:

The idea that 'external memory' or external representation in general is neither merely metaphorical, nor a straightforward expression of more fundamental mental representations, can seem to rest on the claim that the external representations - information in notebooks, for example, which meets certain criteria of accessibility and reliability - are functionally isomorphic¹²⁵ to mental representations. [Sutton 2004:13]

¹²³ Sutton comments on this when he writes, 'Most episodes of human remembering have multiple causes, describable in different vocabularies at different levels, and which are not restricted to the past events or experiences remembered. So, in part, questions about interdisciplinarity are questions about which causes matter for specific explanatory purposes.' [Sutton 2004:2]

¹²⁴ Dr Marius Kwint is especially interested in integrating visual and material culture with the more general concerns of social and cultural history. His doctorate, on the origins of the modern circus in late Georgian England, has been developed as a monograph for Oxford University Press and for the journal *Past and Present*. His postdoctoral project, as a research fellow at the Victoria and Albert Museum, investigated the history and meanings of the souvenir. This culminated in the "Material Memories" conference in April 1998 and a book of the selected proceedings, published by Berg in 1999.

¹²⁵ Douglas Hofstadter, a professor of cognitive science and computer science [among others] at Indiana University at Bloomington, describes isomorphism as, 'The word "isomorphism" applies when two complex structures can be mapped onto each other, in such a way that to each part of one structure there is a corresponding part in the other structure, where "corresponding" means that the two parts

It is this idea that an external memory source, such as photographs, could be ‘isomorphic’ to autobiographical memory, as opposed to just being metaphorical or aide-mémoires, that is important to my proposition that photographs effect the operation of autobiographical memories on many levels from the social to the biological.

Sutton re-emphasises the interdisciplinary nature of research into ideas of memory when he writes about distance between the concerns in his field and the ones in cultural history and theory. He argues that:

But the methodological revolution implied by these new sciences of the interface, which must combine cognitive science and media theory, is far-reaching. Cognitive systems can genuinely extend across brain, body, and world, and are potentially smeared across the natural, technological, and social environment.’ [Sutton 2002:3]

This departure, argued for by Sutton and others, from research into memory, only being the concern of isolated individual disciplines creates an environment whereby each discipline has to look to other research to gain a fuller understanding of the complexities of the way memory functions in the world. To highlight this point Sutton refers to Clark’s book *Being There* and he writes that:

The cash value of the emphasis on extended systems [comprising multiple heterogeneous elements] is thus that it forces us to attend to the interactions themselves: to see that much of what matters about human-level intelligence is hidden not in the brain, nor in the technology, but in the complex and integrated interactions and collaborations between the two...The pay-off, however, could be spectacular: nothing less than a new kind of cognitive scientific collaboration involving neuroscience, physiology and social, cultural, and technological studies in about equal measure. [Sutton 2002:3]

Sutton continues this line of argument by specifying what it is that needs to be investigated and what the consequences might be. He writes that:

The desire thus to attend to artefacts, media, and brains all at once does not require a unitary view of memory along classical reductionist¹²⁶ lines: rather, the idea is the

play similar roles in their respective structures.’ [Hofstadter 1979:49] It is also defined as, ‘If there exists an isomorphism between two structures, we call the two structures isomorphic. Isomorphic structures are “the same” at a certain level of abstraction; ignoring the specific identities of the elements in the underlying sets and the names of the underlying relations, the two structures are identical.’ [Hofstadter 1979:49]

¹²⁶ The behaviourist approach is often accused as being reductionist. This means reducing our behaviours to mere stimulus-response associations. It ignores for example the influence of our cognitions (perception, attention, language, memory and thinking). The biological approach is similarly reductionist. This is because it explains thoughts, feelings, and behaviours in terms of neurons, hormones etc. The biological approach with this biological lowest common denominator view ignores the influence of our cognitions on our behaviours. [Keegan]

construction of parts of a partial but potentially integrated framework within which different memory-related phenomena might be understood. [Sutton 2002:4]

For me this recalls ideas I set out in Chapter 2 of this thesis where I looked at current research into memory and autobiographical memory which abandoned the idea that memory is a static thing and can be recalled faithfully without change. Memory then is seen as a process or activity that is under constant construction and reconstruction. [Rosen:102]

I see the work I having been producing over the last couple of years using SLR cameras as projectors using torches as a light source, as a way of reconstructing images from my grandfather's collection. I have been using transparencies that remind me of the stories that have been told about my life and his. I know from the images and from anecdotal evidence, that when he and my grandmother travelled to India in the year before he died that they passed through the Suez Canal and stopped off in Aden. I have no memory of that experience as I was not present, but through looking at the transparencies I have a sense of being there. The images are burned into my autobiographical memory. I have tried to convey this sense in some of the work produced by using these images. See examples below of this work.



An Image from A.E. Ingham's collection showing the Suez Canal in 1967.



Detail of the installation Grand Tour in the catacombs of St. Pancras Church, London, in the 'Fantastic!' Exhibition 2003.

This widening of the field of research into memory has many consequences. One of these is that the cultural artefacts under investigation have to be studied in all their complexities and not just taken as a given. Photographs are a case in point. Often when referred to by researchers, such as some social historians, they are only regarded superficially. The nuances and subtleties in the arguments about photography and photographs are not played out. As with the idea that memory is no longer regarded as a unitary function of the mind, photographs and photography cannot be considered as having singular histories or functions. As Sutton says, 'But of course different external media hold information in quite different ways, on quite different timescales, and interact quite differently with individual memories.' [Sutton 2002:7] It is the different ways that photographs affect our autobiographical that requires an inter-disciplinary approach.

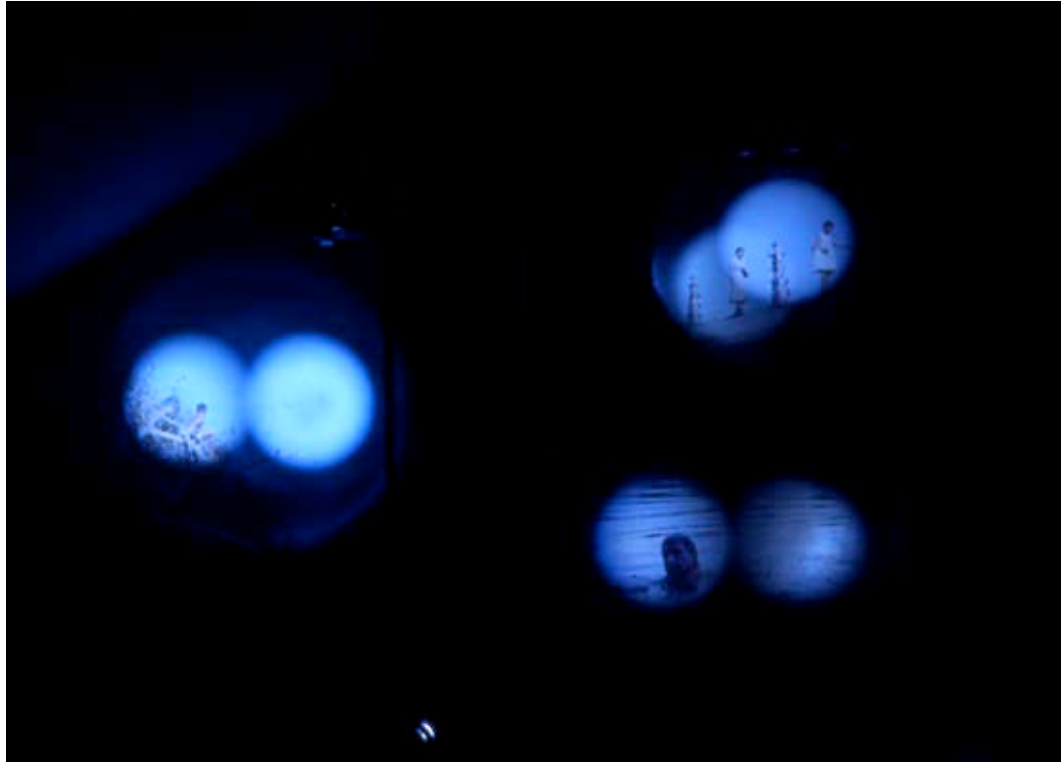
The previous and following images are from a series of installations that take a number of disparate transparencies from my grandfather's collection and by using the camera projectors attempts to create a sense of memory being a fuzzy narrative that can constantly change. The images are clear yet fragile, just beyond reach. Selective and seductive and bringing with them a fragmented story which hovers between the discernible and the indiscernible.



Installation shot of 'Ships That Pass'. 11 Camera projectors in a room 9m x 6m. 2004



Installation shot of 'Ships That Pass'. [Detail]. 11 Camera projectors in room 9m x 6m. 2004



Installation shot of 'Ships That Pass'. [Detail]. 11 Camera projectors in room 9m x 6m. 2004

2. External Memory Systems

In his 1991 book *The Origins of the Modern Mind*, Merlin Donald looks at how the mind evolved in its ongoing relation to the symbolic tools cultures produce, from cave paintings to diaries to mainframe data bases. In it he argues that: 'We act in cognitive collectivities, in symbiosis with external memory systems. As we develop new external symbolic configurations and modalities, we reconfigure our own mental architecture in nontrivial ways.' [Donald: 382] Donald's argument is a radical step away from the idea that our evolution has been a slow even process and that our brains are virtually the same as those of our near ancestors. Rather, Donald argues that our brains are more malleable and open to change than they had been previously theorised to be. In his article *Narrative in the Age of Electronic Media*, Paul A. Harris discusses Donald's ideas and writes that:

One could say that Donald's cognitive ethology¹²⁷ represents a kind of neo-McLuhanesque approach to how media interact with human minds. Cognitive ethology adds an evolutionary twist to media studies though through its interest in how the wetware of the human organism, especially the brain, adapts to the very "external memory systems" it invents. [Harris: 3]

This idea that cultural artefacts and systems can in some way affect the way our brains function, is a radical departure from the idea that we are 'hard-wired' from an early age, the architecture of our biological brains being somehow unalterable in adult life.¹²⁸

Donald argues that there are three stages in the evolution of human cognition¹²⁹. Of the current stage he states that:

Recent cognitive change is evident primarily in cultural artefacts, and might have been classified along many different continua; I have singled out the development of external memory as the critical issue. The third transition seems to have started in the late Upper Palaeolithic with the invention of the first permanent visual symbols, and is still underway.' [Donald 1992: 737-791]

Donald comments on this third transition by writing about the role of language plays in this process and argues that it, '...introduced external memory storage and retrieval, and a new working memory architecture.' He continues by writing about the different arrangements in this 'architecture' and he states that, 'The structural arrangement of these uniquely human representational systems, is hierarchical, with mimetic skill serving as a necessary but not sufficient condition for language, while language capacity is a necessary condition for the invention of external memory devices.' [Donald 1992:737-791] I am interested in seeing if these external memory systems, and especially photographs, have had a profound affect of our

¹²⁷ Cognitive science is an umbrella term for convergent approaches to the study of mind in linguistics, artificial intelligence, cognitive psychology, and, increasingly the neurosciences. Cognitive psychology emerged during the latter half of the 20th century primarily as a laboratory science. Classical ethology has, on the other hand, typically emphasized the importance of observing animals under more-or-less natural conditions, with the objective of understanding the evolution, adaptation [function], causation, and development of the species-specific behavioural repertoire. The idea that one might learn anything of biological interest about an animal by isolating it in a box and bombarding it with artificial stimuli runs counter to the general spirit of the discipline. Ethology is a sub-discipline of behavioural biology founded on the premise that behavioural variation among species is no less amenable to the comparative method of evolutionary biology than is anatomical, morphological or physiological variation; in other words, ethologists believe that behavioural variation among species can be used to reconstruct phylogenetic relationships between them. [Allen]

¹²⁸ It is now widely appreciated that the process of plasticity extends well beyond the early life of the human into adulthood and is responsible for such phenomena as "Remapping" in which neural networks become reconfigured in order to take over the function of adjacent areas which have become non-functional due to loss of afferent input. "Finally, some reorganizations may not mediate recoveries...but may produce further malfunction by producing inappropriate responses to sensory stimuli. For example, mislocalization to an amputated arm of sensory tactile stimuli on the face in humans may be a result of the reorganization of the somatosensory representations so that cortex normally activated by the arm is activated by receptors in the face, as can occur in monkeys with sensory loss. [Kaas]

¹²⁹ According to Piero Scaruffi reviewing Donald's book, these three stages can be defined as, 'Homo Erectus developed a "mimetic" [pre-linguistic but roughly symbolic] system of motor-based representations, which enabled it to communicate intentions and desires and, on a larger scale, enabled generations to pass on cultural artefacts [the "mimetic" mind]. Homo Sapiens acquired language and therefore the ability to construct narratives and build myths, and myths represent integrated models of the world by which individuals could generalize and predict [the "mythic" mind]. Modern humans, helped by written language, achieved higher, symbolic representational capabilities such as logic [the "theoretic" mind]. According to Piaget's and Vygotsky's epistemological theories, children follow a similar path to full-fledged thinking, from event to mimetic, from narrative to symbolic.' [Scaruffi]

autobiographical memory, which, as I discussed in chapter 2, is often seen as operating differently than everyday 'working memory',¹³⁰

I would suggest that certain photographs add to our knowledge of the world and aid our semantic memory whereas others of a more personal nature affect our autobiographical memory and become a part of our episodic past. There are others that gain significance through their depiction of global events and become iconic of a certain time or event. These types of photographs could become a part of both our knowledge of the past and the knowledge of ourselves depending of our own personal attachment to the circumstances in which the photographs are viewed.

Donald comments on these ideas of external memory systems changing the way our biological mind works by discussing the idea that,

... external memory has introduced radical new properties into the collective storage and retrieval systems of humans...[and]...the use of these external storage systems is difficult, and requires a major re-deployment of cerebral resources towards establishing literacy related "modules" in the brain...the physiological basis for this reorganization probably lies in neuronal¹³¹ epigenesis¹³² and plasticity; and...the role of biological working memory has been changed by the heavy use of external memory. [Donald 1992: 737-791]

I would also argue that the role of biological autobiographical memory has also changed especially with the introduction of such things as photographs as cultural artefacts in the nineteenth century. As an external memory system it allowed humans to remember and 'collect the past as never before'. I believe that if the biological brain is as malleable as has been claimed, then something as significant as the photograph must have had a similar effect on autobiographical memory as on working memory. As I have said before it not only adds to our knowledge of the world but it also adds to knowledge of ourselves. This echoes Barthes in *Camera Lucida* when he writes about a 'disturbance' occurring with the invention of photography and seeks a new way 'thinking about looking' and a new history of looking. [Barthes 2000:12]

¹³⁰ 'Autobiographical Memory' as defined by M.A. Conway as, '...a type of memory that persists over weeks, months, years decades and lifetimes, and it retains knowledge [of the self] at different levels of abstraction.' Episodic and autobiographical memory, in *Episodic Memory: New Directions in Research*. A. Baddeley, M. Conway, J. Aggleton. [eds]. OUP. 2001. p. 55. Working Memory has replaced short-term memory as a 'more theoretically meaningful' term. [Tulving.:270]

¹³¹ Of or relating to neurons; "neural network".

¹³² Epigenesis – The theory that development is a process of gradual increase in complexity as opposed to the preformationist view that supposed that mere increase in size was sufficient to produce adult from embryo. [Lackie]



Döppelgänger: RMJI Cooking Alps. Photographic Print. 2003.

The preceding image is from a series of works that reversed and doubled a single image. For me this created a different way of looking at the image whereby parts that were less significant in the single image become emphasised whereas others disappear. Also new shapes and patterns are created. This is a highly structured way of manipulating an image but it had resonances, for me, of the way our memories can become jumbled, mixed up and distorted.

These ideas of the evolution of our minds of Donald's are expanded upon by Deric Bownds¹³³ in his article, *The Theoretic Mind*, which deals with the way external 'tools' have shaped or brains. He argues that:

The last transition, to theoretic mind and culture, depends on equivalent changes in external technological hardware, specifically external memory devices such as paintings on cave walls, scratches on clay tablets, and written texts. These external tools have made us their tools, and the development of our brains is shaped by them. The essential feature of this last transition is that it no longer depends solely on oral tradition, spoken language, and narrative styles of thought. Rather, cultural rules and procedures begin to be stored outside of individual minds, as graphical tools are used to inscribe symbolic memory representations on external storage devices. [Bownds 2003:1]

I think that Bownds' description can also be applied to the idea that photographs are repositories for our autobiographical memory and that photographs become tools that help and expand our memory and knowledge of the world.

Brian Rotman¹³⁴, a Professor of Comparative Studies at Ohio State University, comments and expands on Donald's idea that there is a link between our minds and the external world by arguing that,

... of course, there is no separation here between interior and exterior: the experiential and the collective fold into each other. All thought, even the most private, individual and enclosed is social. Being socially present, mobilized and used is co-creative with the psyche, a phenomenon that seems difficult to theorize in any general way outside a technocology of the mind/brain. It is in this sense that one should interpret Merlin Donald's contention that the key principle of the biological and social evolution of individual cognition is the symbiosis of cognitive collectivities and external memory systems, a linkage that allows new cultural formations and technologies to reconfigure the thought diagrams inside [as we still say] our heads. [Rotman 1996:22]

Rotman further comments on Donald's ideas of the malleability of our brains when he writes about the way artefacts have changed and are still changing the way our brain operates and he writes that:

According to Merlin Donald, the development of external memory and thinking devices that has played such a role in the evolution of all kinds of cognition achieves a spectacular and radically new level in the case of humans. This is because the sheer plasticity of our

¹³³ M. Deric Bownds is Emeritus Professor of Molecular Biology and Zoology Director, Program in the Biology of Mind Past Chair, Department of Zoology University of Wisconsin, Madison.

¹³⁴ Brian Rotman is Professor of Comparative Studies at Ohio State University. A mathematician and writer who has lectured for many years about the nature of mathematics as a symbolic activity, his most recent books are *Mathematics as Sign: Writing, Imagining, Counting; Signifying Nothing: the Semiotics of Zero; and Ad Infinitum ... The Ghost in Turing's Machine*. He published a popular account of his concept of non-Euclidean numbers in the magazine *The Sciences*. He is currently using robotics and ethology to construct a model of the psyche which would illuminate technology's ongoing re-structuring of human consciousness.

brains means that our immersion in technology allows us to re-configure our neural connections all the time. Which means that all these artefacts, from windowed screens to hypertexts are re-wiring the very brain/minds that imagined them. In this way we are facilitating the emergence of a larger - collectivized, distributed, pluralized - "intelligence" by allowing ourselves to become more "othered", more parallelist,¹³⁵ more multi, less individualized -- able to see, think, enjoy, feel and do more than one thing at a time.' [Rotman 1996:19]

Rotman emphasises this idea that our cognition is symbiotically connected to artefacts in the world by writing, '...the ways we technologize our environment...become the channels by which we install bodily regimes and re-configure, i.e. rewire, our brain; establishing mappings between our neuro-physiology - the insides of our heads - and the technological milieu...in which those heads operate.' [Rotman 1996:6] This 'technological milieu' includes the photograph and as a powerful example of the change in the way we depict ourselves and the environment around us, I think that it is possible that it has 'rewired' our brain, so that we come to see the world and remember our past in a different way than before its conception.

Recent neurological research is starting to show that the adult brain is not the 'hard-wired' entity it was once thought to be. In a recently reported research project in Germany at the University of Regensburg which used fMRI ¹³⁶scanning techniques has shown that adults who have learnt to juggle have, if only temporally, had some of the synapses in their brains enlarged.¹³⁷ This has confirmed the theoretical research that up until then only alluded to this possibility.

Clark also writes on the way the mind interacts with the world and the cultural artefacts within it. He asks, 'How should we characterize the brain's environmental interactions?' He answers his own question by arguing that:

¹³⁵ A Parallelist is a dualist who believes that the mental and the material do not directly interact.

¹³⁶ Functional magnetic resonance imaging: FMRI is a technique for determining which parts of the brain are activated by different types of physical sensation or activity, such as sight, sound or the movement of a subject's fingers. This "brain mapping" is achieved by setting up an advanced MRI scanner in a special way so that the increased blood flow to the activated areas of the brain shows up on Functional MRI scans. [Smith]

¹³⁷ In a study conducted by Dr. Arne May and colleagues at the University of Regensburg in Germany, people who spent three months learning to juggle showed enlargement of certain areas in the cerebral cortex, the thin sheet of nerve cells on the brain's surface where most higher thought processes seem to be handled. They were then asked to quit juggling completely, and three months later the enlarged areas of the cortex had started to shrink. The finding, which was reported in an issue of the journal *Nature*, is similar to one in a study of London cab drivers four years ago. Unlike their colleagues in New York, London cabbies must memorize the entirety of their city's streets. If some Sunday morning in London you should see a group of men on bicycles, maps balanced on the handlebars, those are apprentice cabbies, acquiring "the knowledge," as the two-year memorization of London's many small, winding streets is called. The 2000 study, also done with M.R.I. scanners, found a change in the shape of the cabbies' hippocampus, the brain module where new memories of place are stored. Both studies show how malleable the brain is under training, a finding already hinted at by the brain's own internal representation, or mapping, of body parts. In monkeys trained to use their fingertips for some task, the areas of the brain devoted to mapping the fingertips will enlarge, suggesting that the brain's various maps of the body are "plastic," in the parlance of neurology, not hard-wired. [Wade]

Part [but only part] of the answer is that our behaviour is often sculpted and sequenced by a special class of complex external structures: the linguistic and cultural artefacts that structure modern life, including maps, texts, and written plans. Understanding the complex interplay between our on-board and on-line neural resources and these external props and pivots is a major task confronting the science of embodied thought.' [Clark 1997:3]

This idea that cognition and memory can be aided and in some cases enhanced by external sources is not without its critics. These critics would argue that cognition can only be within the mind and that things in the world cannot be a part of cognitive processes. Clark and others would argue that the cultural objects themselves are not cognitive but that they are in a sense in a symbiotic relationship with the mind. Humans throughout their history have given over parts of cognitive processes to artificial systems of representation. There is a diverse range of arguments around this idea of the mind being linked to the world. The range goes from ones that see external sources as being on the level of aide-mémoires and nothing else, to ones that see these external systems effecting and continuing to affect the evolution of the brain. In the next section I will examine these arguments in more detail.

2.1 Mind/World Relationships: Beyond 'Skin and Skull.'

There is a wide range of thought about the relationship between our biological minds and the world we live in. At one end of the spectrum of the argument about mind/world cognitive interaction is Tim van Gelder¹³⁸. He argues that:

Since the nervous system, body, and environment are all constantly changing and simultaneously influencing each other, the true cognitive system is a single unified system embracing all three. Interaction between the inner and the outer is ... a matter of coupling, such that both sets of processes continually influence each other's direction of change.' [Gelder 1995:373]

This idea that the artefacts that are created by humans, including photographs, can be 'coupled' with the internal workings of our mind is crucial to the idea that these artefacts have changed the way our minds function and, some would argue, changed the biological structure of our brains. Van Gelder's ideas are very much in sympathy with those set out by Clark above, who writes, 'Ours are not the brains of disembodied spirits conveniently glued into ambulant corporeal shells of flesh and blood. Rather, they are essentially the brains of embodied agents

¹³⁸ Tim van Gelder is Associate Professor [Principal Fellow] Department of Philosophy, University of Melbourne.

capable of creating and exploiting structure in the world.’ He then looks at the way our brains interact with the environments they find themselves in and how they exploit these environments to aid cognition both for present and future purposes. He writes that:

Conceived as controllers of embodied action, brains will sometimes devote considerable energy not to the first, one-stop solution of a problem, but to the control and exploitation of environmental structures. Such structures, moulded by an iterated sequence of brain-world interactions, can alter and transform the original problem until it takes a form that can be managed with the limited resources of pattern-completing¹³⁹, neural net style computation.¹⁴⁰ [Clark 1997:8]

These ideas of the relationships between mind and world are also taken up by Sutton and he comments on Clark’s work by writing,

In attending to this dynamic interplay between brains and world, we don’t need to *identify* internal with external resources. Post-connectionist¹⁴¹ cognitive scientists like Andy Clark argue, on the basis of everyday cases like these, that the brain is a leaky associative engine, good at pattern-matching and pattern-transformation, but poor [in isolation] at the permanent storage or logical manipulation of individual items.’ [Sutton 2002:2]

This opposes the idea that our brains are like computers that are able to store vast amounts of information intact. We have had to find other external methods of storing information, including photographs, to aid our memories. Photographs help memory by being a ‘hard copy’ of events that have happened, but they also add to the amount of information that is available to our memories. They also change the way we remember our own past because they are *not* like memories in the sense that they seem static and unchanging. But they are similar because they can be both seen as creating a link with the past that is in the present. I believe our brains have

¹³⁹ A vision of the brain as an organ engaging in environmental interactions through an iterated series of simple pattern-completing computations. The latter involve learning to reliably associate particular stimuli [e.g., partial facial representations] with particular responses [e.g., names of individuals]. [Clark 1997:53]

¹⁴⁰ A neural network is a software [or hardware] simulation of a biological brain [sometimes called Artificial Neural Network or "ANN"]. The purpose of a neural network is to learn to recognize patterns in your data. Once the neural network has been trained on samples of your data, it can make predictions by detecting similar patterns in future data. Software that learns is truly "Artificial Intelligence". An artificial neural network is a deliberately constructed information processing system consisting of nodes [input, hidden, and output], connections [edges], and connection weights whose basic architecture is inspired by actual biological neural systems [neurons, axons, synapses, and synaptic weights]. [Sarle]

¹⁴¹ Connectionism is a movement in cognitive science which hopes to explain human intellectual abilities using artificial neural networks (also known as ‘neural networks’ or ‘neural nets’). Neural networks are simplified models of the brain composed of large numbers of units (the analogs of neurons) together with weights that measure the strength of connections between the units. These weights model the effects of the synapses that link one neuron to another. Experiments on models of this kind have demonstrated an ability to learn such skills as face recognition, reading, and the detection of simple grammatical structure. Philosophers have become interested in connectionism because it promises to provide an alternative to the classical theory of the mind: the widely held view that the mind is something akin to a digital computer processing a symbolic language. Exactly how and to what extent the connectionist paradigm constitutes a challenge to classicism has been a matter of hot debate in recent years. [Garson]

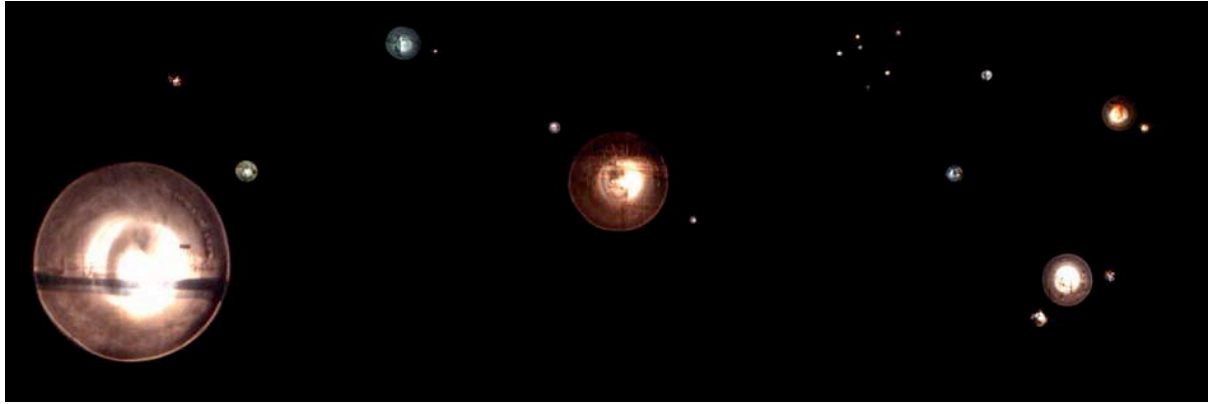
adapted to this way that photographs depict our past lives by letting us see ourselves and our lives as never before.

Van Gelder emphasises the idea that our minds are connected to the world when he writes that, ‘...the point is that our own cognitive performances, and to that extent, our minds, are distributed over shifting assemblies which include not only our bodies but also aspects of our physical and social contexts. The boundary between mind and world is both vague and plastic.’ [Gelder:1-2] It is this ‘vague and plastic’ boundary between the internal workings of our autobiographical memories and photographs, seen as an external memory system that is pertinent to my argument in this thesis. I am interested in what happens when these ‘boundaries’ become fuzzy and wherein photographs affect our autobiographical memories.

Clark summarises his position on external memory systems by writing about the way the boundary between our minds and the world are becoming less distinct. He argues that:

We must begin to face up to some puzzling [metaphysical] questions. For a start, the nature and bounds of the intelligent agent look increasingly fuzzy. [...] Gone is the neat boundary between the thinker – the bodiless intellectual engine – and the thinker’s world. In their place is a vision of the mind as a grab bag of inner agencies whose computational roles are often best described by including aspects of the local environment. [Clark 1997:9]

The idea that we are connected to cultural artefacts in the world in a symbiotic relationship that can function in both directions is central to my argument about the effect photographs have on our autobiographical memories. If the arguments expounded by Clark and others are valid, then the thought that photographs can ‘sculpt’ the way our minds function does not seem that bizarre. It is what Clark calls ‘continuous reciprocal causation’ in which ‘...brain and world are often engaged in an ongoing interactive dance from which adaptive action results’. [Clark:163]



Hosts. Photographic Print. 1 m x 4 m. 2002.

Tom Ziemke,¹⁴² a researcher in cognitive robotics and what he calls ‘embodied/situated cognition’, comments on the idea of external cognitive processes when he argues that:

Situatdness¹⁴³ and embodiment have become important concepts in practically all areas of cognitive science since the late ’80s. Many researchers have emphasized the importance of studying cognition in the context of agent-environment interaction and sensorimotor¹⁴⁴ activity. As a consequence, traditional cognitive scientific notions of, for example, internal representation and computation have come under attack, and there is a growing interest in both the bodily/biological mechanisms underlying cognition and the role of the environment [including other agents, artefacts, etc.]. [Ziemke:1]

It is precisely this change in the way cognition and memory have come to be regarded, that allows for research and ideas from other disciplines, such as critical discussions on photography, to become relevant to the debates about the way memory functions. Without this change the idea that photographs could somehow create an evolution in the way our minds and brains function would seem, at its best, implausible.

2.2 Scaffolding

Giving a general overview of the concept of external memory systems Sutton writes, ‘If memories are not stored independently, permanently, and explicitly within the individual mind [but are, for example, superpositionally¹⁴⁵ retained as dispositions of the connection weights of

¹⁴² Tom Ziemke is Professor of Cognitive Science in the School of Humanities and Informatics, University of Skövde, Sweden.

¹⁴³ Situatedness here refers to having one’s behaviour strongly affected by the environment.

¹⁴⁴ Sensorimotor means of or relating to the sensory and motor coordination of an organism or to the controlling nerves

¹⁴⁵ Superpositional Representation: Connectionist networks have brought superpositional representation to prominence in the cognitive sciences. A representation of a contents c1 and c2 is superpositional if the resources used to represent c1 are identical with the resources

neural networks], then the relatively unstable individual memory needs support from more stable external scaffolding or props.' [Sutton:10] He argues that to create a framework for investigating both internal and external processes in our cognitive lives would be to see them as 'traces' that affect each other. He writes of this idea by arguing that:

One theoretical goal might be a broad metaphysics of traces inside and outside the mind ... Such a picture would not collapse the distinction between internal and external representation and processing, but would provide a framework for investigating whether and how our interaction with different forms of external information systems might in turn affect the format and processing of individual memories. [Sutton:10]

He also sees that. 'Culture and technology are products of cognition and action, but in the human case, as Merlin Donald argues, such products in turn "have direct effects upon individual cognition".' [Sutton:10]

It is these 'effects' photographs have on the way our minds remember autobiographical past events that interests me and how the distinct properties of photographs operate in this relationship between mind and world in the form of autobiographical memory. Sutton emphasises this point when he writes: 'In art, science, and ordinary life we construct, lean on, parasitize, and transform artefacts and external symbol systems. And in turn our bodies and brains are inflected and contaminated by the material supplements and cognitive prostheses, which we incessantly internalise.' [Sutton 2002:2] Sutton links this idea of artefacts being a kind of scaffolding with early childhood learning and autobiographical memory when he writes that:

Just as infants learn to walk by leaning on objects and by holding others' hands, until they achieve some fragile motor autonomy, so our cognitive skills require scaffolding. The development of autobiographical memory exemplifies the process. [...] This scaffolding doesn't then simply disappear with the inevitable triggering of a blueprint for autobiographical memory. Instead the parental scaffolding is internalized, often in some idiosyncratic detail. [...] A child's autobiographical memory, then, isn't the product of an automatic unfolding of autonomous capacities: rather it's already sculpted by and embedded in specific and uneven narrative worlds. [Sutton 2002]

used to represent c2. That is, one and the same token representation has the role of representing both contents. This is actually a more familiar kind of encoding than is often recognised. Consider the example of sound. A piano is played, causing a pattern of air pressure at the point at which a microphone picks it up [which then transduces the air pressure pattern into a pattern of voltage]. A singer sings, similarly causing a characteristic pattern of air pressure. If the piano and singer make a noise at the same time, then their characteristic patterns of air pressure are superposed [everywhere, but in particular] at the point where the microphone picks up the signal and transduces it. Thus the electrical encoding of the sounds of the piano and the voice is a superpositional representation. This may then be recorded on a CD and reproduced through an amplifier and speakers. [Caplin]

Sutton writes about this changing relationship between external ‘scaffolding’ and the development of our brains and he argues that, ‘Questions about the *location* of the cognitive technology in this kind of scaffolding thus become less pressing, for there just may not be constant or determinate interfaces between brain, body, and world.’ What he is more interested in are ‘...the idiosyncratic cognitive trajectories along which our particular cultural and institutional learning aids allow us to go.’ [Sutton 2002]

When reviewing Clark’s book, *Being There*, Tim van Gelder comments on the idea of scaffolding by writing that: ‘Clark answers that advanced cognition results from the interaction of associative engines with highly structured environments. [...] these external structures are usually themselves products of associative engines¹⁴⁶.’ He then argues that, ‘...an important task for cognitive science is to understand the bootstrapping process through which organisms create and maintain the scaffolding which makes advanced cognition possible.’ [Gelder:1-2]

To highlight this point Clark writes: ‘In these cases, the human organism is linked with an external entity in a two-way interaction, creating a *coupled system* that can be seen as a cognitive system in its own right. All the components in the system play an active causal role, and they jointly govern behavior in the same sort of way that cognition usually does. If we remove the external component the system’s behavioral competence will drop, just as it would if we removed part of its brain.’ [Clark 1998:7-19] I would argue that photographs enable us to remember more of our pasts and has created a significant difference in the way we remember the past.

Bownds, expanding on these concepts, writes that: ‘The transition from mimetic to mythic culture put great demands on biological memory. Theoretic culture reduced this load somewhat by shifting some storage tasks to the newly developed recording media. Now the short-term memory of the frontal lobes could work with externally stored information, and humans could engage in cognitive projects that were just too large and complicated for the oral-mythic mind.

¹⁴⁶ This is a phrase coined by Andy Clark and is from the title of his 1993 book *Associative Engines: Connectionism, Concepts and Representational Change* [MIT Press]. A comment about this theory: The first conclusion is that our brains are; associative engines’ to use a phrase of Andy Clark, a philosopher and cognitive scientist from Washington University in St. Louis. We’re wonderful at association and in fact, in cognition, association is just about all we do. In association we impose intelligible patterns. To use another of Clark’s labels, we are fast pattern completers. If I see a tail going around a corner, and it’s a black swishy tail, I say, “There’s a cat!” But it could be a small boy with a tail on the end of a stick who’s trying to fool me. But I don’t do that. My mind is not built to do that. If I were strongly sceptical, I could do that, or if I saw some small boy playing pranks I could say, “Well, it’s either a cat or a small boy.” But in the absence of a small boy, all I’m really saying is, “Hey! I see a cat.” But I didn’t see a cat. I saw a black tail. A famous Bertrand Russell story makes the same point. A schoolboy, a parson and a mathematician are crossing from England into Scotland in a train. The schoolboy looks out and sees a black sheep and says, “Oh! Look! Sheep in Scotland are black!” The parson, who is learned, says, “No. Strictly speaking, all we can say is there is one sheep in Scotland that is black.” The mathematician says, “No, still not correct. All we can really say is that we know that in Scotland there exists at least one sheep, at least one side of which is black.” URL: http://www.santafe.edu/arthur/Papers/Pdf_files/Colander_Cognition_Web.doc.2004

[Bownds:3] Photographs are a part of this development as they create a new way of seeing the world and ourselves in the world. They expand what we are visually able to know about the world and like memory are able to place us in different times at the same moment in time.

2.3 Engrams and Exograms

The idea of a link between the processes and function of our biological memory and external memory systems has been seen by some researchers as the relationship between internal traces



My grandmother in the Alps in the 1950s or 1960s [Image from the collection]

called ‘engrams’¹⁴⁷ and external ones called ‘exograms’. This section discusses these two terms and Sutton explains the idea of engrams by writing:

The classical neuroscientific search for the engram failed because there are no enduring single memories stored alone at local fixed addresses [one neuron for my grandmother, one for my grandfather]. Since brain traces are dynamic, we often leave information out in the environment, using the world as its own best representation. Brains don’t replicate, but rather complement, the alien formats and media of external resources. It’s just because representations in the brain are partial and action-oriented that external cognitive scaffolding and tools of many varieties supplement our relatively unstable internal memories. [Sutton 2002:2]

Merlin Donald¹⁴⁸ uses the term ‘exogram’ to denote memory systems that lie outside of the biological brain. He explains this concept by writing:

I have suggested the term "exogram" to complement the notion of a biological "engram." ...exograms introduced new possibilities into the human representational universe. Exographic storage constitutes a hardware change just as real as the biological hardware changes that mediated the first two transitions; and its effect on overall memory structure may have been even greater. The exportation of memory storage has literally meant that the human race, as a collectivity, can now evolve new memory systems at the accelerated rate of technological change, as opposed to the relatively slow rate of genetic change. Perhaps the most important new features introduced by external storage are radically different options in memory retrieval, and the fact that exograms are easily reformattable.’ [Donald 1997:13]

He emphasises this when he states: ‘The advantages of external memory are easily documented. External symbolic storage systems allow humans to circumvent, at least partially, the limitations of biological working memory, while creating a wide range of new storage, retrieval and processing possibilities. By changing the physical medium of storage, human memory systems have acquired new properties, especially retrieval properties.’ [Donald 1997:13]

This means that the processes that operate our memory systems are relieved of certain tasks because there are external systems that function at a greater speed and reliability. As Sutton writes on Donald’s idea:

¹⁴⁷ An engram is, ‘A memory trace; a neurophysiological process that accounts for persistence of memory.’ Source: Edgerton, Jane E. 1994. American Psychiatric Glossary, 7th Edition. Washington, DC: American Psychiatric Press

¹⁴⁸ Merlin Donald is a Professor in the Department of Psychology and Faculty of Education, Queen’s University, Kingston, Ontario, Canada. A cognitive neuroscientist with a background in philosophy, he is the author of many scientific papers, and two influential books: *Origins of the Modern Mind: Three stages in the evolution of culture and cognition* [Harvard, 1991], and *A Mind So Rare: The evolution of human consciousness* [Norton, 2001]. His central thesis is that human beings have evolved a completely novel cognitive strategy: brain-culture symbiosis. As a consequence, the human brain cannot realize its design potential unless it is immersed in a distributed communication network, that is, a culture, during its development. The human brain is, quite literally, specifically adapted for functioning in a complex symbolic culture. URL: <http://pavlov.psyc.queensu.ca/faculty/donald/donald.html>

Merlin Donald's initial classification, for instance, strongly contrasts the fading, constantly-moving contents of biological working memory with the enduring, unlimited, supramodal, context-independent, and re-formattable nature of exograms. Certain formats *do* freeze information, allowing it to be held up to multiple scrutiny in future, transmitted more widely across a variety of networks, altered and then re-entered into storage; and these properties of exograms have had essential roles in the development of artistic and theoretic culture.' [Sutton 2002:7]



AEI. Camera Projection. Digital Photographic Print. 25m x 25cm. 2002

Photographs are one of those 'formats' that 'freeze' information and a semi-permanent records of the world and how we figure in the world. They can be looked at over and over again and because they are near enough to the look of the world they create a direct connection with our pasts.

This idea of 'exograms' that are linked with cognition has its critics who argue that the idea that human cognitive processes can somehow lie outside of the confines of the human mind or body is implausible. Fred Adams and Ken Aizawa from the departments of Philosophy, University of Delaware, Newark and Centenary College of Louisiana, Shreveport, respectively, take a counter view. They write in an article called, *The bounds of cognition*, that:

Recent work in cognitive science has suggested that there are actual cases in which cognitive processes extend in the physical world beyond the bounds of the brain and the body. We argue that, while transcranial cognition may be both a logical and a nomological possibility, no case has been made for its current existence. In other words, we defend a form of contingent intracranialism about the cognitive. [Adams/Aizawa 2001:7]

In offering up a critique of this position a group of cognitive researchers¹⁴⁹ in an article, *'Beyond the Bounds of Cognition'* cite that:

According to Adams and Aizawa [2001]¹⁵⁰, Donald implicitly refers to psychological laws of human memory and those will not generally hold for external memory storage. However, in Donald's [1991] description the biological and the external are two quite different things: while engrams refer to single entries in the biological memory system, exograms refer to single entries in the ESS [external symbol storage], and are considered external memory records of ideas. Even though both engrams and exograms are described in similar terms, exograms do not become biological, not even 'implicitly'. In fact, Donald notes that systems of exogram storage are much more flexible than engrams and thus a symbolic information environment frees us from wholly depending on biological memory. He therefore concludes that a "cognitive system containing exograms will have very different memory properties from a purely biological system" [Susi 2003:5]

The same researchers conclude their paper by asking the question: 'Should the bounds of cognition be drawn so as to include the artefacts we use?' They answer this by looking at the semantics of the debate:

From the classical information processing view of cognition the answer is clearly "no": cognition takes place solely within the boundaries of the brain. From a situated view of cognition, however, quite a different picture emerges: cognition is not purely what goes on inside the brain. Rather, cognition emerges from the interaction between brain, body and the environment [They are making reference to Clark's ideas here] and in order to understand cognition, the units of analysis in cognitive studies need to be extended to include external resources brought into our activities. [...] the inclusion of artefacts as part of extended cognitive systems does not necessarily lead to illogical or absurd assumptions of artefacts coming to have human cognitive processes or abilities, as some have argued. It could therefore be concluded that debating where to draw the bounds of cognition to some extent simply is 'much ado about nothing'. Where the boundary is drawn is not the main issue – more importantly, we need to attend to the role of artefacts themselves in cognition.' [Susi 2003:7-8]

¹⁴⁹ Tarja Susi, Jessica Lindblom, Tom Ziemke in the Department of Computer Science, University of Skövde, Sweden

¹⁵⁰ Adams and Aizawa claim that cognitive processes involve only representations with non-derived content, and so the notebook should not be regarded as part of the subject's cognitive process. But another issue here concerns the individuation of the cognitive subject. If the notebook is part of a belief system, this shows that mental contents can extend beyond the skin. However, it might also be replied that in so doing we are in effect extending the physical boundaries of that person beyond his skin. The notebook has now become a spatially scattered part of his extended self. If this is right, then it has not been shown that the patient's mental contents are determined in part by factors external to the subject. It merely shows that one can extend the physical boundaries of the subject by augmenting additional hardware. This conclusion differs from those of the earlier arguments for externalism, where mental contents are supposed to depend on factors that are clearly external to the subject. [Lau: 9-10]

Clark directly defends his position when he criticises Adams's and Aizawa's point of view. He writes, 'Adams and Aizawa [writing in 2001] present a variety of considerations meant to undermine a position that they dub 'transcranialism' viz the view that "cognitive processes extend in the physical world beyond the bounds of the brain and the body". This is a view that they associate, in varying degrees, with the work of Merlin Donald, Daniel Dennett, Ed Hutchins....' He continues, 'While conceding that transcranialism is "logically and nomologically possible" [and might thus be true of, for example, some alien species on a different planet] it is, they maintain, false in the case of human cognition. They thus opt for a "contingent intracranialism about the cognitive".' [Clark:8-9] He then argues that: 'The most obvious way to unpack this is, still following Adams and Aizawa, in terms of a fundamental distinction between inscriptions whose meaning is conventionally determined and states of affairs [e.g. neural states] whose meaning-bearing features are not thus parasitic. The question is, must everything that is to count as part of an individual's mental processing be composed solely and exclusively of states of affairs of this latter [intrinsically content-bearing] kind? I see no reason to think that they must. For example, suppose we are busy [as part of some problem-solving routine] imagining a set of Venn Diagrams/Euler Circles¹⁵¹ in our mind's eye? Surely the set-theoretic meaning of the overlaps between say, two intersecting Euler circles is a matter of convention? Yet this image can clearly feature as part of a genuinely cognitive process.' [Clark:10]

John Sutton writes on these ideas that, 'The biggest challenge, then, in constructing a genuinely dynamical framework to analyze the cognitive life of things in memory is to acknowledge the diversity of feedback relations between objects and embodied brain. Just as architects can occasionally be too confident that buildings or monuments can act as simple analogues or substitutes for memory, so cognitive anthropologists and psychologists can too easily neglect the sheer variety of the forms of media and exograms which humans have developed since the Palaeolithic emergence of notations and external symbol systems.' [Sutton 2002:7]

¹⁵¹ Venn diagrams and Euler circles have long been used to express relationship among sets using visual metaphors such as disjointness and containment of topological contours. URL: <http://www.cs.technion.ac.il/Labs/ssdl/thesis/finished/2002/elena/> Also Euler Circle defined as: 'Each concept is defined by a circle. Synonymous terms, by definition, occupy the same domain. Related subjects have overlapping domains. A subject which is seen as totally within the bounds of another will have its circle within the domain of the larger subject.' URL: sky.fit.qut.edu.au/~bruce/units/itn352/ITN352Week3.html

3. Photographs, Autobiographical Memory and External Memory Systems

In this section I will look at the specific role photographs have played in the relationship between our autobiographical memory and external sources of memory. John Sutton argues for investigating the individual qualities of artefacts, such as photographs, and other external memory systems by writing that:

...different external media for the storage, transmission, and transformation of information have their own peculiar virtues. The various kinds of memory scaffolding which humans have used, from knots, rhymes, codes, and sketches to artificial memory techniques, photographs, books, and computers each have different properties. The resources of the historian and social scientist must again be included in cognitive science [Sutton 2004:13].



A display about memory at the Dittrick medical History Centre 1966.

I see the ‘peculiar virtues’ of photographs, discussed in Chapter 3 of this thesis, as having a relationship to ideas of external memory systems and to memory and especially autobiographical memory systems and processes. I will explore the effect of these new ideas have on the relationship between the personal photographs described in Chapter 1 of this thesis and my own autobiographical memory.

I would argue that autobiographical memory and photographs, in their different ways, can be seen as a form of ‘mental time travel’. They both take us back to a time that has past, while both are fragmentary and open to change and reinterpretation. They can also affect each other. Our autobiographical memories can be altered by our photographic records and photographs can shape our autobiographical memory. In some studies it has been shown that people often remember photographs as having more background than was actually there. This ‘pattern’ has been called, boundary extension¹⁵². In other studies, using more significantly emotional photographs, it was found that less of the background was remembered. In this latter study some of the participants remembered nothing of the background information in the photographs and even thought there was no ‘peripheral’ information at all.



Detail from an image in the collection of the back door step of the Millington Road house.

When I first looked at my grandfather’s collection as I said in Chapter 1, there was nothing I remembered specifically about the images, it was more to do with the general ‘look’ of them.

¹⁵² Helene Intraub a leading researcher in this field describes this idea by writing, ‘Boundary extension is an anticipatory error people make after viewing photographs, exploring real scenes through vision or touch, or imagining spatial layout. They remember having experienced a greater expanse of the scene than they had actually encountered. I propose that this predictive error reflects activation of internalized constraints about the structure of a continuous world that is perceptually sampled only a piece at a time. [Intraub]

None of the predominant features in the slides seemed to conjure up any memories. It was some of the small details in the landscapes and skies that seem evoke some recollections. It was almost the ‘heat’ that came from the images, the glow they had, that was evocative. It was often the places that I remembered not the people in the photographs. I may have recognised some of the people in the transparencies but had no memory of them being in that place at that time. I was though able to fill in the rest of the scene from the information in the photographs.

Veronika Nourkova¹⁵³ who has undertaken research into the relationship between familiar photographs and memory writes in, *Personal Photographs as a Tool for Autobiographical Memory Retrieval*, that:

L.S.Vygotsky¹⁵⁴ in his historical-cultural theory postulated that: "the central fact about our psychology is the fact of mediation". Higher mental functions are, by definition, culturally mediated; they involve not a “direct” action on the world, but an indirect action, one that takes a bit of material matter used previously and incorporates it as an aspect of action. In so far as that matter has itself been shaped by prior human practice [e.g., it is an artifact], current action benefits from the mental work that produced the particular form of that matter. In such a view artifacts clearly do not serve simply to facilitate mental processes. Instead, they fundamentally shape and transform them.’ [Nourkova 2002]

These arguments tie in with the ideas of external memory systems discussed previously whereby artefacts such as photographs are seen not just as inert entities but are a part of an active process of exchange between mind and world. When looking at my grandfather’s photographs, I have experienced a feeling of being in a space between what is in the photograph and my reflexive examination of it as a ‘photograph’. It is a space in which I am both self-conscious and unaware of where I am. This simultaneity of experiences is akin to the feelings generated when the memory of a past event surfaces in my mind.

¹⁵³ Veronika Nourkova is a researcher from Moscow State University. She says of her study: ‘The main purpose of my study was to investigate personal photographs as cultural tool for autobiographical recollection. In my point of view, side by side with external cues [words, dates etc.] providing access to autobiographical memories, subjective internal cues should be considered in empirical research. Individuals have internal set of personal photographs, which we regard as an internal cues determining accessibility to 1) certain episodes of personal past; 2) life periods and 3) body image at different ages. It is important to note that in my research we concentrate not on photographs themselves, but on memories about photographs.’ URL: http://faculty.washington.edu/gloftus/P541/Archives-2000-2003/Archives_Winter_2002/Nourkova_Abstract.html.

¹⁵⁴ Len Semyonovitch Vygotsky was born on November 5, 1896 in Byelorussia [SovietUnion]. He was first educated as lawyer and a philologist [one who studies written records esp. literary texts, in order to determine their authenticity, meaning, etc.]. [Webster’s, 1980]. He began his career as a psychologist in 1917 and only pursued this career for 17 years before his death from tuberculosis in 1934. His scientific contemporaries included those strongly in favour of stimulus-response theories, such as Ivan Pavlov, and John B. Watson as well as the founders of the Gestalt psychology movement such as Wertheimer, Kohler, Koffka and Levin. However, in Vygotsky’s opinion, none of these theories succeeded in developing a completion description or explanation of higher psychological functions in terms acceptable to natural science. Even though Vygotsky wasn’t able to accomplish these goals either, he was able to provide us with an intelligent and precursory analysis of modern psychology [Cole, 1978].



India 1966 [Detail]. [Image from collection]

Nourkova uses her research to come up with a hypothesis about the way photographs relate to autobiographical memory. She argues that:

‘...a person recognizes himself in photographs and, hence, marks a coinciding piece of information as referring to the autobiographical memory store. Body image in a photograph directs retrieval process to certain life period [i.e. me, when I was a student or me, when I was infant]. Through this process using information from a situational context, the subject gets access to concrete episode from his or her past [phenomenological record]. It is widely discussed that self-reference serves as a trigger for an autobiographical memory system. The presence of own image on personal photographs facilitates addressing to the autobiographical memory store and makes the task obvious.’ [Nourkova 2002]

I find this approach to the way we retrieve memories from photographs too mechanical and generalized. Photographs are taken as a unitary form of representation and are not seen as the complex things that they are. When I have looked at my grandfather’s collection it is often small details within the photograph that cause me to remember more specific incidences from my past. The image of myself and the context I am in only gives me a general idea of what was

happening at the time. It is the fragment that ‘animates’ my autobiographical memory. As already discussed in Chapter 3 Barthes describes this fragment as the ‘Punctum’, which he depicts variously as a ‘partial feature’ [a detail], unintentional, a flash that awakens, coming from silent contemplation and often from remembering the photograph, creating an external life from memory, a need or an action.

Recent thinking about photographs and other visual images questions the idea that these possess qualities that make them more accessible than lived experience, to functions of the brain. Warren Neidich an artist and neuroscientist, argues that photographs compete more successfully for space in our brains. He writes about Paul Virilio’s idea that images are more focussed than live experience. In his article, *BLOW UP: Photography, Cinema and the Brain*, he writes that:

The phatic¹⁵⁵ image – a targeted image that forces you to look and holds your attention – is not only a pure product of photographic and cinematic focusing. More importantly it is the result of an ever-brighter illumination, of the intensity of its definition, singling out only specific areas, the context mostly disappearing into a blur. As such these artificially contrived images compete more effectively for neural space than their natural or organic counterparts and as such build sets of neural relationships or neural networks that are in a sense artificial [Neidich 2004:2].

This idea that these types of images such as photographs are creating new neural networks is a further step towards the idea that we are connected to the world in more radical ways than previously thought. Neidich also argues that photographs act on different memory systems in various ways. He writes about this idea, ‘Each photograph functions simultaneously in a multiplicity of memory systems that are permeable to each other and effect specific meanings depending on a system of valences and weights.’ [Neidich 2004:4]. He continues by writing that:

The second broad category of photographic memory is called “episodic photographic memory” and it relates to the personal history of the producer’s own photographic production. For each photographer creates his/her own archive which acts as a kind of parallel memory to the one formed in his or her normal development of relations with the real world [Neidich 2004:4].

This idea that the photographer creates a ‘parallel memory’, I think, is similar to the reasons why my grandfather, and a great deal of other people who take photographs, are drawn to this activity. They create another world in which they find they can control and access their memory at will. Their photographs’ helps to make their autobiographical memory concrete. The past, for

¹⁵⁵ Phatic is defined as: Of, relating to, or being speech used to share feelings or to establish a mood of sociability rather than to communicate information or ideas. URL: <http://www.bartleby.com/61/83/P0238300.html>

them, is a series of discrete documents that prove they exist and have lived the experiences photographed. There is nothing new in this idea, Susan Sontag comments on this in her book *On Photography* when she writes that photographs are, ‘A way of certifying experience...’ [Sontag 1979:3] What is new though are the ideas that artefacts such as photographs can have a direct influence on the way our minds function and alter the architectonic¹⁵⁶ structure of the brain.

Over 30 years ago, Roland Barthes wrote, ‘*Interdisciplinary* studies, of which we hear so much, do not merely confront already constituted disciplines [none of which, as a matter of fact, consents to *leave off*]. In order to do interdisciplinary work, it is not enough to take a ‘subject’ [a theme] and to arrange two or three sciences around it. Interdisciplinary study consists in creating a new object, which belongs to no one.’ [Garber:5] Through the drawing together of ideas from different disciplines: fine art, photography, autobiographical studies, cognitive science, and neuroscience among others, I have attempted in this text to go beyond the normative ideas that usually link photography with memory. In the cognitive sciences the idea of interdisciplinary research is seen, by some, to be the only way of gaining a greater understanding of the way memory functions internally and externally to our minds.

This principal reason this research has to be interdisciplinary arises with the introduction of the idea of ‘external memory systems’. If, as some thinkers suggest, memory ‘leaks’ out from our ‘skin and skull’ [Clark 1997] then cultural artefacts, such as photographs, that become repositories for memory also have to be studied in relation to ideas of autobiographical memory. Even within the research area of ‘external memory systems’, there are those who see the links between mind and world as fairly weak and who merely regard cultural artefacts as props in helping us in our cognitive lives. On the other hand, there are others [Neidich, Clark, Sutton, van Gelder et al] who see this relationship as a dynamic loop, one affecting the other and fundamentally changing each other’s processes and functions. The matter of our brains is changed as new ways of storing and recording information are created. Clark sums up these conflicting positions when he writes:

The notion of the Extended Mind draws strong reactions. Many feel it is patently false. These same people tend to feel that the mind is simply and obviously just the activity of the brain. Others regard it as patently true, and they tend to be those who identify the mind with an essentially socially and environmentally embedded principle of informed agency [i.e. the

¹⁵⁶ Architectonic is a word that is used in neurobiology to describe the distinct cellular organization of specific areas of the brain. For instance the columnar arrangement in the visual cortex.

fans of situated cognition].¹⁵⁷ My own feeling is that we have not yet reached the philosophical or scientific bottom of this debate. [Clark 2003:40]

I believe that whatever the mechanics of the relationship between the mind and the world are, there has been a shift in the way the world is viewed because to the invention of artefacts such as photographs. Even on a very simple level they tell us more about the world we live in without us having to be physically present at an event, whether that be on a microscopic level or a place in time and space that we have not visited. We are able to see things, including ourselves, in states not thought of 200 years ago. This rapid change in the dynamics of our relationship to the world-out-there has changed the dynamics of the world inside our heads and photographs have played a significant part in this process.



RMJI Alps. Detail from installation *Ships That Pass*. 2004

¹⁵⁷ Situated cognition places emphasis on an agent interaction with the situation or environment [Greeno, 1991]. It is believed that learning occurs when an agent interacts with the environment. Therefore, knowledge is acquired through the internal processes of the agent as he or she perceives and interacts with the environment. In situated cognition, the environment plays an important role in knowledge acquisition in that it provides affordances or "the contribution that things in the situation make to the interactions" [Greeno, 1991]. Greeno's view of how the agent acquires the ability to perceive affordances in the environment is through the frequency of engagement in activities, rather than the representations of those actions. Situated cognitivists emphasize both the processes that occur in the mind, in the form of mental models, as well as the affordances within the environment that contribute to the formation of mental models. Unlike schema theory, which stresses the agent who frames the perception, situated cognition places more emphasis on the situation and the frequency of engagement in the situation as variables in knowledge acquisition. URL: <http://www.qvctc.commnet.edu/people/itkiosk/situated.html>

Photographs capture and freeze time, and heat up our emotions. They trigger autobiographical memory and enhance our knowledge of our past. They can create a false, fragmented picture of our lives, but so does our autobiographical memory. Photographs tell stories but they are mediated as it is with any document. But have they played a part in changing the way our brains and minds function? I have found evidence of the malleability of our biological brains and some thinkers are positing ideas that we are connected to the world in more fundamental ways than ever thought of before. With the increased use of fMRI and other imaging techniques that will allow scientists to view the functions of our brains in 'real time', a greater understanding of how our memories work and their relationship to external stimuli will be gained.

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Conclusions to Research Project

In Chapter 1 I have given an account of my experiences with my grandfather's collection of photographs. This has led me to question the way autobiography is written and the role that photographs have played in the remembrance of my past life. I realised that a whole series of editing processes was at work whilst I was writing and remembering events from my past life. I could see that the transcription of a memory into writing brings into play both the original memory on which the act of writing is predicated *and* those cues that the act of writing itself introduces. It becomes a kind of adaptation. I was reconstructing what had happened to me from the fragmentary evidence given to me by anecdotes, my own memory and by the photographs themselves. I became curious as to how these photographs had affected my autobiographical memory directly by undertaking this project and whether they had indirectly affected, over time, the workings of my biological autobiographical memory.

I saw similarities in the way Roland Barthes went about investigating his own personal photographs in his book *Camera Lucida*. He started his investigation by choosing certain photographs that 'agitated' him and cause an 'adventure' to occur. I experienced a similar 'animation' when I looked through my grandfather's collection of photographs. Most were only interesting on the level of curiosity, they did not make my mind wander or trigger any memories. There were other photographs that I kept returning to that, each time I looked at them, seemed to create more memories and hook me into events and experiences of my past. I began to question what it was about these photographs that was peculiar and made me repeatedly return to them.

The biography of my grandfather helped me gain an understanding of some of the possible reasons why he became an obsessive photographer. I also made me aware that the taking of photographs, for many people, becomes a way of controlling and understanding the world they live in. It also made me realise that a great deal of my memories of my grandfather were tied in with the photographic record he had left behind. The photographs became more than just aids to remembrance but became a part of my autobiographical past and memory. It also helped me question my pre-concepts of what memory is and the way photographs interact with our autobiographical pasts.

In Chapter 2 I came to the conclusion that there is a general agreement that the idea of memory being a single monolithic function of the mind is no longer tenable. It is thought that memory is

made up of many processes and systems. I have found that research into memory has come to the conclusion that within what is termed autobiographical memory there are different ways it functions and it is not entirely separate from other forms of memory. These processes of memory overlap and mingle. My knowledge of 'autobiographical facts' go hand in hand with my autobiographical memory and rely on each other to a certain extent. The records of my life affect my memories of my life.

The idea that there are different kinds of memory, for me, meant that the way photographs interact with these types of memory could be different in each case. Photographs can help working memory in as much as they become aids to remembrance but they can affect autobiographical memory in a different way by creating a link with the past that is expansive. Photographs, because of the way they depict events, become more memorable and affect the way we remember the past.

This led me to look at recent ideas that there are 'external memory systems' that go beyond being just aids to memory but are tied in closely with the evolution of our biological capacity to remember our past lives.

Chapter 3 investigated the collection of my grandfather's photographs and by subjecting it to different methods of analysis, from the anecdotal to the statistical and from the empirical to the historical, I discovered more about the relationship between photographs and autobiographical memory. Each way of looking at the collection had its strengths and weaknesses and each one gave up a certain amount and type of information. It was only through the combination of the different orders of information that I was able to start to analyse the way photographs have had an influence on my autobiographical memory. It has also helped me to gain an awareness of the power photographs have to conjure up autobiographical memories.

By looking at Barthes' quest for the essence of photography I came to an understanding that it could be photographs' abilities to warp time that sets them apart from other forms of images or representations. He went from finding out how his pleasure works when looking at a photograph in the first section of *Camera Lucida* to seeing photography as a living ghost of the past, here and not here at the same time, which, for him, created a fundamental shift in the way the world can be perceived and conceived. For me it is this shift in our consciousness that has not only altered the way we remember the past but has changed the way our memories function.

I came to the conclusion from this research that it is the ‘power’ of photographs to alter our conception of time and bring the past so clearly into our present lives that had consequences for the way our memory functions. Our autobiographical past is doubly disturbed by photographs. They take us back in time which we are then able to remember, but they also place us in that time personally. We are able, to a certain extent, to confirm our past and create our own identities. Photographs have multiple personalities and it is in this multiplicity that photographs’ power lies. They are a chameleon, a parasite, a host and a doppelganger, disguising itself and invading our memories. Photographs have created a change in the way we think about the world and ourselves.

In Chapter 5 I looked at the idea that ‘external memory systems’ are connected in a radical way to the workings of our biological memory. I suggested that if memory ‘leaks’ out from our ‘skin and skull’ then cultural artefacts, such as photographs, that become repositories for memory also have to be studied in all their complexities.

I believe it is the ‘disturbance’ to our consciousness, as described by Barthes that photographs have created, through their ability to collapse time into a past and present moment, which is partially responsible for the alterations in the way our autobiographical memory works. I have been interested in the *effect* photographs have had on the way our autobiographical memory functions. I think that photographs have had a profound effect on the way we look at the world and therefore think about the world and, as a consequence of this, the way we remember the world.

When I started this research project I had certain assumptions about memory and photographs and the relationship between them. These assumptions affected the way I thought my practice would evolve. Early on in this project I was struck by what Michel Foucault had to say when talking about how he thought images could be used in art:

How can we recover the games of the past? How can we relearn, not just to decipher or to appropriate the images imposed on us, but to create new images of every kind? Not just other films or better photographs, not simply to rediscover the figurative in painting, but to put images into circulation, to convey them, disguise them, deform them, heat them red hot, freeze them, multiply them. To banish the boredom of writing, to suspend the privileges of the signifier, give notice to the formalism of the non-image, to unfreeze content, and to play, scientifically and pleasurably, in, with and against the powers of the image.¹⁵⁸

¹⁵⁸ Foucault writing in. *Gerard Fromanger: Photogenic Painting*. London, 2000.

I wanted to ‘unfreeze’ the photographs in my grandfather’s collection and make them come ‘alive’. When I started to use SLR cameras as projectors I wrote about the work by saying, ‘In a blackened out room light from a torch shines through a slide and on through the back of a backless old camera. A transparent, fleeting image captured by this same camera many years ago projects outwards from it. A white wall intervenes, to reveal a glowing circle of dappled coloured light. The lens of the camera/projector focuses the image. Caught in this fragile world a young boy somersaults and hovers forever above an icy cold swimming pool. Another camera clicks, another photograph is taken.’ I felt that a strange loop occurred whereby what once had been captured *from* the world was projected back *into* the world using the same apparatus, and then recaptured, light being the means of both its exposure and revelation.

These photographic images are an exploration into experiences of remembering and forgetting. There are attempts to evoke a form of ‘paramnesia’, whereby fantasy and reality collapse to create a sense of déjà vu. Roland Barthes says at the end of *Camera Lucida*, ‘The photograph then becomes a bizarre medium, a new form of hallucination false on the level of perception, true on the level of time: a temporal hallucination, so to speak, a modest, shared hallucination (on the one hand "it is not there," on the other "but it has indeed been"): a mad image, chafed by reality.’¹⁵⁹

Photographs are, like memories, a testament to our complex and elusive past. This idea that photography has altered our perception of the past, and even the perception of time itself, is central to this work. Photographs are seen as a living ghost of the past, here and not here at the same time, which creates a fundamental shift in the way the world is perceived and conceived. When I look at my grandfather’s photographs, I see them as being alive. Not just alive when they were taken but alive now. Not just, ‘I was there’ or ‘I could have been there’ or even ‘I feel like I am there’, but ‘I am there and they are here, now’. It is this ‘certain, but fugitive testimony’ that confirms, but also creates doubt in, the veracity of our own memories.

¹⁵⁹ *Camera Lucida* page 115

Portfolio of Selected Work:

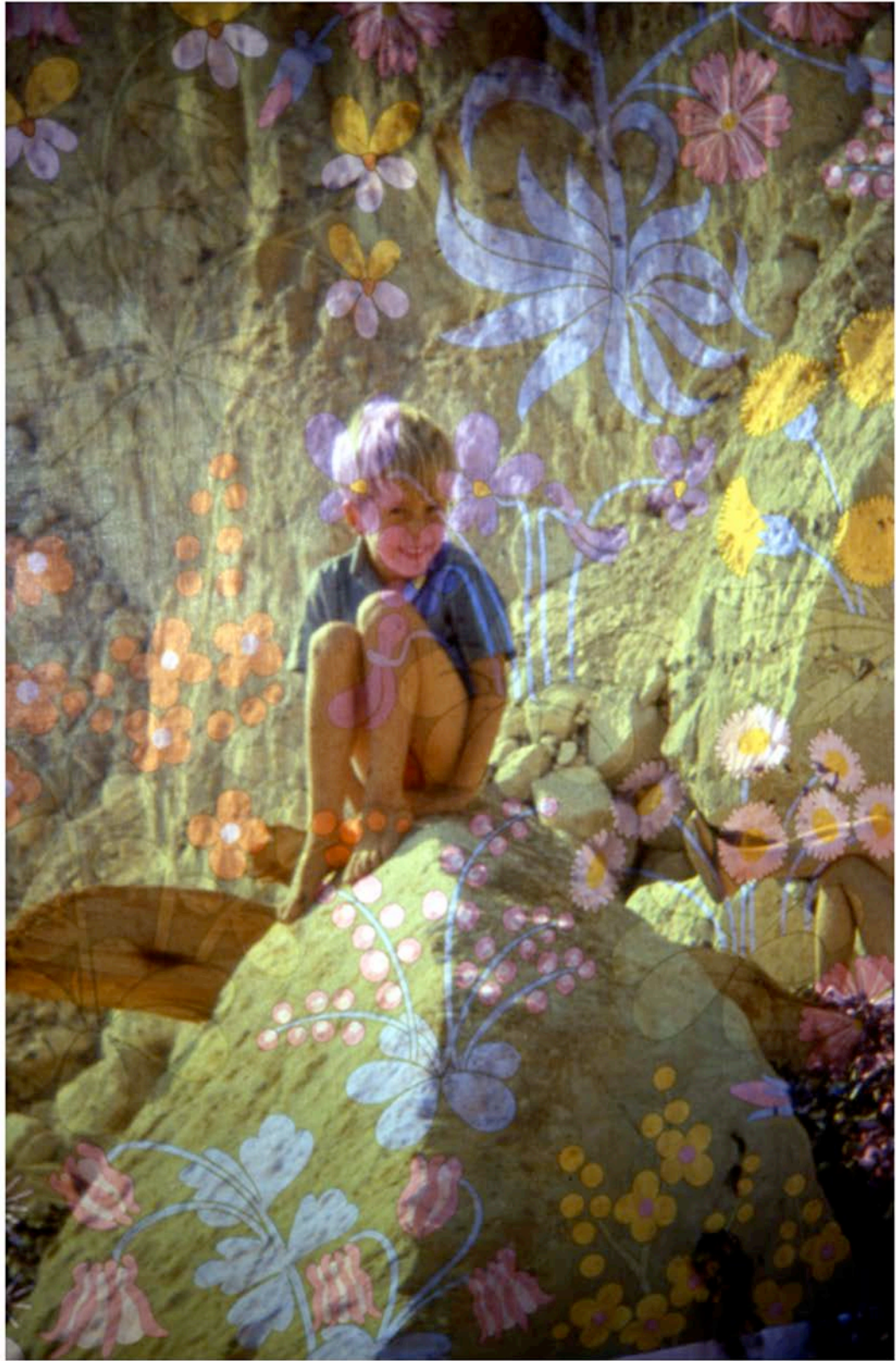
2000-2005



Mark Ingham



Darwing projected image and Projected image over drawing. 2000



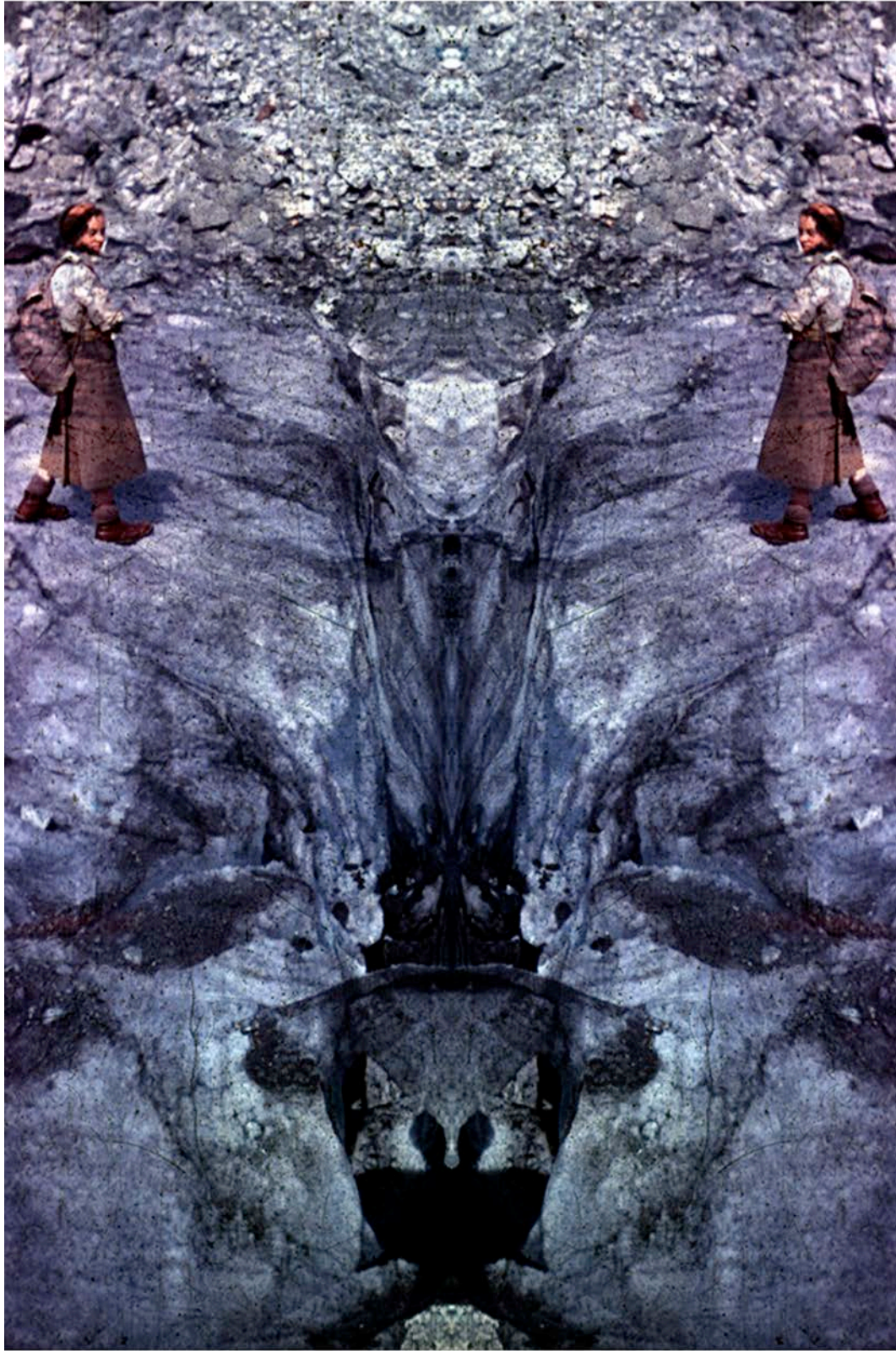
1966 Wallpaper. Photographic Print. 2005. 1m x1.5m



Delhi/Suez.. Camera Projections. Digital Photographic Print. 1m x 2.20m. 2003.



Doppelgänger: Yonder. Photographic Print. 2005. 1m x 1.5m



Doppelgänger: MaPaMaPa. Digital Photographic Print. 2.25m x 1.50m. 2004



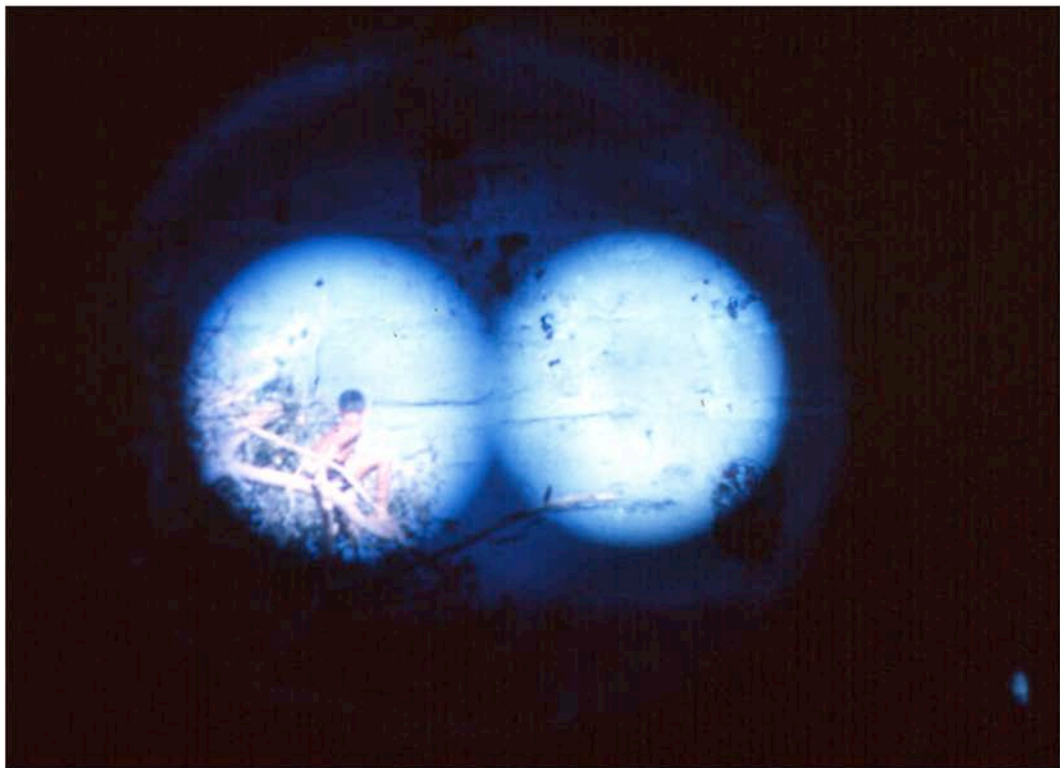
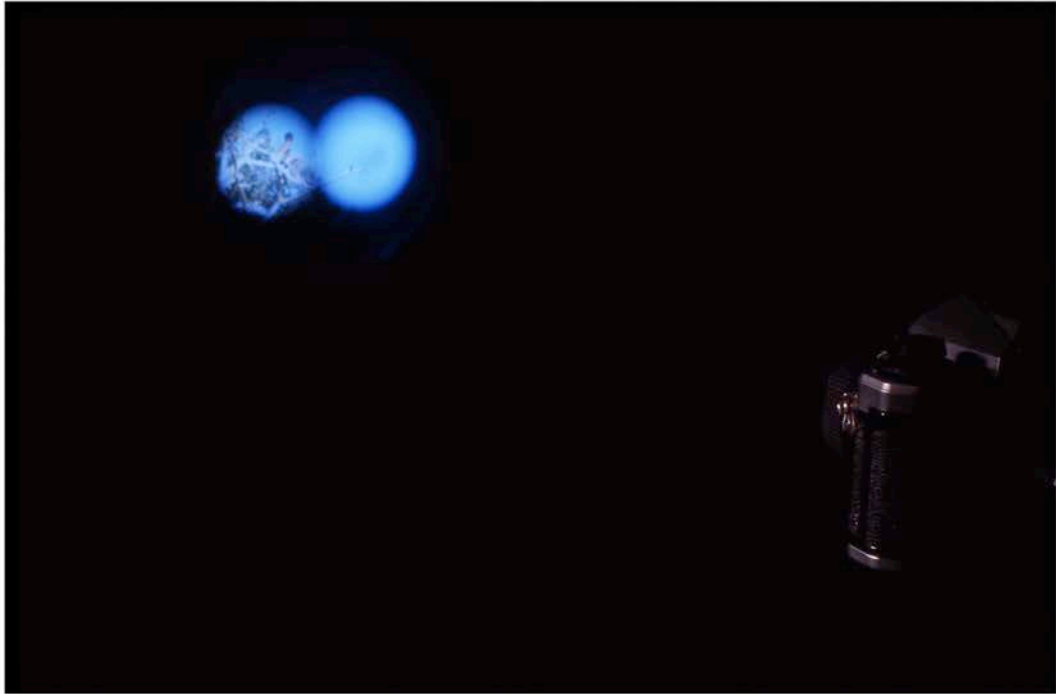
Beams Projecting from Camera Projectors



Camera Projectors [lights off and on]. 2003.



Beams projecting from Camera Projectors



Camera Projector and Yonder [Fantastic! Exhibition 2003]



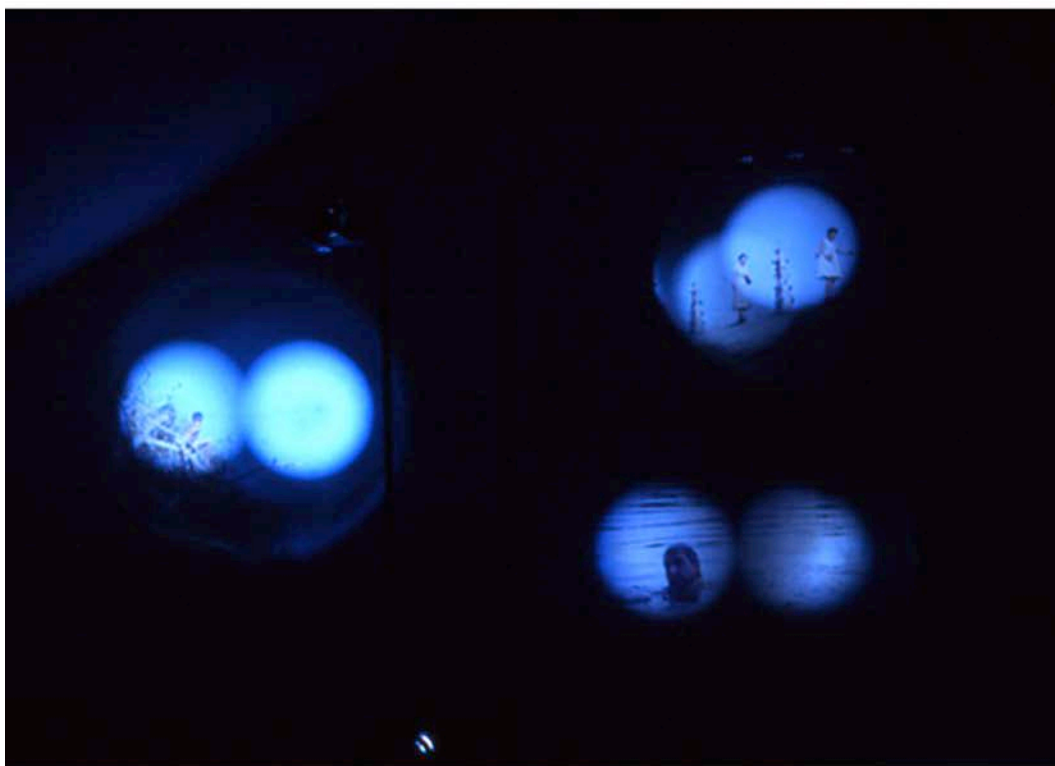
Grand Tour. Camera Projector Installation. [Fantastic! Exhibition, St. Pancras Church Crypt]. 2003



Grand Tour. Camera Projector Installation. [Fantastic! Exhibition, St. Pancras Church Crypt]. 2003



Details from **Ships That Pass** Installation. Camera Projectors. 2m x 9m x 7m. 2004



Ships That Pass Installation. Camera Projectors. 2m x 9m x 7m. 2004

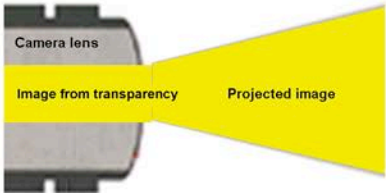
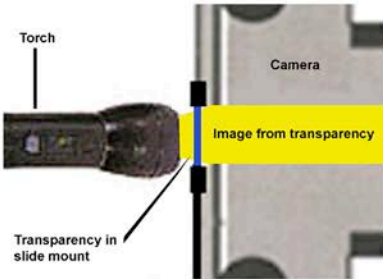
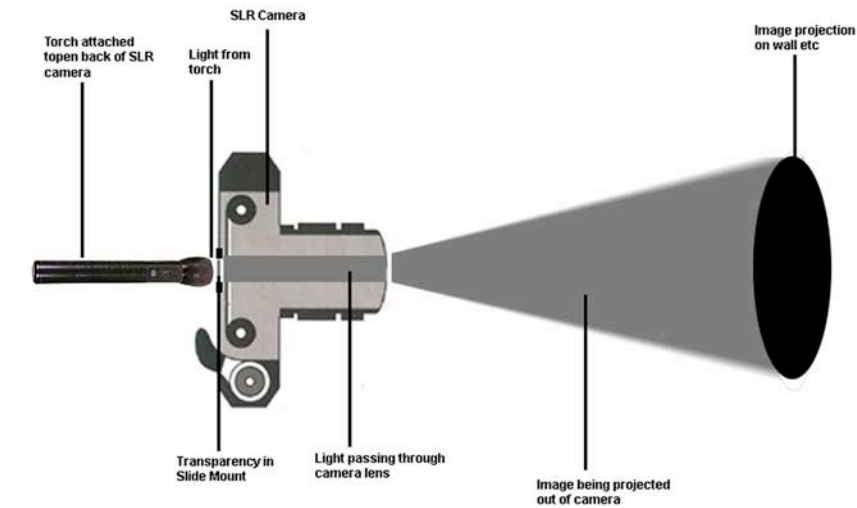


Image coming out of the camera



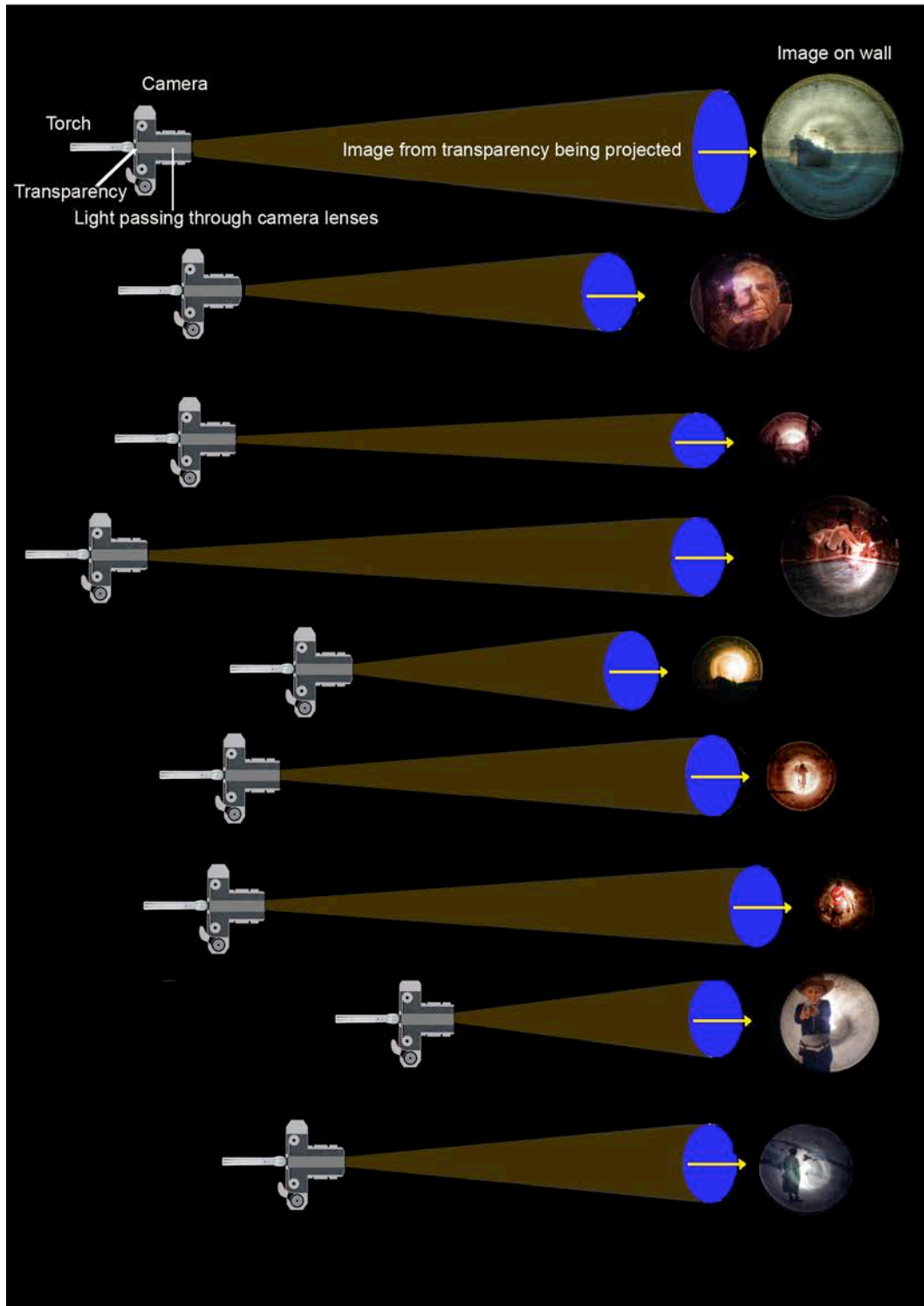


Diagram of camera projectors working