

2013

Photography and the paradigm of the trace

Daniel Nevin
Edith Cowan University

Follow this and additional works at: <https://ro.ecu.edu.au/theses>



Part of the [Photography Commons](#)

Exegesis and accompanying photobook

Recommended Citation

Nevin, D. (2013). *Photography and the paradigm of the trace*. <https://ro.ecu.edu.au/theses/571>

This Thesis is posted at Research Online.
<https://ro.ecu.edu.au/theses/571>

Theses

Theses: Doctorates and Masters

Edith Cowan University

Year 2013

Photography and the paradigm of the
trace

Daniel Nevin

Edith Cowan University, daniel.nevin@gmail.com

This paper is posted at Research Online.
<http://ro.ecu.edu.au/theses/571>

Edith Cowan University

Copyright Warning

You may print or download ONE copy of this document for the purpose of your own research or study.

The University does not authorize you to copy, communicate or otherwise make available electronically to any other person any copyright material contained on this site.

You are reminded of the following:

- Copyright owners are entitled to take legal action against persons who infringe their copyright.
- A reproduction of material that is protected by copyright may be a copyright infringement. Where the reproduction of such material is done without attribution of authorship, with false attribution of authorship or the authorship is treated in a derogatory manner, this may be a breach of the author's moral rights contained in Part IX of the Copyright Act 1968 (Cth).
- Courts have the power to impose a wide range of civil and criminal sanctions for infringement of copyright, infringement of moral rights and other offences under the Copyright Act 1968 (Cth). Higher penalties may apply, and higher damages may be awarded, for offences and infringements involving the conversion of material into digital or electronic form.

Photography and the paradigm of the trace

Daniel Nevin BA (Hons), MBA, MPC

Faculty of Education and Arts

January 2013

ABSTRACT

The idea that photographs can be explained as traces made by the things they depict has been a recurring paradigm in theories about the nature of the photographic medium. Walter Benjamin, Charles Sanders Peirce, Susan Sontag, Andre Bazin and Roland Barthes are a few of the many theorists who have used the paradigm of the trace to explain the nature of photographs. The paradigm can also be argued to have been a significant influence in the work of prominent artists such as Gerhard Richter, Adam Fuss and Cornelia Parker whose work has explored the photographic medium.

Through an exegesis and accompanying photobook this thesis addresses the question as to why the trace has proven to be such an enduring paradigm for explaining the nature of photographs, and how the paradigm can be perceived in art practice in recent decades. The subject of the photograph as a trace is investigated through conducting a review of the history of theoretical uses of the paradigm of the trace to explain the nature of photography. The work of visual artists whose practice can be seen as in agreement with or in opposition to these theoretical approaches was also reviewed. In conjunction with this research a series of photographic works was produced using alternative photographic techniques including pinhole photography, photographs and techniques combining digital film projection and phosphorescent plates.

Seeing photographs as traces links these forms of image making to one of humanity's earliest "discoveries", the ability to interpret traces found in nature. Through such a connection photographs can be seen as a continuation of humanity's ability to read traces and thereby understand and deal with the passage of time, to buttress processes of memory and belief. This thesis thereby explores a key means through which the photographic object is explained and understood, at a time when the use of photographs as a means of documenting and understanding the world is expanding at an exponential rate.

DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

i. incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;

ii. contain any material previously published or written by another person except where due reference is made in the text of this thesis; or

iii. contain any defamatory material.

Daniel Nevin

ACKNOWLEDGEMENTS

Without the help, support and patience of my friends, colleagues, family and supervisors this work would not have been possible.

I will be forever grateful for the continuing support of my supervisor Panizza Allmark who guided me through the long writing process. My progress owes much to her unstinting encouragement and commitment.

My secondary supervisor Rod Giblett provided me with valuable advice and feedback. In an earlier course of study Rod introduced me to the works of Walter Benjamin and inspired me to follow this line of research.

Thank you also to my models and fellow students at Edith Cowan University who made the process of study enjoyable and provided feedback on my work, in particular Cath Gomersall, Yvonne Doherty and Tahly Stozer.

Finally, special thanks to my family, especially Sharon, Anetta and Elodie, who stoically endured our bathroom being converted to a darkroom, our home overrun over by pinhole cameras and other inconveniences without complaint and always gave me love, encouragement and support.

TABLE OF CONTENTS

1. INTRODUCTION	1
2. THE PARADIGM OF PHOTOGRAPHS AS TRACES	7
The meaning of trace	8
Photography and the hand of nature	12
Charles Sanders Peirce, the index and trace	15
Water Benjamin's theory and history of photography	17
The relationship of photographs and trace to aura	19
The optical unconscious	24
Inscription	25
Memory	28
Contingency	30
Andre Bazin and the ontology of the photographic image	32
Sontag, Tagg and others and the relevance of the form of photographs	33
Barthes and <i>Camera Lucida</i>	39
The trace and digital photography	47
3. THE PHOTOGRAPH AS A TRACE IN ART	57
Gerhard Richter, Walter Benjamin and the trace, blur and inscription	59
Shomei Tomatsu and the photographing of traces	64
Postmodernist perspectives on photographs as traces	66
Photographs and contiguity	69
4. MY PHOTOGRAPHIC WORK	80
Shadowprints	81
The hidden room	91
The combination of photogram and photograph and a hierarchy of traces	102
Living into the image and the quality of aura	111
Images reproduced in the photobook	119
5. CONCLUSION	124
The evolution of photography	124
Trace - a resilient paradigm for photography	125
The trace and art photography practice	127
6. REFERENCES	131
7. LIST OF IMAGES	144

1. INTRODUCTION

Ever since the 1839 public unveiling of the daguerreotype, photographs have been a pervasive presence in Western societies. Despite the ready availability of motion pictures and digital recording, a place remains for the still image snatched, as French film critic Andre Bazin would say, from the flow of time (1967, p.9). Indeed, new technologies are providing increasing means for sharing and using photographs to communicate with friends or family, for self-promotion and documentation, not to mention for purposes of surveillance, recording people in public places, such as on buses and trains, and even from space by satellite. The result of all this image-making is that people living in contemporary urban locations are photographed at seemingly every conceivable moment from birth to death. Contemporary society is, as Andy Grundberg notes, a predominantly visual one, in which photographic images have become the primary means by which we obtain information about the world (1999, p.263). Yet despite the ubiquitous presence of photographs and their important roles (perhaps indeed because they are so ubiquitous) their nature and form are often overlooked. This may be due to the way in which photographs are viewed. They tend, like a window, to be seen through so that we think we see the object that the photograph depicts while overlooking the material form of the image itself¹. In order to contemplate the form of the photograph the observer must draw back from viewing what is represented to see the photograph itself. In this research I examine a specific paradigm that has frequently been used to explain the nature of photographs, that is the conception of photographs as being a trace formed by contact with people, things or events.

When theorists have considered the form and function of the photograph the idea that these images preserve traces – residual impressions caused by the presence of an object – has had a central and enduring role in their arguments. Authors such as Walter Benjamin, Susan Sontag, Rosalind Krauss, Roland Barthes

—

¹ See Walton (1984) who describes the function of the photograph as a kind of optical device, like a telescope, through which things may be observed, or Kriebel (2007, p.3) who describes photographs as things that are seen through in order to gain information about the world.

and Andre Bazin have made use of this concept. It is what Geimer calls an “undead paradigm” in reference to its repeated appearance and rejection in literature on photography (2007, p.7). As well as functioning as a critical metaphor this paradigm can be seen as an ongoing motif in the practice of artists such as Gerhard Richter, Susan Degres, Anne Ferran and Cornelia Parker.

This thesis examines the uses the paradigm of photographs as preservers of traces. By following the use of this concept we can revisit and compare the theories and ideas that have arisen around photography since its inception. By providing an account of the history of the paradigm of the photograph as trace this thesis explores the enduring nature of this paradigm and the reasons for its recurrence and application by historians, theorists and artists. It then moves on to examine how these theories have influenced and been applied by photographers, including myself within my own visual works. My visual works primarily use “analogue²” photographic techniques, such as photograms and pinhole photography, applied in new ways. These techniques provide points of contrast with the predominant digital photographic technologies employed today as well as providing avenues for exploring the effects of form on the interpretation and creation of meaning in photographs.

As such this thesis focuses on the forms and processes of photography. While there are many other approaches to analysing photographs and photographic practices, focusing on the form of the photographic object through an examination of the paradigm of trace highlights the role that the form of the photographic artefact plays in its evolving uses. This approach seeks to address the gap in photographic theory identified by Sabine Kriebel, who points out that while much has been written to address the social and cultural ramifications of photography, its relations to other media (such as film and painting) and its multiple functions, comparatively little has been written on how physical process of different photographic practices contribute to the meaning of the image (2007, p.43).

—

² That is to say chemically based photographic processes as opposed to digital photography.

In her 2008 history of photography *The Burning Mirror*, Melissa Miles notes that dualism pervades photographic discourse with discussions of photography centred on arguments as to whether photography should be considered art or not art, light or dark, a product of either nature or culture. Throughout this thesis I attempt to follow her lead away from this dualism. Rather than attempting to designate photographs as either products of nature or culture, I use the idea of “photographs as traces” as a site for exploring theories about photography. Further, rather than viewing theories of photography as a progressive continuum, with new theories superseding the old, I have sought to see these various theories as adding to the great mass of ideas that comprises the discourse on photography. It is an attempt to apply Walter Benjamin’s analogy of history as a ruin or rubble heap, a pile of material that can be fossicked through and explored in order to locate knowledge and a picture of the past (Benjamin 1974, p.ix). Through this process I believe it is possible to find a common point for discussion of the work of photographic artists and theories and the revisitation of the past.

This exegesis comprises three main parts. The first discusses use of the paradigm of trace in photographic theories from the origins of photography to the present day. It does so by following the development of the idea that photographs can convey traces of people, things and actions, and that this property of the photograph is central to understanding the medium. This history of the paradigm begins with a discussion of how several key pioneers of pre-photographic technologies and photography strove to reduce the role of the human hand in image making.

The second part of this exegesis examines how theories about the nature of photography and the relevance of traces have been paralleled by, and in agreement with, the production and use of photographic images in art. These theories are explored through an examination of the work of artists for whom the trace recorded in the photograph has had a particular significance. I argue that all photographs are traces, but for some photographers in particular the trace is of special importance. These include botanist Anna Atkins, and her cyanotypes of algae, as well as the photojournalistic work of Shomei Tomatsu whose images

show bomb-damaged artifacts from Nagasaki. Such work employs photographs to make sense of the world and is dependent on notions of truthfulness and accuracy. Yet at the same moment that the photograph preserves evidence, it subjects the world to a process of anamorphosis, rendering the living three-dimensional world as a flat motionless image. Other artists, such as the painter Gerhard Richter, have wrestled with the challenges produced by mechanical reproduction and the elimination of aura, while photographers such as Adam Fuss and Susan Degres have used the photographic process as a means to bridge the separation of nature and culture.

The third part of this exegesis is concerned with explaining my photographic images and their relationship to the idea of photographs as traces. In my work as a photographer I am drawn to experiment with materials and techniques to produce images. I am seeking to understand photographs by using discarded traditional processes applied in new ways, and thereby question theoretical assumptions about photography. For example, to what degree is there any contact between the subject (be it human or not) and the image produced, and is this a necessary part of the process of leaving a trace? What is the relevance of such contact in terms of the veracity of the photograph?

Through a process of visual inquiry I have attempted to answer these questions and thereby better understand the relationship between the trace and the photographic image. Accompanying this exegesis is a photobook containing works that I have produced in the course of my research. This research has been pursued through my production of images using photograms and pinhole cameras, which in turn provide further opportunities to test and consider the usefulness of the concept of trace as a photographic paradigm. My works are an exploration of the idea that the nature of photographs is to be found in the touch and trace, the key idea being that while there have been many different forms of photography, from daguerreotype, ambrotype, polaroids, to digital, it is the necessary physical relationship between the subject of the photographer and photographic object that unites the disparate forms of the medium and

distinguishes these images from others such as painting, drawings or digital illustrations.

The methodology I have adopted for this thesis involves the conduct of art practice as research which aims to develop a discourse between theories on photography (centred on the paradigm of photographs as traces) and art practice. The images produced through my art practice serve as sites within which knowledge and new insights are created about the way photographs carry meanings and are invested with value.

In my work I have employed experimental methods to provide insights into photographic processes and theories. Henk Borgdorff (2006, p.23) suggests that art practice may be considered to be research where “its purpose is to expand our knowledge and understanding by conducting an original investigation in and through art objects and creative processes”.

As Graeme Sullivan, writing on the use of art practice as research, argues, that meaning is not totally contained within a form such as an artwork. It is to be found in a network of social relations and discourse (2010, p.40). In this research I have responded to theories about photography through the production of photographic works in an art photography context, seeking to extend the dialogue between theory and art practice by producing artworks that reflect and extend on theories about photography and so expand our understanding of the medium. Sullivan describes a range of ways that art practice can engage with theory in a research context, through discursive, dialectical, and deconstructive approaches (2010, p.108). In the discursive approach images are used to explore meaning and sources of meaning. The dialectical approach (in the context of art practice) uses metaphor and analogy in visual ways to challenge and change things. The deconstructive approach examines areas of emphasis and omissions in systems and structures. Art practices such as collage can be used to break down and focus attention on structure. In my practice each of these methods of engaging with theory have been applied, but my practice in this research has been particularly focussed on the structures and processes of photography. For example, the

glowing, fading phosphorescent images (figure 18) can be seen as metaphors for Benjamin's theories of aura in photographs, as expressed in his "Little history of photography". The print of my hand (figure 10) can be seen to be in line with a discursive approach to theories about the relationship between photographs and other forms of traces such as footprints. Yet the focus of my practice has been to breakdown the processes underpinning photographic techniques, and apply these in new ways. The resultant images question the ontological approaches which have sought to define the essence of the photographic medium.

With the growth of digital photography and other digital forms of image making the need for reconsideration of the paradigm of photographs as traces has assumed a central place in theoretical discussions of photography. While the digital image records an electronic trace in digital form, the ways in which digital photographs are regarded seem to be indistinguishable from the way photographs produced by the older chemical-based forms of photography are regarded. The methods by which photographs are shared and used have broadened, but there has been continuity in the belief that photographs are impressions taken from the world. As such, the notion that the digital image (and centuries before it the daguerreotype) preserves evidence of an encounter with the thing it depicts, provides a common site for the exploration of photographic history, theory and practice.

Despite predictions of the death of the photographic medium that arose with the development of digital technology (see for example Krauss, 1999, p.295; Mitchell, 1994, p.225; Ritchin, 1990, pp. 28-37), applications of photography and the photographing of everyday life are as central as ever. Equally, despite the rapid changes in photography, the notion that the trace is a significant element in understanding the nature of photographs continues to apply. Indeed given the rapid growth of virtual forms of image making and the rapid expansion of digital photography, there is a pressing and urgent need for better understanding the role that the material form of photographs, and by extension the concept of the trace, plays in the production of photographs and their evolving uses.

2. THE PARADIGM OF PHOTOGRAPHS AS TRACES

Photographic practice has frequently been described as a process of linear development³ in which the daguerreotype was succeeded by the tintype, the ambrotype by film, and then film by digital techniques. Yet the history of the photograph is more cyclical than linear: theories and methods of photography have gone the gamut of discovery, application, abandonment and rejection, followed by reappraisal and renewed interest years later. For example, the photogram, a simple photographic technique I discuss in detail later in this exegesis, was “discovered”, abandoned and reapplied successively by artists such as Anna Atkins in the mid-nineteenth century, by Christian Schad and Man Ray in the twentieth century, and by contemporary artists such as Adam Fuss and Susan Derges today.

Likewise, the idea of photographs as traces has been repeatedly expounded and rejected in theories about photography. By following this history of the concept of photographs as traces the paradigm provides a common point for the exploration of the ways in which meaning has been affected by the material form of photographs. Again the history of the use of the paradigm of trace in photographic theory is not one of linear development wherein old theories are superseded by the new. By following theories related to the idea of photographs being “traces” it is possible to see a process of re-exploration and revisitation, thereby gaining new insights into the process of photographic analysis. In this way theories about the nature of photography and the paradigm of trace can be equated to the concept Walter Benjamin had of the ruin as an allegory for history, a site to be examined for “objects of knowledge” amongst the rubble (Benjamin, 2008, p.180). Through this process knowledge and understanding emerges.

This chapter charts the history of the use of the paradigm of trace to explain the nature of photographs from its adoption by the earliest practitioners of photography, such as Daguerre and Talbot, to its elaboration by Peirce, Benjamin

³ For an example of this approach see Abrams (2002): *The Invention of Photography* or Szarkowski (1989): *Photography Until Now*.

and Bazin. It describes the reassessment of the relevance of the form of photographs by theorists such as Tagg, Burgin and Sekula who challenged the perceived connection between reality and photographs implied by this paradigm. It also examines the effect that the development of digital photographic technology has had on the presumed link between photographs and the people or things they depict.

The chapter also discusses the re-exploration of the relevance and usefulness of the concept of photograph as trace by Barthes and contemporary theorists such as Batchen, Geimer, and Hauser. For these theorists the concept of photographs as traces has provided a space for exploration of the ways that photographic meaning is created, and the relevance of the form and method of production of the photograph to understanding the medium.

The meaning of trace

To begin this discussion it is necessary first to outline some of the multiple meanings of the word “trace” and its specific application to discussions about the nature of photographs. This is required because the term has a multiplicity of meanings and applications. In the context of photography, the word “trace” (as defined by the 2012 *Macquarie Dictionary*) means “a mark, token, or evidence of the former presence, existence or action of something; a vestige”. The verb “to trace” implies a deliberate action, that is, to follow. It may also refer to a fragment of something or an impression left by something.

Things bearing traces form a category of objects (of which photographs can be seen to be a part) that are used to help us think about and understand the world. Fossils, for example — the traces of long dead creatures — may be studied to aid our understanding of the prehistoric world while other traces (such as a fingerprint) may tell the story of a crime (Hauser, 2007, p. 60). In simple terms, a trace is any marking that is evidence of an action or an event. This can take many forms, such as a wear mark, stain or physical remains. While traces are commonplace, some in particular are valued for their capacity to convey information (such as evidence) while other things bearing traces (namely relics)

are treasured for their capacity to reinforce beliefs or particular perceptions of reality. The ability to recognise, interpret and read such traces is an essential human capacity and while photography is a product of the scientific age, in the recording of traces photography also exemplifies the earliest examples of symbolic thinking, going back to the creation of hand-prints on Neolithic cave walls and the artefacts of non-alphabetic societies. Such activities are a product of our capacity to make sense of symbols, and of the innate human predisposition to understand and interpret traces wherever found. It is arguable that in looking at photographs we are engaging in a primal activity as the capacity to interpret symbols and relate them to the world came before drawing (see Avital, 1998, p.4), and among the first marks that ancient humans learned to interpret were the tracks and other traces of the animals they hunted. These marks were our ancestors' earliest signs. As Rod Giblett notes, in this way all cultures, even those described as pre-literate or traditional, "write" in the sense of making marks on the body or on the earth and all cultures are "literate" in regards to the capacity for reading signs and making meaning from the signs they reproduce (Giblett, 2010, p.15).

The beginnings of art represents part of what archaeologists describe as the "symbolic revolution" which occurred during the transition from the Middle to Upper Palaeolithic period that took place between 50,000–40,000 years ago (Brumm & Moore, 2005, p157). During this period, practices associated with symbolism emerged that archaeologists categorise as symptomatic of behaviourally modern humans. Along these lines Wadley (2001) suggests that it was development of the capacity to store symbolic information in forms other than memories within the brain that marked humans as behaviourally modern:

the four types of symbolic storage ... art, personal ornamentation, style in lithics and the formal use of space — need not be linked in a package for modern symbolic behaviour to be recognized. Any of these behaviours alone is sufficient to confirm cultural modernity. Once people begin to store symbolism outside their brains they are modern. (Wadley, 2001, p.210)

Through drawing and painting came the capacity to make images that (unlike traces) were not fixed to a specific time. This is because drawings may be used to depict the future or a dream, but a trace is inevitably linked to a past event. This enables traces, be they tracks or other forms of markings, to be examined for

information about events. For example, a footprint or broken branch on a path may be interpreted as a sign that a person had recently passed that way, or droppings and scrape marks may indicate the recent presence of animals. With the development of art came the capacity to make symbols that were different from traces as they could resemble what they depicted, but also could show something that had never happened or existed, thereby separating the symbol from the thing shown.

Kitty Hauser, in her 2007 study of photography and British archaeology, discerns several types of trace. There is the mark something or someone has made, such as an imprint, fingerprint or footprint. There are the transformations of things caused by contact or a process - for example a scorch mark from a fire. Finally there are vestigial remains, that is, the parts or fragments of a subject, such as a lock of hair. Such traces may be inadvertently made (such as an animal track) or deliberately created, as in the case of most photographs (Hauser, 2007, pp.59-60).

Hauser considers that the trace is an effect in the present of a cause in the past. The trace invariably suggests a cause, which must be deduced in order for it to be read as a sign. It is through knowledge and experience that the trace becomes intelligible (Hauser, 2007, p.62). Such a definition of trace is, however, only one of several possible meanings. As previously noted, other meanings include “a scarcely discernible quantity of something”, or “to follow”, or the poetic psychological meaning of a trace being “the residual effect of an experience in memory” (2012, *Macquarie Dictionary*).

A further alternative meaning of trace is “to copy the lines of the original on a superimposed transparent sheet” (2012, *Macquarie Dictionary*). To trace in this sense did figure prominently in the origins of photography as tracing machines were precursors to cameras and directly led to the development of photography. The earliest cameras were developments of the *camera obscura*. This instrument, whose name is drawn from Latin meaning “hidden room”, is a closed box with a lens that projects an image onto a frosted glass screen, from which it can be traced onto paper (Lefèvre, 2007, p.6). William Fox Talbot began his experiments in photography following an inspiration that came to him while using a device

developed from the *camera obscura*, known as the *camera lucida*, to help him draw more accurately. In his early account of the invention of photography, Talbot described his use of the device:

one of the first days of the month of October 1833, I was amusing myself by the lovely shores of the Lake of Como, in Italy, taking sketches with Wollaston's *Camera Lucida*, or rather should I say, attempting to take them: but with the smallest possible amount of success. For when the eye was removed from the prism – in which all looked beautiful – I found that the faithful pencil had only left traces on the paper melancholy to behold. (Talbot, 1884, p.3)

The *camera obscura* and *camera lucida* were forms of tracing machines that assisted the user to trace the scenes observed through a lens. The devices did, however, require a degree of skill in the production of the image and, as Talbot describes above, an unskilled hand would produce a disappointing result. The need for human involvement in producing the image was inconsistent with the prevalent desire of the age to produce images with as little human participation as possible. The demand for images produced without the human hand had already led to the creation of a mechanical device for producing silhouettes – the physionotrace. This machine, invented in 1786 by Frenchman Giles Chretien, produced small, engraved metal silhouettes. The customer sat against a glass screen while a stylus was used to trace a profile. The stylus was connected to an engraving tool that produced the inscribed plate. The physionotrace, as Tagg (1999, p.41) notes, not only predicted the photograph's promise of cheap and multiple image production, but also its promise to do so with mechanical accuracy and free of human subjectivity. The invention of the camera in the nineteenth century marked the creation of the ideal trace-making machine as photography brought the trace and the image together in a single artefact that not only preserved the trace, but also created an object that depicted, in a rich and detailed manner, the thing that had formed it. This apparent removal of human participation from the creation of the image was seen to result in the creation of an image drawn by nature (Talbot, 1839, p.201).

Photography and the hand of nature

The development of photography replaced the act of manually tracing an image onto paper (required by the *camera obscura*) with a sensitized negative plate, enabling photographic experimenters to produce an image of the world with as little human intervention as possible. Many early practitioners of photography, such as Talbot, Daguerre and Niepce, wrote of their wish to produce images that had the qualities ascribed to natural phenomena, and which would therefore be regarded as having a greater degree of authenticity and truth than something produced by human hands.

As such it is unsurprising that Talbot, Daguerre and Niepce all stressed that photography was a phenomenon of nature (Marien, 2006, p.3), thereby fulfilling their desires for the technology. Indeed, Talbot claimed that “photography depicts its images by optical and chemical means alone,” and that the image is “impressed by Nature’s hand”. Note here that Talbot has drawn an equivalence between the photograph and an impression, such as that left by a hand or foot print.

It can also be seen that, associated with the diminution of human agency in the photographic process, many early practitioners linked photography to beliefs in a personification of nature, magic and of a nature goddess. Daguerre claimed that photography gave nature the “power to reproduce herself” (Talbot, 1839, p.196), while Talbot described his process as “Photogenic Drawing or Nature Painted by Herself”. Talbot also described photography as a kind of magic: “the most transitory of things, a shadow...may be fettered by the spells of our *natural magic*.” (his emphasis, Talbot, 1839a, p.201). When he showed a photograph of Lacock Abbey, Talbot described the building as “the first to have `drawn its own picture’” (Talbot, 1844, p.44). Why did the early photographic experimenters wish to reduce or remove human agency from the production of images? What is one to make of such a goal? One reason lay in the belief that human skill was no match for “Nature”. Talbot bemoaned his own poor drawing skills, and his inability to properly use the *camera lucida*, and therefore sought to produce a more direct image. Even so, the “natural magic” of the photographic image was

not without its detractors. The *Leipzig City Advertiser*, responding to the announcement of the daguerreotype, declared it to be a sacrilege (cited in Walter Benjamin's 1931 *Little history of photography*):

To try to catch transient reflected images is not merely something that is impossible but, as a thorough German investigation has shown, the very desire to do so is blasphemy. Man is created in the image of God and God's image cannot be captured by any human machine. Only the divine artist, divinely inspired, may be allowed, in a moment of solemnity, at the higher call of his genius, to dare to reproduce the divine-human features, but never by means of a mechanical aid. (cited in Benjamin, 2008, p.41)

Such a response is indicative of the challenge that photography presented to traditional conceptions of images and art, whose inspiration was thought to come from God. Yet the "automatic" means by which photographs recorded the world also meshed with a particular need of the time. Rosalind Krauss, in her 1978 essay on the nineteenth century French photographer Nadar (Gaspard-Felix Tournachon), explained how photographs were conceived of as traces and how this particularly suited the concerns of the age where new technology was collapsing distances and obliterating separation between classes. For Nadar, she notes, physical proximity is photography's absolute requirement: "no matter how any other system of information transfer might work, photography depends on an act of passage between two bodies in the same space"(1978, p.34). In Krauss' view, Nadar considered that the central fact of photography is that it works as an imprint – a trace that it is connected to the thing it represents by having been caused by it. According to Krauss, this was a particular concern in Western society in the early nineteenth century:

...the trace was not simply an effigy, a fetish, a layer that had been magically peeled off a material object and deposited elsewhere. It was that material object become intelligible. The activity of the trace was understood as the manifest presence of meaning. Standing rather peculiarly at the crossroads between science and spiritualism, the trace seemed to share equally in the positivist's absolutism of matter and the metaphysician's order of pure intelligibility, itself resistant to a materialist analysis. (Krauss, 1978, p.34)

It can therefore be seen that the arrival of the physionotrace and photography satisfied a demand for "authentic" traces that was a pressing need at the

beginning of the nineteenth century. Modern life, with its increasingly rapid changes and lack of social certainty, was characterised by Marx and Engels' assertion in *The Communist Manifesto* that "all that is solid melts into air" (cited by Berman, 1982, p.21). Historian Richard Terdiman (1993) suggests that this period of history engendered what he termed a crisis of memory in which society was confronted with a significant disjuncture from past practices. He posits that there was a "loss of a sense of time's continuous flow and our place in it", leading to a sense of living through an epochal rupture in which the world had been decisively changed (Terdiman, 1993, p.5). Things that had previously been taken to be concrete and permanent, such as ways of life, the social order and even nations, were found to be uncertain and fluid.

In this respect, Susan Sontag noted that photographs first began to be taken at a time of rapid ecological (in the sense of extinction of species and habitat) and social change. It can be argued that one of the ways to manage the anxiety caused by such change was through the possession of a proxy object that can be controlled. This could be a sculpture or a drawing that illustrates a belief, or an object marked by contact with a particular person or event. Photographs provide a means to dispel anxiety generated by change and the passage of time because they provide a connection to a particular time and event and thereby make what was a fleeting moment into a more permanent object that can be stored away and kept safe⁴. The photograph rendered something that would otherwise only exist in the mind as a memory, an experience or an idea as an object in the world. The anxiety stems (at least in part) from uncertainty and a desire to confirm memories, ideas and concepts with physical observations. The development of the camera provided a device capable of recording what was being destroyed, although by doing so (as Sontag notes), it also served to "testify to time's relentless melt" (1977, p.15).

—

⁴ This is also a theme taken up in Christian Metz (1985, p.83) who points out that the photograph can serve as a fetish and protection against death, while simultaneously prefiguring death through immobility and silence, and Thierry de Duve who suggests that a photograph is a consoling object, with a mourning process built into its semiotic structure (2007, p.120).

Charles Sanders Peirce, the index and trace

The 19th century concern with the idea of the trace described by Krauss can be seen in the work of American mathematician and philosopher Charles Sanders Peirce, who attempted to develop a theory that would integrate an understanding of photographic images alongside other forms of image making. Writing in the 1860's when photographic technology was a comparatively recent development, Peirce tried to place the photograph within his system of symbols and signs. He explored the idea of the sign found in nature (the trace or index) as a subset in his categories of signs. To Peirce, photographs represented a form of "indexical" sign as they were formed through contact with what they depicted and were therefore always evidence of the thing they showed.

Peirce considered that there were three types of sign: icon, symbol and index. An iconic sign is one that denotes its referent by a quality it shares with it, that is to say, how it resembles the referent. An accurate drawing of a fire would, in Peirce's system, be an icon for fire. To Peirce, a symbol denotes the referent because the viewer considers that it does so, through habit or experience. In this case, the word "FIRE" would be a symbol for fire. It has no resemblance to a fire, but is recognized because of our understanding of the word. An indexical sign is one that is created by physical interaction between the sign and the referent. For example, smoke would be an indexical sign for fire as there is a physical relationship between the smoke and the fire. While Peirce chose to categorize photographs as indexical signs, they could be considered both indexical and iconic signs in that they resemble what they represent and have a physical connection as well. However, rather than signs being purely icon, symbol or referent, these are characteristics that interact to create the meaning of a particular sign (Gunning, 2007, p.30).

According to Peirce (1955, p.ii), an index "is not the mere resemblance of its Object...but it is the actual modification of it by the Object." In explaining why he considered photographs to have indexical qualities, Peirce wrote:

Photographs... are very instructive, because we know that they are in certain respects exactly like the objects they represent...But this resemblance is due to the photographs having been produced under such circumstances that they were physically forced to correspond point by point to nature. In that aspect they belong to the second class of sign, those formed by physical connection. (Peirce, 2001, p.106)

This mode of forming the photograph gave them, according to Peirce, a particular connection to reality. This is because a photograph “not only excites an image, has an appearance, but, owing to its optical connexion with the object, is evidence that that appearance corresponds to a reality” (Peirce, 1974, p.359).

This concept of indexicality is significant for the notion of a connection between the photographer, the photographer’s intent and the image, a subject which I return to later in this exegesis. As David Green notes, “in any photograph the object depicted is the emanation of the object itself, impressed upon a surface by means of optical transmission and made visible by chemical processes – events that are always potentially independent of any human agency. In other words, photographic indexicality is intrinsically associated with the severing of the link between an “author” and the photograph itself (Green, 2007, p.247)”.

It should be noted however, that while Peirce considered traces to be indexical, this was not a simple case of viewing “trace” as equivalent to “index”. Peirce also referred to signs such as footprints, smoke, weathervanes, and a pointing finger as being indexical. Words too could be indexical, for example the word “this” (Doane, 2007, p.2). The critical quality of the indexical sign is that it points to the existence of something with which it has had contact. Traces are therefore a subset of the category of signs that Peirce designated as indexical.

Peirce’s influential theories of signs and indices have been revisited by many writers on the subject of trace and photography with Barthes, Sontag and contemporary theorists⁵ identifying the index/trace as the essence (or at least a

⁵ In two 2007 essays in *Differences*, Doane explores the issue of the image as a trace, and in particular the relevance of the Piercian system of signs, as does Elizabeth Cowie (2007), Tom Gunning (2007), Peter Geimer (2007) and Susanne Holsbach (2007). Tom Gunning’s (2007) “Moving away from the Index: Cinema and the Impression of Reality”, while primarily a study of the trace and cinema, also examines the ideas of Bazin and Peirce on the trace, and its implications for theories of realism.

significant defining feature) of photographs. All of these writers were also influenced by the equally important historian and art critic Walter Benjamin. A theme of Benjamin's writing in the early twentieth century was his attempt to understand and explain the role of photographs, and articulate a theory of how they related to history and can be used for communication, particularly for demystifying the practice of art. He saw photographs as representing a significant rupture with previous image-making techniques such as painting and drawing. Photographs, he claimed, had the capacity to "shatter tradition" and displace the cult value of art (Benjamin, 2008, p.22).

Walter Benjamin's theory and history of photography

Benjamin's writings contribute several key concepts that are central to understanding the treatment of photographs as traces. Through his essays he endeavoured to explain how our thoughts and beliefs, particularly those related to ideology, aesthetics, memory and history, interact with technology and the built environment. His wide-ranging works touch on social practices such as collecting, forms of writing (extending from the style of German tragedy known as *Trauerspiel* to the children's novel) and technological devices such as movie cameras. His interest in the way we deal with time and memory is evident in his first work *The Origin of German Tragic Drama*, his translation of Proust's *In Search of Lost Time*, and his final completed work *Theses on the Concept of History*. A particular focus were the arcades of nineteenth century Paris and how these architectural forms influenced and were affected by social practices. He saw himself living in a time (1892-1940) when tradition was being disrupted and humanity was going through a simultaneous crisis and a process of renewal (Benjamin, 2008, p.22). He sought to provide a means of understanding and explaining the passage of time, history, and the relationships of belief, history and technology by examining the objects, technologies and processes that are part of modern life and how we use them to function within and understand our world.

—

These themes of history, aesthetics, ideology and technology that run through his work frequently coalesced in discussions of the photographic image. He was, as Kelly Dennis notes, among the first to historicise and contextualise photography, its social function and aesthetic impact (Dennis, 2009, p.116).

Why focus on photographs? One reason was that technology had also emerged in the period of history, the mid nineteenth century, that was a focus of much of his writing. But more importantly this technology combined Benjamin's interests in society and the way we make sense of history and memory. Photography provides the linkage point for his constellation of ideas centring on how our experiences, ideology and technology interact. They embody his perception of history as the conversion of time into moments or tableaux – as he writes of the *Trauerspiel* “chronological movement is grasped and analysed in a spatial image” (Benjamin, 2008, p.13). Further, to paraphrase his description of aura, photographs provide for him a weaving of time, space and culture (Benjamin, 2008, p.23).

Traces too were a particular interest for Benjamin. He suggests that traces have a special capacity for recording information, claiming that the tiniest fragment of daily life says more than painting, “just as the bloody fingerprint of a murderer on a page says more than the text” (Benjamin, 1999, p.9). Benjamin described life, or habitation, as the leaving of traces, and recognised the Victorian fascination for the trace, observing in a 1933 article the Victorian parlour was especially suited to their preservation:

...there was not one patch where the inhabitant has not left his mark: on the mantel piece with all its knick-knacks, on the upholstered seats with their tiny covers, embroidered with monograms, screens in front of windowpanes, on the fire-guard in front of the stove (Benjamin cited in Leslie, 1999, p.75).

In his writings Benjamin outlined four key concepts on photographs which have direct relevance to theoretical debates about the idea of photographs as traces. These are aura, the optical unconscious, contingency, and the idea of inscription, by which captions are applied to photographs to communicate the intended message of the image.

The relationship of photographs and trace to aura

In his 1936 essay "The Work of Art in the Age of Mechanical Reproduction", Benjamin articulated a theory of how objects (in particular works of art) acquire cult value and how this value was diminished by the development of mechanical reproduction technologies including, and perhaps especially, photography. Yet while Benjamin saw that photographs can dispel cult value, he also argued that they could in some circumstances transmit the cult value of their subjects.

Benjamin considered that society attributed special value, which he termed "aura", to certain objects, such as religious artefacts or works of art produced by master artists (Benjamin, 2008, p.24). "Aura" may be explained as being the experience of awe engendered by the presence of unique works of art. Aura belongs not to the artwork itself but is attributed to it through its value as a cult or cultural artefact. Benjamin argues that aura of an object is dependent on its inaccessibility, its uniqueness and its mystery. In his most clear expression of the matter he describes it as follows:

What is aura actually? A strange web of space and time: the unique appearance of a distance, no matter how close it may be. While at rest on a summer's noon, to trace a range of mountains on the horizon, or a branch that throws its shadow on the observer – this is what it means to breathe the aura of those mountains, that branch. (Benjamin, 2008, p.285)

Benjamin suggests that the origins of art are to be found in magic and religious practices, and that an object's aura is related to its value as a cult object, either in a religious cult, or latterly, in the cult of the master artist. Like a trace, aura references a specific event in time and place. Aura is dependent on the uniqueness, authority and the inaccessibility of the object, which gives the object its own place in space and time.

One of Benjamin's key propositions is that the mechanical reproduction of art works can devalue their auratic power because it makes them accessible and undermines their unique status (Benjamin, 2008, p.22). Mechanical reproduction was seen to drain aura because it threatened the uniqueness and inaccessibility of

the auratic object. As aura comes from the desire to possess something and bring it close, when this desire is satisfied by reproduction of a work the aura is lost, as, by satisfying the desire and assuaging anxiety, the reproduction reduces the aura of the original. Benjamin saw photography as a form of mechanical reproduction. While he saw photography as capable of dispelling aura through reproduction, it should be noted that he also held the view that photography had a capacity to transmit the aura of its subjects (Benjamin, 2008, p.283). I discuss this point further later in this chapter.

Benjamin distinguished mechanical reproduction technologies, such as founding and stamping, woodcuts, printing, lithography and photography from manual reproductions (Benjamin, 2008, p.20). To Benjamin, handmade reproductions are qualitatively different from mechanical reproductions as they are always subject to flaws and minor variations from the original. This variation enabled them to be identified as “fake” and distinguished from the original. Such fakes do not diminish the aura of the original because in these cases the original thing is able to retain its quality of uniqueness. As mechanical reproductions are indistinguishable from each other and from the “original”, however, the value of uniqueness and inaccessibility is lost, and accordingly the aura of the object is dissipated. For example, in the case of a photograph it is not possible to choose between two prints and state that one was the original and another was a copy. Both are identical, neither can be considered the “original” or “copy”⁶. In “The Work of Art in the Age of its Technological Reproducibility”, he notes the effect this has on auratic things:

—

⁶ Note that this is less true for some types of photography such as daguerreotypes or polaroids. These are made without negatives, and therefore exist as original, unique objects. As Nina Vestberg notes in recent years there has been an increasing interest in the photographic object as opposed to the photographic image (Vestberg, 2008, p.49). The photograph’s indexical qualities do not necessarily end with the image it shows. In discussing a photograph from a newspaper archive, Vestberg makes the point that the stamps and markings that the image bears on its back (inscriptions) gives testimony to the hosts of individuals through whose hands it has passed, from archivists, to the secretary that typed the caption and printers who stamped and made various marks over the years the photograph was in use. These “traces of labour”, Vestberg claims, are vestiges of “ritual” (Vestberg, 2008, p.52), and represent a form of trace beyond that of the image shown on the “face” of the photograph, recording what is now a bygone era of the traditional print-based photographic archive.

Everyday the need to possess the object, from its closest proximity, in a picture or rather a copy – becomes more imperative. And the difference between the copy, which the illustrated papers and newsreels keep in readiness, and the original picture is unmistakable. Uniqueness and duration are as intimately intertwined in the latter as transience and reproducibility are in the former. The peeling away of the object's shell, the destruction of the aura, is a perception whose sense for all that is the same in the world has grown to the point that even the singular, the unique, is divested of its uniqueness – by means of its reproduction. (Benjamin, 2008, p.286)

While in this paragraph Benjamin suggests that photographs do not have aura in their own right, and are responsible for diminishing the aura of objects by making them accessible, he did believe that photographs had the capacity to transmit the aura of their subjects, just as the relic may be seen to convey the spiritual power of its source⁷. In both cases the aura or spiritual power is transmitted as a trace left by contact with the subject. Benjamin argues that this transmission of aura can best be seen in early photographs where slow lenses and techniques required long exposures. In these images “the procedure itself caused the subjects to live their way into, rather than out of, the moment; during the long duration of the exposure, they grew into the picture” (Benjamin, 2008, p.280). Of such photographs he writes :

There was an aura about them, a medium that endowed their gaze with fullness and security even as their gaze with fullness and security even as their gaze penetrated the medium itself. (Benjamin, 2008, p.282)

Like a reproduction, a trace, be it a photograph or other type of trace, enables a sense of proximity to the auratic original. Mikael Pettersson (2011) elaborates on how photographs engender a feeling of closeness between the viewer and the thing the photograph depicts. Pettersson considers that this is due to what he calls a “proximity aspect” of the experience, a feeling of being close to the subject of the image. He notes that this feeling is typically not engendered in viewing a

—

⁷ Giblett describes aura as “the sacral quality with which all objects (including everyday objects and subjects) are imbued with in traditional or pre-modern cultures” and notes that a vestige of that quality lives on in modern cultures in the fetishism of commodities (2010, p.62).

painting or drawing, and is due to the notion of photographs preserving traces of their subjects (Pettersson 2011, p.191). The trace allows what Pettersson describes as “epistemic access” to the subject of the photograph (Pettersson, 2011, p.193), that is access gained through knowledge about the subject. By knowing that the photograph is a trace of the subject, and also resembles the subject, the viewer feels a sensation of closeness, or nearness, to it. Pettersson notes that such confidence in the photographic process, and therefore the proximity aspect of photographs, is undermined by the ease with which digital images are manipulated (Pettersson, 2011, p.193).

In Benjamin’s view photographs may capture the aura of a person or thing through prolonged exposure. He appears to view aura as being transmitted as a trace left in the photographic image, describing early photographs where the subject lived into the image and imbued the photograph with their aura (Benjamin, 2008, p.281). But aura in photographs is not a result of long exposures alone or the mere product of a primitive camera (Benjamin, 2008, p.283). It is the result of a combination of social factors and techniques (the cost of the materials, the social status of the participants and the ritual of the practice) that together imbued the photographs with aura. This changed after 1880 when “aura was banished by faster lenses” (Benjamin, 2008, p.283) not merely because the technology had changed, but because faster lenses liberated the technology from the confines of a studio setting where it had been devoted to the ritualistic recording and celebration of the elite. Photographers became free to take to the streets and record daily life. As an exemplar of this changed use of photography Benjamin points to French photographer Atget (Benjamin, 2008, p.285), who specialised in the photographing of Parisian streets in the late nineteenth and early twentieth centuries. It was Atget, Benjamin claims, who initiated the emancipation of object from aura by photographing what was unremarked, forgotten or cast adrift. By so doing his photographs “suck the aura out of reality like water out of a sinking ship”(Benjamin, 2008, p.285). This was not the only way that photography worked to negate and diminish aura as uniqueness, mystification and distance, all critical to the maintenance of aura, were forced out as well.

While he saw affinity between the practice of auratic photography and of magic, as “photography is closer to the arts of the fairground, than to industry” (2008, p.274), Benjamin had the view that the effect of non-auratic photography was one of demystification, not only of the photograph but of other works of art as well. He noted “the most precise technology can give its products a magical value, such as a painted picture can never again possess for us” (Benjamin, 2008, p.276), ultimately showing that in fact there is no magic, simply a lack of knowledge or understanding of technique. “Photographs demonstrated that the difference between magic and technology is but a historical variable” (Benjamin, 2008, p.279). Benjamin saw such demystification as an essential requirement for combating fascism, which he saw used mysticism to blind and mislead people about their true circumstances. Through understanding the world (the processes of production, the psychological unconscious and the optical unconscious) the oppressed can see their true enemy. Writing about the role of the author, Benjamin claims:

...the more exactly he is thus informed about his position in the process of production, the less it will occur to him to lay claim to “spiritual” qualities. The spirit that holds forth in the name of fascism must disappear. The spirit that, in opposing it, trusts in its own miraculous powers will disappear. For the revolutionary struggle is not between capitalism and spirit; it is between capitalism and the proletariat. (Benjamin, 2008, p.93)

In Benjamin’s view the effect of the need to grasp the object of desire has been the withering of aura, driven by the capacity for reproduction, and the development of forms of art such as photography in which there is no actual original. Photography therefore enabled art to be enjoyed free from ties to place and ritual. “For the first time in world history, mechanical reproduction emancipates the work of art from its parasitical dependence on ritual” (Benjamin, 2008, p.24).

Benjamin therefore saw photographs as having both the capacity to be auratic and to dispel aura. While photographs can be seen as destroying uniqueness and distance, making the remote object close and the rare image common, photographs themselves can become auratic through their roles as reminders and

relics. They are precious because of their role in personal rituals of remembrance. They obtain their own “cult value”, their aura, through their capacity to connect us with the past and to psychically summon the presence of the departed — the distant and unique object of desire. Traces recorded in photographs and other relics, can therefore serve as sites of aura. However, while they may serve as a proxy, they do not replace the cult object itself. They facilitate the ritual, confirm the “existence” of the desired object, but do not satisfy the lack of the object nor bridge the distance from it. Every photograph is a reminder and reinforcement of something that has gone and is inaccessible due to temporal or physical distance.

The optical unconscious

In addition to the impact that photography had on the aura of art, Benjamin identified two other qualities of the medium – the granting of access to the “optical unconscious” (Benjamin, 2008, p.37) and the capacity of photographs to bear messages or captions applied by the photographer, which he referred to as “inscriptions” (Benjamin, 2008, p.279).

The optical unconscious is Benjamin’s way of describing how photographs and film can reveal what is otherwise invisible to us either due to speed or small size. There are, he thought, hidden things all around us that we only become aware of when they are revealed by the camera. These image worlds are like the psychological unconscious where instincts and drives are hidden from our perception. These image worlds that dwell within the smallest things (Benjamin, 2008, p.279) come gushing up like a geyser at points in our existence where we would least have thought them possible. In this case, Benjamin was reviewing a book of photographs of flowers entitled ‘News About Flowers,’ (1928). He returns to the topic of the optical unconsciousness in his later essays ‘The Little History of Photography’ (1931) and ‘The Work of Art in the Age of Mechanical Reproduction’ (1936):

This is where the camera comes into play, with all its resources for swooping and rising, disrupting and isolating, stretching or compressing a sequence, enlarging or reducing an object. It is through the camera that we first discover the optical

unconscious, just as we discover the instinctual unconscious through psychoanalysis. (Benjamin, 2008, p.37)

Giblett suggests that Benjamin's theory of aura and the optical unconsciousness is akin to Freud's concept of the uncanny, where just as a sense of the uncanny arose due to a return of repressed beliefs, the auratic is the product of the return of the optical unconsciousness (Giblett, 2010, p.60).

Inscription

Benjamin considered that in addition to recording traces the photographer may also apply his or her message to the image through the use of inscription (Benjamin, 2008, p.294). Therefore photographs may carry, to a greater or lesser degree, two traces - the mark written by the photographer explaining and the intended message, together with the contingent - the unintended -message. In an early essay ('On painting or sign and mark,' 1917) Benjamin discusses the opposition of mark and sign, which I take to refer to trace and inscription. In this essay he explains that he considers that the sign is imprinted; the mark, by contrast, emerges (Benjamin, 2008, p.222). He posits there is an opposition between sign and mark that seems to belong to the metaphysical order. The mark is found on the living (like stigmata), and signs on objects. Benjamin was speaking of paintings, not photographs. In my view in the photograph this distinction is collapsed, as both mark and sign may be found in the one artefact. The photograph may contain an encoded message conveyed through iconography, and at the same time, preserve a trace left by its subject. Benjamin, however, saw the making of the photograph and the application of the inscription as separate processes.

While Benjamin saw that "the first reproduced human beings entered the viewing space of photography with integrity – or rather, without inscription" and with their aura intact (Benjamin, 2008, p.279), he did not regard the process of adding an inscription to be a negative thing – in fact he saw the ability to make inscriptions as an essential skill for all photographers. On this he wrote:

But mustn't the photographer who is unable to read his own pictures be no less deemed an illiterate? Isn't inscription bound to become the most essential component of the photograph? This is where inscription must come into play, by means of which photography intervenes as the literalization of all conditions of life, and without which all photographic construction must remain arrested in the approximate. (Benjamin, 2008, p.294-295)

Of all photographers, Benjamin considers the Weimar photomontage artist John Heartfield to be the finest exemplar of the application of this skill of inscription. Heartfield (1891-1968) was a founder of the Berlin Dada movement, a cultural movement that arose during World War I and embraced techniques such as collage, and photomontage to critique attitudes to art and modernity itself (Ades, 1981, p.111).

Heartfield utilised photomontages such as *Hurrah, die Butter is alle!* (1935) (Hurrah, the butter is gone!) as a form of resistance to Weimar capitalism and to the rise of fascism in Germany. Showing a family eating a dinner composed of steel handlebars, bolts and hatchets *Hurrah, die Butter is alle!* mocked the words of Herman Goering uttered during a food shortage, and which were reprinted at the bottom of the image. Translated these read "iron has always made a nation strong, butter and lard have only made the people fat". Other photomontages mocked Hitler as a greedy demagogue who was "swallowing gold and spouting junk", or as a butcher preparing for slaughter. Heartfield's works were published throughout the 1930's in the *Arbeiter-Illustrierte-Zeitung* ("Workers Pictorial Magazine" also known as the *AIZ*) a pro-communist newspaper published in Germany, Czechoslovakia and France. By cutting and reusing photographic materials produced by the Nazis, through his photomontages Heartfield was able to subvert the aura of authenticity given to photography and use photography to convey a political message radically opposed to that intended by those who produced the raw materials he used.

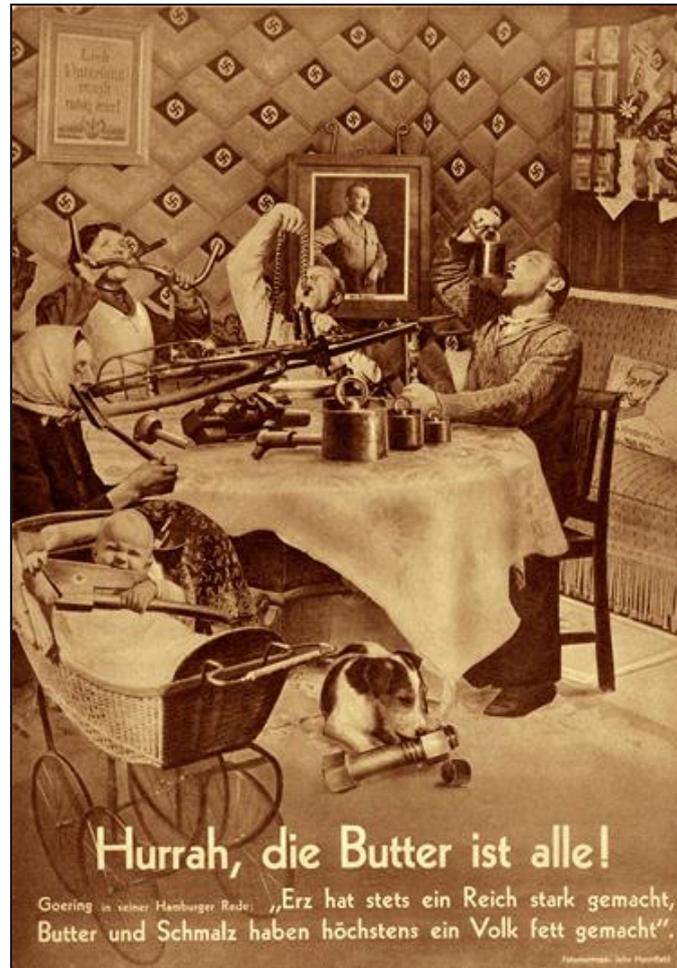


Figure 1: Heartfield, J. (1935). Hurrah die Butter is alle! [Photomontage]. Retrieved from: www.gallery.ca/1930/educational_activities.htm.

Benjamin saw in Heartfield's politically motivated photomontages a use of inscription in photography to guide the masses. Inscription was a means of providing art with positive social impact. The inscription was, as he puts it, "the fuse guiding the critical spark to the image mass" (Benjamin, 2008, p.305). This was for Benjamin the repurposing of art – away from the process of mystification that he associated with traditional art practices, which blinded people to social injustice, to a means by which the truth could be revealed. While hailing the demystifying capacity of photography (Benjamin, 2008, p.285) Benjamin still harks back to concepts of magic and divination to explain this role, arguing that it is the task of the photographer - descendant of the augers and haruspices – to reveal guilt and point out the guilty in his pictures (Benjamin, 2008, p.294). Heartfield's work illustrates the power of the photograph as a medium, even when obviously

modified and manipulated. The overt unreality of the image has not diluted its effect. Heartfield's work was groundbreaking and its influence can still be seen today in the work of many contemporary artists (such as American artists Barbara Kruger and Ed Ruscha), graphic design and in advertising. In Heartfield's work we see images where the inscription made by the artist is dominant, and in which any claims to depiction of reality is subservient or repurposed to the message of the artist and his satirical intent.

Memory

The photographic trace has often been linked to another form of trace, that of memory. For Benjamin photographs were akin to a particular form of memory – as described by Proust this was the “voluntary memory”. In his essay ‘On some motifs in Baudelaire’ Benjamin discussed Proust's concepts of the voluntary and involuntary memory. In Proust's *A la Recherche du temps perdu* Proust identifies two forms of memory, those summoned by the intellect, and those activated, involuntarily, by the encounter with an object (in the case of Proust, a type of pastry called a *madelaine*). It is the involuntary memories that are the most vivid, activating not only a visual image, but all the associated memories of sensations and experiences. For Benjamin, the qualities of the photograph, an image unfixed in time and space which work against it acquiring aura, also prevent it being associated with involuntary memory, as it does not acquire accumulated associations (Benjamin 1992, p.184).

For Benjamin's contemporary Siegfried Kracauer, photography and memory were not equivalents. In his 1927 essay “Photography” (Kracauer and Levin, 1993) Kracauer argued that photographs and memory record information in fundamentally different forms. Information in memories may be transposed, transformed or repressed. What is recalled is the outcome of a process of repression, falsification, and emphasis of certain parts, what Kracauer calls “a virtually endless number of reasons [that] determines the remains to be filtered” (Kracauer and Levin, 1993, p.425). Memories, Kracauer claims, are retained because of their significance for that person, and are therefore organized according to principles that are essentially different from the organizing principle of photography:

Photography grasps what is given as a spatial (or temporal) continuum; memory-images retain what is given only insofar as it has significance. Since what is significant is not reducible to either merely spatial or merely temporal terms, memory-images are at odds with photographic representation (Kracauer 1993, p.425).

The ambivalent relationship between photographs and memory, and the capacity of photographs to obscure or activate memories is at the heart of Barthes' *Camera Lucida* (1980) which takes as its linking narrative the author's search for a quintessential photograph of his deceased mother. For Barthes, the relationship between memory and photography was fraught with the risk that memories could be blocked or replaced by photographs – these images he argued could work against remembering: becoming what he terms “counter-memory”. Unlike memory, which is malleable, in the photograph nothing may be refused or transformed. (Barthes 1980, p.91).

More recently, Catherine Keenan (1998) and Geoffrey Batchen (2004) have explored ways in which photographs can be associated with involuntary memories and imbued with aura. Keenan takes as the topic of her study a photo pin-up board, covered with photographs which she regards as memory images. Because of the way that she uses the photographs images to recall memories these images are, she argues, imbued with aura:

As I see the photograph on the board many times a day, the image of it that becomes implanted in memory comes to be indissociable from the other memories I have of that person. The photograph, that is, creates an image that loses its unfixability by being empowered within the narratives of memory, which then rewrites the photograph image as a memory-image (Keenan 1998, p.62).

Batchen's 2004 book on photographic memorials *Forget me not*, is an illustration of ways that people have sought to transform the memory experience of the photograph into a multisensory experience. Examples reproduced in his book show how people have sought to enhance the ability of photographs to activate personal memory through the addition of hair, flowers, and other materials. While such endeavors speak of people's need to enhance the memorial capacity of unadorned photographs, Batchen's book is a powerful testimony of the ways in which photography and memorial practices have been at the heart of the personal uses of photography since the medium's inception.

Contingency

Another quality of photographs discussed by Benjamin relevant to the concept of trace is contingency (Benjamin, 2008, p.276). Contingent traces can be seen as the counterpoint to the inscription, for these are the incidental elements of a photograph, recorded regardless of the photographer's intended message. Contingent traces are akin to Proust's concept of "involuntary memories"⁸ and are the inverse of inscription. Within the photograph there is recorded information that, while possibly seemingly insignificant at the time the photograph was taken, becomes significant in the future. This is the contingent information in a photograph, the information whose relevance depends on events that occur later.

To illustrate this concept Benjamin used a photograph of the German photographer Karl Dauthendey, and his fiancé, only identified as "Miss Freidrich" around the time of their wedding. Benjamin relates the sad future in store for Miss Freidrich, who was to be discovered shortly after the birth of her sixth child "in the bedroom of [Dauthendey's] Moscow house with her arteries slashed" (Benjamin, 2008, p.276). This tragic tale is used to explain how the knowledge of events that transpired after the photograph was taken affects how we view it. We are drawn to seek out hints of what is to come embedded, unknown to the photographer, within the image⁹.

—

⁸ In Proust's *In Search of Lost Time* (1913-1927) he describes memories that are recalled without conscious effort. Likewise the contingent information in a photograph is recorded without conscious intent to do so.

⁹ In this regard it is interesting to consider the possibility of photographs divorced from the intent of the photographer. In this regard Walter Michales, points to the art of Horishi Sugimoto (using the example of his exhibition: *History of History* 2005-2006) argues that fossils may be understood as a kind of "pre-photography". While he recognises the implausibility of "photography without photographers", there is a sense in which this concept rings true – the fossil and photograph both rely on an essential relationship between the artefact and the original subject without which neither the photograph or fossil would exist. Michales points out that in Sugimoto's work the evocation of the fossil signifies the impossibility of denying the indexical nature of photographs, while at the same time pointing to the non-essential nature of the intent of the photographer in the preservation of traces. This is not to say intent is irrelevant, but rather to say that

As Benjamin notes, in photographs “the anonymous image draws you to wonder about the woman who was alive there, who even now is still real and will never consent to be wholly absorbed in art” (Benjamin, 2008, p.276). He writes:

...no matter how artful the photographer, no matter how carefully posed his subject, the beholder feels an irresistible compulsion to search such a picture for the tiny spark of contingency, the here and now, with which reality has, so to speak, seared through the image character of the photograph, to find the inconspicuous place where, within the suchness of that long-past minute, the future nests still today-and so eloquently that we, looking back, may rediscover it. (Benjamin, 2008, p.277)

In this case it is not the intent of the photographer that gives the image significance in Benjamin’s eyes. The careful posing of the subject is irrelevant to the meaning of the photograph, as without the associated story the photograph is unremarkable. It is the knowledge of events that occurred after the image was taken that draws in and engages the viewer.

The search for contingency in the image and its “searing” quality reminds the reader of Barthes’ search for the *punctum* in the photograph of his dead mother, and in Barthes’ search for contingency in the 1865 photograph of Lewis Payne, a 21 year old man arrested and awaiting execution for his failed attempt to assassinate the US Secretary of State, W. H. Seward (both photographs are described in *Camera Lucida*). As in Benjamin’s analysis, Barthes perceives the way in which meaning in photographs can be affected by the viewer’s knowledge of future events. Writing on the photograph of Lewis Payne he notes:

...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 state.... Whether or not the subject is already dead, every photograph is this catastrophe. (Barthes, 1980, p.96)

Barthes is only one of many later writers to elaborate on Benjamin’s theories on photography. Benjamin’s theories of photography effectively outlined many of the themes that were taken up by later writers on the idea of photographs as

—

whatever a photographer’s intent may be this will be in addition to the presence of the trace (Michales, 2007, p.432).

traces. The ideas of inscription, the meaning added to the photograph by the photographer, is reflected, in another form, in the later structural analysis of photographs. The notion of aura and contingency can be seen in Barthes' *Camera Lucida* and Sontag's *On Photography*, while the notion of the religious origins of image making, and therefore photography as well, can be seen in Andre Bazin's *Ontology of the Photographic Image* (1967).

Andre Bazin and the ontology of the photographic image

Like Benjamin, Andre Bazin was concerned with explaining the nature of photography and the characteristics that distinguish it from other forms of image making. Bazin saw photography as ripe with opportunities for the development of cult value and aura. Photographs to Bazin are fundamentally a continuation of practices that originated in religious (that is to say, auratic) image-making practices, rather than a rupture with them. In his 1967 paper *The Ontology of the Photographic Image* he suggests a parallel between the use of photographs and relics. He saw the practice of making death masks to be akin to that of photography in that both required the connection of the object and the image. Bazin explicitly connected the psychology of relics and souvenirs and that of photographs. The photograph was, he wrote, like the making of a death mask. He identified the Shroud of Turin as combining elements "of a relic and photograph" (Bazin, 2004, p.14). Although he did not elaborate on this point, it is clear that the Shroud of Turin is, like a photograph, both an image and a record of contact. Bazin saw the origins of art and symbolism (and by extension photography and film) in religion. He believed that a psychological need, primarily a desire to deny death, underpinned the creation of art. He wrote:

If the plastic arts were put under psychoanalysis, the practice of embalming the dead might turn out to be a fundamental factor in their creation. The process might reveal that at the origin of painting and sculpture there lies a mummy complex. The religion of ancient Egypt, aimed against death, saw survival as depending on the continued existence of the corporeal body. Thus, by providing a defense against the passage of time it satisfied a basic psychological need in man, for death is but the victory of time. To preserve artificially his bodily appearance is to snatch it from the flow of time, to stow it away neatly, so to speak, in the hold of life. (Bazin, 2004, p.9)

Like the early pioneers of photography (for example William Fox Talbot, 1839, p.196), Bazin also saw the “automatic” means of production of photographs as central to the way that photographic images were received. He believed that this automated character was a critical difference between photography and other visual arts, as the subjectivity of the painter, he felt, cast a doubt over the truth value of the image which did not arise with mechanically produced images such as photographs. Photography was, he thought, the taking of a mould created by the manipulation of light (Bazin, 2004, p.12). For him, “the photograph as such and the object itself share a common being, after the fashion of a fingerprint” (Bazin, 1967, p.15). The mould making process that produced the photograph, Bazin claims, affects our perception of the photographic image as we are obliged, he argues, to accept that photographs convey reality. Bazin goes on to make the claim that in the photographic process reality itself is transmitted from the subject to the image:

The production by automatic means has radically affected our psychology of the image. The objective nature of photography confers on it a quality absent from all other picture making. In spite of any objections of critical spirit may offer, we are forced to accept as real the existence of the object reproduced, actually *re-presented*, set before us, that is to say, in time and space. Photography enjoys a certain advantage in virtue of this transference of reality from the thing to its reproduction...The photographic image is the object itself, the object freed from the conditions of time and space that govern it. No matter how fuzzy, distorted or discolored, no matter how lacking in documentary value the image may be, it shares, by virtue of the very process of its becoming, the being of the model of which it is the reproduction; it *is* the model (Bazin, 2004, p.14).

Bazin’s argument articulates a particular viewpoint of photographic veracity, one in which great significance is ascribed to the process involved in producing the image, while the cultural contributions to generating meaning in photographs are not addressed. Bazin’s view of photography was critiqued by writers such as Sontag, Sekula, Tagg and Burgin who were to explore the role that culture plays in the creation of photographic meaning, rather than locating meaning in the form of the image or the process used to create it.

Sontag, Tagg and others and the relevance of the form of photographs

Susan Sontag's conception of photography considers the role of the trace in the understanding and interpretation of photographs, and in her work she draws on the work of Benjamin and Peirce, and develops Bazin's ideas concerning the cultural origins of photographs and their modern uses. But Sontag draws quite different conclusions as to photography's illuminating characteristics than does Bazin. Rather than revealing reality, photographs hide and obscure it, Sontag argues, and unlike Bazin, she doubts the image's capacity to convey truth. Her 1977 book, *On Photography*, and her last book, *Regarding the Pain of Others* (2003), discuss how people relate to photographs, the use of images and the history of photography. She is critical of those who valued the "image above reality" (Sontag, 1977, p.3). For Sontag "humankind lingers unregenerately in Plato's cave, still reveling, its age old habit, in mere images of the truth" (Sontag, 1977, p.3)¹⁰. Sontag was criticizing humanity's fixation with images and argued that photographs were an interpretation of the world, just as painting and drawings are (Sontag, 1977, p.6-7). In fact, instead of presenting an objective account of reality, she suggests photographs were a product of dissatisfaction with reality. It is as though, she argues "as if only by looking at reality in the form of an object – through the fix of the photograph is it really real, that is, surreal" (Sontag, 1977, p.80). It was a characteristic of our era, she theorized drawing on Feuerbach, that society "prefers the image to the thing, the copy to the reality, appearance to being" (Sontag, 1977, p.153).

While disputing claims that photographs can present an objective account of reality, Sontag recognizes that photographs are traces of the world and are used to support views of reality, thereby responding to a human desire to confirm reality and enhance experiences (Sontag, 1977, p.24). She suggests that cameras define reality as a spectacle for the masses and enabled surveillance by the ruling class (Sontag, 1977, p.178) by establishing an inferential relation to the present, through which "reality is known by its traces" (Sontag, 1977, p.167). Yet for her "the picture may distort; but there is always a presumption that something exists,

¹⁰ Here Sontag was referring to Plato's account of the cave dwellers in *The Republic*, shackled and only able to view shadows, rather than the objects (reality) that cast them. As Plato suggested, "to them, I said, the truth would be literally nothing but the shadows of the images" (Lee, 1955, p.278).

or did exist, which is like what is in the picture” (Sontag, 1977, p.5). Thus, while Sontag recognizes that photographs are artifacts, things that are made, they also seem to be found objects, as she describes them, “unpremeditated slices of the world”, that are able to “trade simultaneously on the prestige of art and the magic of the real” (Sontag, 1977, p.69). Further, she claims that photographic images are specially prized: “having a photograph of Shakespeare would be like having a nail from the True Cross” (1977, p.154). It would, she argues, be valued above a painting of him by the most skilled artist. Like Bazin, Sontag disputes Benjamin’s view that photographs lacked aura. She considers some photographs, with time, did acquire an aura with the unique patina of age and marks of wear (Sontag, 1977, p.140). However, it should be noted that such marks and patina are traces of contact with the user or owner, and are not, therefore, connected to the aura of the object photographed. Nevertheless, photographs, through ageing and loss, can become scarce and precious things, thus acquiring aura.¹¹

According to Sontag, the indexical character of the photograph gives it a special status above that of other types of images. The photograph can challenge our beliefs about reality:

Such images are indeed able to usurp reality because first of all 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 of the real, like a footprint or a death mask. While a painting, even one that meets photographic standards of resemblance, is never more than the stating of an interpretation, a photograph is never less than the registering of an emanation (light waves reflected by objects) – a material vestige of its subject in a way that no painting can ever be. (Sontag, 1977, p.154)

Sontag’s observation that a photograph is a “material vestige” of the subject prompts the question as to why are material vestiges significant? Why should such objects be valued, and how does this affect the way they are viewed and used? Material vestiges are valued as they can provide confirmation or

—

¹¹ See also for example Nina Vestberg’s discussion of the increasing value of unique archival photographs (Vestberg, 2008, p.49).

supporting evidence for a belief. The trace provides a means by which we can externally check and confirm our beliefs through the material “proof” of the trace.

Sontag’s *On Photography* articulates a view of photography that asserts that the contact between the photograph and its subject is significant, but at the same time is not a guarantee of the truthfulness or reality of what the photograph shows. While her views of photography do not accord with Bazin’s conception of the medium as a straightforward conduit of reality, they do not reject Peirce’s view of the significance of the index/trace in understanding the nature of photographs.

Further questioning of the significance of the indexical nature of photographs was to come from theorists such as John Tagg (1988), Allan Sekula (1982) John Berger (1973), and Victor Burgin (1980). In a series of essays collected in *Thinking Photography* (1982), Burgin (and other writers) analyze how meaning is derived from photographs and challenges the idea that photographs represent reality – rather the meaning they contain is culturally created and ascribed. Sekula, for example, argues that the concept of the unmediated image is a myth. He argues that any information within a photograph is the outcome of a culturally determined relationship, a learned response that does not have any inherent meaning in and of itself (Sekula, 1982, p.86). Burgin, too, argues that the meaning that photographs have is dependent on the social and psychic experiences of the viewer (Burgin, 1982, p.144).

Elizabeth Cowie (2007) also critically examines film as the “re-presentation of found reality” (2007, p.89). She discusses Peirce’s theory of the index and notes that, for most indexical signs the trace shows something that is marked by the object, but not the object itself. For example, the bullet hole is a trace left by the bullet. We do not see the bullet itself. By contrast, the photograph also shows us what it points to, thereby combining the attributes of index and icon. She notes that we do not have full access to either contemporary or historical reality (Cowie, 2007, p.92) and as such, a process of mediation is unavoidable.

In “Re-Picturing Photography” (2001), Aphrodite Navab reviews the jargon of photography and provides a critical analysis of the writings of Berger, Sontag and Barthes. Navab suggests that the connection between photography and reality is no more privileged than the relationship between reality and drawing or painting. For her “photography is a construction or re-presentation of reality or imagination like any other artistic medium; it enjoys no privileged relationship to reality. The photograph is tied to the ‘real’ in as many ways as different viewers can construct it to be” (Navab, 2001, p.69). In essence, as noted by Batchen, this is an argument based on a perspective that places the determination of the meaning of photographs as solely derived from what meaning is ascribed by culture (Batchen, 1997, p.21). John Tagg, for example, writes that while the montage is a falsified image,

on a more subtle level... we have to see that *every* photograph is the result of specific and, in every sense, significant distortions which render its relation to any prior reality deeply problematic and raise the question of the determining level of the material apparatus and of the social practices within which photography takes place. (Tagg, 1988, p.2)

Such a perspective on photomontage was prophetic, presaging the questioning of the relationship between photographs and reality that was to come to the fore with the emergence of digital photography and software that simplified the process of photographic manipulation. The means to modify photographs, which once required considerable skill, experience and equipment, was to become much more accessible in the early twenty-first century.

Tagg, Abigail Solomon-Godeau and Sekula rejected the idea that photographic meaning is a product of a relationship between the image and some more basic reality, arguing that all photographic meaning comes from cultural practices and systems of meaning. Hauser notes that for these theorists,

there is nothing about the image which can usefully be described as ‘natural’. What is important is what individual photographers mean - or are made to mean – in particular contexts, and the way in which photography itself has been recruited into systems of state control and the dissemination of ideology (Hauser, 2007, p.70).

Further, with respect to the idea that the photograph is an indexical sign Tagg notes:

The indexical nature of the photograph – the causative link between the pre-photographic referent and the sign – is therefore highly complex, irreversible, and can guarantee nothing at the level of meaning (Tagg, 1988, p.3).

In response to such critiques many photographers spent much of the 1980s stressing that photography lacked the capacity to preserve meaningful traces of the past (Grundberg, 1999, p.261)¹².

As noted by Batchen, it is not necessary to categorise the photograph as a pure cultural artefact or a product of natural processes. These different interpretations of the meaning and reading of photographs, and of the photograph's capacity to convey "reality", do not necessarily compromise or negate the role of the trace as a tool used to understand the world, support concepts of reality, and assuage anxiety about change. This is the outcome of what Batchen contends to be "two opposing views of photography" (1997, p.ix). On one hand are those postmodern critics, such as John Tagg and Victor Burgin to whom all photographic meaning is derived from context and therefore without any independent identity. On the other side are formalists, such as Andre Bazin, to whom photography is defined through its technical characteristics. Batchen views this debate as an attempt to locate the photograph as a product of culture or nature, noting that the earliest practitioners of photography (such as William Fox Talbot and Louis Daguerre) were more equivocal, recognising elements of both nature and culture, but not attempting decisively to assign photography to either.

It was the postmodern assessment of photography that came to dominate photographic theory, as expressed by critics such as John Tagg, for whom:

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 which 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. (Tagg, 1988, p. 63)

—

¹² For an example see the work of Duane Michaels, discussed later in this exegesis.

Such an analysis of photography is concerned primarily with its use as an instrument through which to impose power on others, which shifts attention from the image to its use. As an example of this viewpoint Tagg quotes feminist scholar Abigail Solomon-Godeau, who says “I would submit that the history of photography is not the history of remarkable men, much less a succession of remarkable pictures, but the history of photographic uses (cited in Batchen, 1997, p.12). Of the post-modern critique, Batchen asserts, “all this is undoubtedly true” but notes that this does not answer the question as to what photography “is”:

recent approaches to photography all hinge on photography’s historical and ontological identity, a matter that both post-modernists and formalists think they have somehow resolved. In a sense, the entire laborious argument reduces down to a single, deceptively simple question: is photography to be identified with (its own) nature or with the culture that surrounds it? Both postmodernists 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, 1997, p.17)

I will return to this debate later. Before doing so, I wish to discuss Roland Barthes’ *Camera Lucida* (1980), wherein he seeks to understand and explain photography through his personal responses to individual images, and in this way to reassert the significance to explain what photographs are.

Barthes and Camera Lucida

Barthes’ highly influential and widely referenced *Camera Lucida*¹³ presented a challenging and considered reappraisal of the importance of the form of images at a time when such ideas were out of step with the predominant perspectives on photography, and for that matter, his own previously expressed views. In *Camera Lucida*, Barthes investigates the nature of photography, and attempts to describe its essential qualities, by examining photographs which generate an emotional

—

¹³ For example, Margaret Olin’s (2002) essay “Touching Photographs: Roland Barthes’s “Mistaken” Identification”, critiques *Camera Lucida*. Iversen’s (1994) “What is a photograph?” analyses Barthes’ essay *Camera Lucida* and its links to the theories of Lacan, Benjamin and Freud in a discussion of the creation of photographic meaning.

response in himself, in order to understand the way that photographs gain the capacity to be moving. Barthes concludes the essential quality of the image is due (in part) to its direct physical relationship to the referent. He examines the connections between photography, death and time, and the ways that photographs generate interest, (the *studium*), or affect the viewer (the *punctum*) (Barthes, 1989, pp.26-27).

While the view of photography as primarily an expression of power relations came to dominate theoretical approaches to photography in the last quarter of the 20th century, Barthes' *Camera Lucida* represented a challenge to this perspective, approaching photography in a profoundly personal fashion, highlighting its capacity to evoke emotional responses and be imbued with a sense of the spiritual or mystical.

Barthes' *Camera Lucida* describes his search for a photograph that would convey for him the essential qualities of his recently deceased mother. Eventually he finds such an image, a photograph of his mother as a child. This photo, which he called "the winter garden", was not published, even though it was central to an essay which contained many other photographs. "The winter garden" would, he thought, have no meaning to anyone other than himself. This is the essence of the personal, the *punctum*, the personal value that photographs may possess through the individual's knowledge and experiences.

Barthes came to the conclusion, perhaps surprising in the context of his earlier writings, that the essence of photography is not social, but found in the means of production, and especially the touch. Photographs are born from the touch of light. Light first touches the subject and then marks the receiving surface, be it a silver plate, film or other medium. This record of an encounter between the subject and camera enables photographs to gain a quality that goes beyond a mere record. As expressed by Barthes:

The photograph is literally an emanation of the referent. From a real body, which was there, proceed radiations which ultimately touch me, who am here; the duration of the transmission is insignificant; the photograph of the living being,

as Sontag says, will touch me like the delayed rays of a star.
(Barthes, 1980, p.80)

The concepts of trace, punctum and aura are connected by idea that there is a kind of physical contact between the image and the subject and, in turn, between the viewer and the image. There is a transmission occurring between the viewer and the subject of the image. It is as though the photographic image serves to convey an emanation, an emission. This is the way in which Barthes described viewing a photograph of a descendant of Napoleon, as though it was the photograph projecting light – “from a real body...proceed radiations that ultimately touch me” (1980, p.80).

Some of Barthes’ work builds on that of Benjamin. One of Barthes’ terms, *studium*, refers to the intended message of the photographer, present in a photograph by the inclusion of meanings derived from a lexicon of shared understandings. This was an expansion of Benjamin’s notion of the inscribed message, as Barthes saw that the photographic lexicon was a means of conveying a message without the need for a caption.

What Barthes referred to as the *punctum* is the information that is present in the photograph beyond that intended by the photographer, elements that were recorded that had the power to affect and move the viewer of the image.

In *Camera Lucida* Barthes endeavoured to identify the defining nature of the photograph, the characteristic that distinguished it from other forms of image making. The photograph’s defining characteristic was to be found, he saw, in the necessity of the existence of the referent in the creation of a photograph. Without the referent there can be no photograph, unlike a painting or drawing or any other type of image where the referent may be imagined. As Barthes expressed it, the *noeme* of the photograph is “this has been” (Barthes, 1980, p.107). Of the subject of a photograph, he says, “I can never deny that *the thing has been there*” (Barthes, 1980, p.76). Barthes argued that, unlike a photograph, no painting could convince him that its referent had really existed (Barthes, 1980, p.77). The logic of the photographic process demands the existence of a world outside the mind. Its creation requires a subject that does not only exist within the imagination.

Barthes suggests that photography enables us to overcome our resistance to believing in the past, because through the photograph we can see it for ourselves. It is re-presented for us. Because of this, Barthes suggests, the invention of photography divides the history of the world into the time before photographs and time since (Barthes, 1980, p.88). The photograph represents to Barthes an emanation of a past reality: *a magic* he says, not an art (Barthes, 1980, p.88).

Barthes attempted to reassert the value of photographs as a means to gain an understanding the world. He used a photograph of a slave market to illustrate the impact of the scene conveyed by the photographic image:

I repeat: a photograph, not a drawing or engraving; for my horror and fascination came from this: that there was a *certainty* that such a thing existed: not a question of certainty but of reality: the historian was no longer the mediator, slavery was given without mediation, the fact was established *without method*. (Barthes, 1980, p.80)

As Welch and Long note, in *Camera Lucida* Barthes was moving away from the approach taken in his work of the 1960's in the fields of semiotics and mass visual culture in favor of a more subjective and individual approach. This led to a revisitation of the relevance of the concept that photographs are produced by contact with the world. In this analysis the trace is not something to be treated as irrelevant, but revisited and re-examined for information and understanding of photography. Barthes wrote:

it is the fashion, nowadays, among photography's commentators (sociologist and semiologists), to seize upon a semantic relativity: "no reality" (great scorn for the "realists" who do not see that the photograph is always coded) nothing but artifice. (Barthes, 1980, p.88)

Barthes had previously described photographs as having a direct relationship with reality, saying in "The Photographic Message" (Barthes, 1982, p.196), "What does the photograph transmit? By definition the scene itself, the literal reality." Nonetheless, prior to *Camera Lucida* Barthes previously sought to analyse meaning in photographs by using structural analysis to explain the symbolic messages that they contain. This approach was used in his writings including his 1961 critique of press photography *The Photographic Message*, or his 1964 essay

Rhetoric of the Image where he decoded messages present in advertising (Barthes, 1972). In *Photography and Electoral Appeal* Barthes turned his attention to decoding election poster photography, observing the way in which the photographic conventions used are replete with signs. In the election photograph, Barthes posits, we are asked to recognise what is known and familiar. "It offers the voter his own likeness, but clarified, exalted, superbly elevated into a type...the voter is invited to elect himself" (Barthes, 1972, p.92). The pose of the subject also conveys messages to the viewer. Through such analysis Barthes sought to make plain the intended message of the photographer, which may otherwise only be perceived at a subconscious level. Barthes undertook a similar exercise in decoding the exhibition of photographs *The Family of Man*, curated by Edward Steichen in the 1950s (Barthes, 1972, p.100). Again Barthes endeavoured to demystify the messages within photographs. In *The Family of Man*, Barthes suggests the implicit message is that things such as the death of the young, or difficult and painful births, are part of the natural order of things, to be accepted. Such analysis sought to extract and expose the embedded message of the photographer or, in this case, the curator.

Two key texts of Barthes, "The photographic message" (1961) and "The rhetoric of the image" (1964) have been identified as at the heart of two divergent themes of semiotics, that of pictorial semiotics, which has primarily been concerned with art works, primarily paintings; and on the other hand, the semiotics of publicity, which has focused on the pictorial aspects and written and other elements of advertisements (Sonesson 1989, p.10). It is the semiotics of publicity that has been most concerned with the analysis of photographs. Theorists such as Stuart Hall (1974), John Hartley (1982), and Fiske (1982) have built on the work of Barthes in the semiotics of publicity, expanding the semiotic analysis of the photograph beyond its use in advertising by applying the analytical method to news photography.

A common theme of these writings is the way in which photography can be used to communicate messages and create and perpetuate stereotypes – the photographic medium, Barthes argues, has the effect of making its depictions

“innocent” despite their ideological content due to the sense of naturalness the photographs evoke (Barthes 1977, p.8). Among others, Sally Stein (1981) argues that this capacity of photographs has been used to mask the true state of social relations. Stein used the examples of cookbooks to show how photography had been used in ways that obscured the true nature of domestic work. As a further example Judith Williamson (1979) has identified the ways that advertising photography has been used to conceal the reality of labour relations (using the example of a Lancia car advertisement) which she describes as a “slipping over of the capitalist mode of production” (Wells 2009, p.230). Such analysis demonstrates that while photographs may have the capacity to demystify and strip aura, they can also have the opposite effect and can and have been used to conceal and obscure.

By the time of *Camera Lucida* Barthes had reached a conclusion that the discussion of meaning in photographs was not always exhausted by examining the iconography and iconology of the image (Levy, 2009, p.395). This was not to deny the presence of these intentional messages of the photographer, but he did claim that there was further meaning to be found in photographs that existed beyond the obvious meaning of the photograph, beyond the meaning that the photographer intended for the image, drawn from a common, shared set of symbols.

Barthes’ conclusion that photographs contained meanings beyond those which could be explained by structural analysis directly challenged the views of writers such as Tagg, for whom photography only exists within a framework of socially constructed relationships, and especially as an expression of power relationships.

This is not the inflection of a prior (though irretrievable) reality, as Barthes would have us believe, but the production of a new and specific reality, the photograph, which becomes meaningful in certain transactions and has real effects, but which cannot refer or be referred to a pre-photographic reality as to a truth. The photograph is not a magical “emanation” but a material product of a material apparatus set to work in specific contexts, by specific forces, for more or less defined purposes. It requires, therefore, not an alchemy but a history, outside of which the existential essence of photography is empty and cannot deliver what Barthes

desires: the confirmation of an existence; the mark of a past presence; the repossession of his mother's body. (Tagg, 1988, p.3)

Stephen Spencer (2011) elaborates along similar lines on the problems posed by Barthes' view of photographs as emanations or indexical signs: it is he says

...highly contentious to describe a photograph is this way...although the image thus created is to *some degree* an accurate and explicit record of the world, the seductive realism of photography has long been associated with the potential for manipulation and propagandist purposes...whatever the production process the image is always potentially polysemic, and hence the suggestion that the image is a direct emanation of 'the real' ignores the question of multiple interpretations and different reading positions. (Spencer, 2011, p.18)

Spencer is here presenting the viewpoints of Barthes and those of Tagg as binary oppositions – a position elaborated by Mary Price (1994) who characterises Tagg's position as reflecting a fear that acceptance of Barthes' conception of the photograph requires the abandonment of contingency and specificity:

Barthes says the photograph is a magical emanation; Tagg says it is not. Barthes says the photograph is evidence of something existing in the past; Tagg says it is evidence of something to be determined by history and use. Tagg's argument would be perfectly understandable if only he did not insist on denying Barthes' argument. (Price, 1994, p.9)

Seen in this fashion, the approaches of Tagg and Barthes (in *Camera Lucida*) are seemingly irreconcilable. Yet Batchen offers a way in which this dualism can be resolved. Batchen's history of photography describes a trajectory in which a state of dominance by formalist explanations of photography (characterised as a product of nature) is replaced by a postmodernist approach (in which photography is seen as a product of culture). Rejecting this division as too simplistic, Batchen points to the writings of photography's progenitors to argue that the inventor's own descriptions defied such binary divisions. Niepce, he notes, could not choose between *physaute* (nature herself) and *autophase* (copy by nature) to describe his process (Batchen, 1997, p.177). Daguerre and Talbot, too, used paradoxical descriptions that sought to at once describe their processes as both products of nature and of culture (Batchen, 1997, p.177). Batchen

suggests that this collapsing of the dichotomised, binary argument is the appropriate response as photography cannot be explained as something wholly derived from nature or culture. Any effective ontology of the medium must consider it simultaneously the product of both. He points to Barthes' conception of photographs as a site of collapsed binary oppositions (the *studium* and *punctum*: what is shown is at once alive, and dead, or will be dead) as necessary to properly understand the nature of photography (Batchen, 1997, p.193).

This line of reasoning has also been taken up by Hauser (2007) who argues that adopting a radical ontological view or a radical contextual view of photography is a false dichotomy as both approaches have "blind spots" and are not mutually exclusive (Hauser, 2007, pp.70-71). She notes it is photography's "nature" that permits it to function as both evidence within state apparatuses and as a souvenir or relic. Likewise awareness of the nature of the photograph need not exclude the context within which the photograph circulates and acquires meaning. I suggest that treating the paradigm of the photograph as trace as a site where meaning can be derived provides a means of bridging the separation between nature and culture in the photograph.

As these debates between theorists were being played out in the 1980s and 1990s, aligning with approaches exemplified by Barthes or Tagg, the technological underpinnings of photography were beginning to undergo a rapid and ground-breaking change. The age of analogue photography, the chemically based technology that had been the basis of photography since its beginnings, was coming to an end. It was being supplanted by the arrival of digital technology, where photographs were to be stored as magnetic data, a development which was seen by some to mark the death of the photograph. Photography was, said Krauss in 1999, entering a "post medium condition", and would soon enter a twilight zone of obsolescence (Krauss 1999, p.295), and William Mitchell argued we were entering into a "post-photographic era", with a loss of certainty previously provided analogue technology (Mitchell, 1994, p.225). "An interlude of false innocence has passed" he said, and the distinctions between photographic certainty and images produced by imagination could no longer be maintained where manipulation could be so easily practiced (Mitchell, 1994, p.225). Fred

Ritchin too, argued that the malleability of digital photography undermined its claims to be “an inherently truthful pictorial form” (Ritchin, 1990, pp. 28-37). Such views suggested that we had reached the end of the relevance of the concept of the photograph as an image formed by contact with the world. In turn this begs the question as to the relevance of the concept of trace as a paradigm to explain the nature of photographs in a post analogue world.

The trace and digital photography

While the development of digital photography inspired a resurgence of interest¹⁴ in the indexical nature of photographs, the impact of technological change on the way photographs are regarded is not a new development. The photograph’s status as a preserver of traces has been affected by technological change, not only by the arrival of the digital age but by the process of evolution that has occurred since the first photographs were produced. As products of modernity, technologies supporting photography and its many uses have evolved in response to social demands and in turn this technological evolution has enabled new uses, driving a cycle of further development. Photography has developed through an interplay of society and technology, each affecting and driving the other. Nevertheless I argue that the underlying qualities of trace and inscription are still relevant to understanding the use of photographs in the digital era.

It is important to consider the role of photography today and the changes brought about through digital technology, for example, an examination of the uses of photography (such as Flickr and Facebook, which today enable the storage and sharing of photographs online) and how these represent a continuity and disjuncture with traditions. How do these changes affect ideas about photography and how relevant are ideas of trace and inscription in this environment? Barthes’ *Camera Lucida* is about a physical object, a laminated thing whose leaves cannot

¹⁴ For example, Scott McQuire’s 1998 book *Visions of modernity: Representation, memory, time and space in the age of the camera*, looks at the interplay that occurs between technology and society. He notes that photography came at a time in Western society where positivism was predominate and was welcomed and utilized as tool of observation in many fields of research. On a similar theme Susanne Holsbach’s *Photographic and Post Photographic* (2007) examines the history of theories about photography and how they have been affected by technological change. Her essay is concerned with continuities and differences between photographic and post-photographic images.

be separated without destroying the object (Barthes, 1980, p.6), an artifact that will yellow and fade, and yet which he is too superstitious to discard (Barthes, 1980, p.94). Benjamin is also writing about a thing that may be grasped and held.

How relevant are these musings on the photographic artefact in the digital age, and has this transformed the status of personal photographs as talismans against change and loss? How relevant is Barthes' view of the personal photograph to today's use of photographic images? Such concerns, as reflected in the work of Mitchell (1992), Ritchin (1990 and 2009) and discussed in Wells (2009) posit the trace in photographs as something that is on the verge of displacement by the emergence of digital photography.

As a photographer I have an interest in the way photographic techniques have developed over time, a process that has been a characteristic of the medium since its invention. Even in 1931, Benjamin described photography as having "a rapid ongoing development which long precluded any backward glance" (Benjamin, 2008, p.274). This state of constant technological change has seen the physical form of photographs transmute from a precious artefact made of silver to an ethereal magnetic trace¹⁵. These developments are not merely changes in technique. The different photographic methods represent an unspoken, often unrecognised channel of information, and are linked to social practices of which they may be a product, an enabler, or even a driver. Pauwels (2008, p.34) notes that while technology can affect cultural uses of photography, social needs can also steer technological developments. This process continues unabated with the development of internet-based media for sharing images, and the growth of

—

¹⁵ Giblett describes this transformative process as a form of sublimation that that applied to the invention, production and utilization of communication technologies including not only photography but also railways, telegraphy, cinema and others. These technologies all enable communication across great distances and dislocate local time and tempo (Giblett, 2010, p.x). Where communication previously depended on transportation for the spread of messages it became possible, via the telegraph, then radio or satellite to communicate faster than transportation. As the telegraph was replaced by radio, the physical connection between the receiver and sender (the telegraph wire) was metaphorically severed (Giblett, 2010, p xi).

mobile phone cameras and other digital photographic technologies. These have seen the diminution of the oral traditions surrounding personal photography, the making of what was once private space public (and its use for personal promotion), an increased recording of the ephemeral and the treatment of the personal photograph as a disposable item. Nevertheless, while digital images have their own unique characteristics, these developments represent a continuation of a dance between the technology of photography and the social practices that surround it. Again, the paradigm of photographs as traces provides a common site to connect new and old forms of photography, be they digital or analogue.

The rapid change of photographic technology epitomizes the effects of mass consumerism and the market economy. Users of photography have always promptly adapted to technological developments, discarding old forms and adopting new ones, moving from silver plates to glass, then paper and now magnetic and optical means of storage. Yet the shift to digital technology has provoked claims that the medium has been profoundly altered in a way not previously seen. For example, Wells describes the debates about whether we have entered a “post-photographic era” (Wells, 2009, p.318), where paradigms of the index and perceptions of the “truthfulness” of the medium are increasingly questioned (Wells, 2009, p.319). Such debate (“is photography dead?”) is concerned with the connection between the photograph and reality - the *truthfulness* of the image. There is no doubt that the medium is changing and traditional, chemical based, photographic production methods are becoming increasingly rare. Polaroid has ceased production of its line of instant film, and Kodak, the pioneer of popular photography, has also finished production of its once popular Kodachrome film which was one of the company’s most successful products through the 20th century since its release in the 1930s (Kodak, 2009).

Accompanying this change in use has been a reduction in the cost of producing photographs and a resulting rapid growth in the taking and sharing of personal photographs. From using perhaps a few rolls of film a year in 1980’s the average western consumer today produces thousands of images a year. According to Good, photographs stored on Facebook are 10,000 times more numerous than

those kept by the Library of Congress, and “every 2 minutes...we snap as many photos as the whole of humanity took in the 1800s” (Good, 2011).

Mitchell (1992, p.4) suggests that, although a digital image and a chemically produced photograph may appear to be the same, “[the digital image] actually differs as profoundly from a traditional photograph as does a photograph from a painting. The difference is grounded in fundamental physical characteristics that have logical and cultural consequences.” Mitchell contrasts the grid of pixels that underlies the digital image and the fixed amount data it contains with the continuous tonal graduations to be found in analogue images. This simplification of the information contained in the image enables one of the defining characteristics of the digital image. It enables its precise replication – meaning copies of digital photographs are not “debased replicas” but rather are indistinguishable from the original (Mitchell, 1992, p. 6).

In addition to this characteristic of reproducibility, discussion of the impact of digital technology on photography has focussed on the ease of manipulation of images and the relationship between images and perceptions of reality. Yet such debates are largely tangential to the practice of personal photography, which has been characterised by an idealised and a very selective depiction of family life (Wells, 2009, p.148). In discussing the move to the digital age Wells (2009, p.328) argues that when we look at the way the photograph is received as opposed to produced, (as indeed was the focus of Barthes in *Camera Lucida*) the differences between digital and analogue photography cease to be important. This is true to some extent as most users of photographs, particularly personal photographs, are somewhat indifferent to or unaware of the technical underpinnings their production.

Nevertheless the mode of production and finished product can and do have a significant impact on the way that personal photographs are used. While personal photography is still a popular activity a significant change can be discerned in the way personal photographs are used. Their use as a private *aide memoir* in an oral ritual is being overtaken by internet-based rituals of emailed

images and public sharing of images via sites such as Facebook and Flickr. This move from the sharing of prints to digital forms is important as the form of artefacts affects the way they are used and regarded. As Van House et al. note, “The specific material form of artefacts is significant for, among other things, how they carry culture and history, and interact with embodied action” (Van House et al., 2004, p.3).

The earlier transition from fragile and expensive daguerreotypes and ambrotypes to tintypes was paralleled by social changes and changes to the rituals governing their use. Daguerreotypes are expensive and fragile creations. Made of silver plate and glass, with an image that could be ruined by a touch, the earliest photographs were usually stored in a fitted case, akin to jewellery. They were often stored in a desk and taken out to be viewed. Tintype and paper prints were more affordable, robust and transportable, and therefore better suited to a wider and more mobile population. Capable of surviving in a coat pocket or luggage these images were used in a wider range of rituals than their predecessors. Clearly the material from which these objects were crafted had a cultural significance. The move to digital photography has been mirrored by a similar shift in social practices.

In his 1982 book *Orality and Literacy*, Walter Ong discusses the significance of the physical object as a form of non-literal communication, or as a means of support for written testimony. For example, he describes written deeds for property being authenticated by the attachment of a symbolic object, such as a knife or a sword, as occurred in the case of an illiterate knight’s property bequest to the church (Ong, 1982, p.95). The physical presence of the object is significant to its capacity to play a role in prompting memory and assisting in recounting an oral account of events. Van House et al. connect this story-telling behaviour to the way people use photographs to build and maintain relationships and create new ones. The ritual of verbally explaining the relationships in the photograph is a recurrent theme in the way people use printed photographs. In Van House et al.’s 2004 study of the way personal photographs are used, a common characteristic was reported – that all people who have printed photographs have “the box” (sometimes a bag or drawer) where the prints are stored (Van House et al., 2004, p.5). This box was the centre of personal reflection on the photographs it

contained or for the performance of an oral ritual where the photographs were used to explain family relationships and histories.

Today, photographs are more commonly found as digital files, rarely printed and frequently discarded almost as quickly as they are taken. The photograph album or shoebox filled with photographs has been replaced by the hard-drive, website or compact disk. The modern digital equivalent of “the box” for storing photographs is the computer hard drive or social networking website.¹⁶ Yet this is used in a quite different way for viewing and sharing images. Contrasting the social bonding arising from printed photographs, Gye argues that digital photographic practices have an almost asocial emphasis on the individual (2007, p.286). Why is this the case? Primarily, this is because there is limited face-to-face interaction with the digital sharing of photographs. We send or post the images which are then mostly viewed by individuals. In the past printed personal photographs were used to maintain relationships and activate memories. As Gye notes, digital images perform their functions in silence (2007, p.281). This new use of photography eliminates the narrative rituals central to traditional personal photographic practice. Personal photographs have traditionally been, to a large extent, for consumption by the individual or intimate acquaintances. By contrast, photographs posted on the internet are, by accident or design, for public consumption. The beleaguered shoebox method of storing photographs is no longer adequate to contain all of the photographs that are captured. And while some things remain the same in the digital age, the realm of the personal photograph has been made increasingly public. The private shoebox of photographic memories has become the public website, sometimes with unfortunate unintended consequences for the participants. Personal photographs today have an increasing value as a social networking tool. This greatly expanded public use of digital images, where the personal photograph is disposable, ephemeral and broadcast is a defining characteristic of the digital form.

—

¹⁶ In her 2004 essay on the computer program Quicktime, Sobchack notes parallels between the computer, the reliquary and the memory boxes of Joseph Cornell, – the computer is a device “that collects, preserves, and allows for the conscious retrieval and visible re-collection of memories, all “cached” in an enormous, unseen network of past images, sounds, and texts” (Sobchack, 2003, p.30).

Today cameras are everywhere that a person has a mobile phone. Further, the ubiquity of digital cameras and cheapness of the digital images they produce encourages the recording of everything and anything. This is the essential character of the mobile phone image; their ready availability and cheapness enables and encourages the immediate recording of commonplace elements of life, no matter how banal. In contemporary society we are living in a panopticon of sorts, where the inmates are doing their own monitoring through the recording and digital publication of the traces of our everyday lives. In Jeremy Bentham's Panopticon, the behaviour of inmates was observed by guards in a central location provided with an unobstructed view. As Bentham, explaining his concept in correspondence in 1787 wrote of his ideal establishment:

It is obvious that, in all these instances, the more constantly the persons to be inspected are under the eyes of the persons who should inspect them, the more perfectly will the purpose X of the establishment have been attained. Ideal perfection, if that were the object, would require that each person should actually be in that predicament, during every instant of time. This being impossible, the next thing to be wished for is, that, at every instant, seeing reason to believe as much, and not being able to satisfy himself to the contrary, he should *conceive* himself to be so. (Bentham, 1995, p.1).

For Bentham it was important that the method of observation led to the inmate's uncertainty whether he was being observed. This would lead to inmates acting as though they were observed regardless of whether this was actually occurring. In modern societies, where minute traces of our lives are documented, recorded and published, we facilitate and revel in the notion of being observed. Perpetual observation is not just for the inmates of prisons or mental asylums as conceived by Bentham.

As Daniel Palmer (2005) notes, the most common form of digital camera, the mobile phone, is used above all for displays of exhibitionism and narcissism. I would argue too that through these photographic practices, such as for example the recording of minutiae such as what was eaten for breakfast, people are collecting and storing traces of their lives. While many of these images may never be seen by anyone other than the photographer, others will be shared through social networking sites such as Facebook or Flickr. Home photography has

traditionally been used for sharing with friends and this practice continues through these social networking sites. We are currently seeing the effects of the transition between private and public accessibility of personal photography, with authorities and the media quick to exploit opportunities to condemn or embarrass persons whose behaviour has been deemed inappropriate. The “wrong” photograph (meaning that the photograph breaches conservative social norms) being published on a social networking site has led in several cases to punishments ranging from criticism, shaming, condemnation or dismissal from employment.¹⁷

For artists such as Joan Fontcuberta, Jason Salavon and Jon Rafman (all discussed in chapter 3) unique qualities of digital photography, that is its capacity for easy reproduction, manipulation, ordering, sharing and accessibility, has provided new ways of using the photographic trace in art. For each of these artists raw material for their works has come from the internet in the form of photographs taken by others. Fontcuberta has used published photographs (news photographs, or in some cases pornography) sourced through the search engine Google which he then uses software to sort and order to produce his art. Salavon also uses the internet to source generic photographs of family rites of passage, such as weddings or Christmas photographs which he then layers and aggregates. Rafman searches Google Street View photographs for images which appeal to his aesthetic sensibility and his concerns with the alienating effect of modern technology.

The works produced by these artists provide examples of how, far from being the death of photography, the development of digital processes have opened the way for photographs to be used in art in new and innovative ways. This is the outcome of the combination of the immense image archive that is the internet, together with the capacity for software to sort, order and manipulate digital images.

—

¹⁷ For example on 6 November 2008 the ninemsn website reported the story of Caitlin Davis who was sacked by the New England Patriots over photographs posted on Facebook, while Olympic athlete Stephanie Rice was criticised after photographs of her at a party were posted on the site (J. Magnay) <http://www.theage.com.au/articles/2008/04/01/1206850912201.html>.

The key impacts of digital technology on personal photography are to be seen by the diminution of the oral traditions, the making what was private space public, and the ubiquity of cameras and cheapness of image making which has combined to encourage the recording of the ephemeral and the treatment of the personal photograph as more disposable than ever. Yet I suggest the concepts of trace and index are still relevant and are still applicable. Digital “photographs” will still contain traces and inscriptions provided they are formed as photographs, that is, through the action of light on a recording medium. Things may be formed in other ways that look like photographs, such as a computer illustration, but this will not be a photograph without the presence of a trace. A purely digital illustration may appear lifelike, but it will not convey aura (at least as conceived by Benjamin) in the same way as a photograph produced by a camera. Digital artworks may have aura as a work of art but they will not convey the aura of the thing they show as they will not have been produced through contact.

Returning to Barthes and his contemplation of the photograph of “the winter garden” (a photograph which Barthes never revealed or shared with his readers) we can see a qualitative difference between the use of the photographic image as a *memento mori* and its use as personal promotional tool. Barthes contemplation of his mother’s image, and his refusal to share it with his readers, harks to an earlier, more personal interaction with the photograph. Even so, it would be wrong to say that new uses totally supplant the old, and that traditional rituals are totally discarded. Photography today is still valued for supporting connections between people, and as always the use and production of personal photographs reflects current wider social trends. Today, where immediacy and quantity is valued above permanence and a unique physical presence, this is reflected in the proliferation of digital technologies that facilitate the cheap and easy dissemination of images. Yet there is still a place for the personal photograph whose *punctum* and special meaning is only relevant for an audience of one.

In this chapter I have described how the idea that photographs can be explained as a form of trace has had an enduring presence in theories and histories of photography. This paradigm is present reflected in one form or another in the writings of many key theorists including Pierce, Benjamin, Barthes and Sontag,

and more recently attracted renewed interest with the development of digital photography and its perceived challenge to indexical notions of photography.

The continuity of use of the metaphor of the photograph as a trace means that the trace has provided a common space that has been revisited, explored and contested by photographic theorists and historians. The trace therefore provides a connecting framework for a consideration of the ways in which photographic meaning is created and ascribed.

This commonality can also be perceived in the work of artists for whom the trace provides an important point of engagement with photography. As demonstrated in the next chapter, just as the trace provides a common point of engagement with the work of many photographic historians and theorists, the paradigm of photographs as traces provides a significant thematic for many photographic artists.

3. THE PHOTOGRAPH AS A TRACE IN ART

It is one thing to read theories about traces, inscription and photography, but to truly understand how appropriate these ideas are requires the consideration of actual images. Although Barthes resisted revealing the photograph of his mother that was central to his ruminations in *Camera Lucida*, he chose to illustrate his ideas of the *punctum* and *studium* through the use of examples from portrait studios and news magazines, pictures of children, of war in Nicaragua and an assassin awaiting execution. These images, he felt, conveyed the sense of *punctum*, the capacity of some photographs to move the viewer. Benjamin too used examples to illustrate his concepts, such as the aura impressed into an 1850 portrait of the philosopher Friedrich Schelling (Benjamin, 2008, p.280), whose coat expressed the solidity of a long exposure, or the essence of contingency to be found in a photograph of a young woman, taken some years before her death by suicide.

While some writers may choose not to illustrate their concepts (for instance Andre Bazin's *Ontology of the Photographic Image* (1960) analysed the nature of photography with few references to specific images), the production and consideration of artworks enables theories to be explored and expressed in visual forms, and thereby experienced and felt directly rather than interpreted via text. This contrast between the written and the visual is akin to the difference between a cerebral understanding and a visceral impression of a concept. To fully understand the notions of aura and punctum it is possible, and perhaps necessary, to not only read about these things, their context and qualities, but also to feel and experience them – to be touched by the image by virtue of its emotional effect. Such works provide a way to test the theories about our interactions with photographs and other images.

In some respects all photographs can be used as illustrations of the notions of trace and inscription as a consequence of their means of production. While all photographs can be related to the paradigm of trace, I have chosen the works of photographers who have consciously engaged with the notion that photographs are forms of traces.

As well as being symbols, evidence or family artefacts photographs are also examples of an interplay between the world and the surface on which the image is recorded. Some artists however, such as those discussed here, are more explicitly concerned with touch, the trace and inscription aspect of images. Some such artists produce works concerned about the use of photographs and traces as evidence, such as Duane Michals, or of other forms of traces such as Shomei Tomatsu or Cornelia Parker whose work concerns traces and relics and through photography making traces of traces. They may be photographers like Adam Fuss and Edgar Lissel who experiment with the physical practice of photography and the embodiment of touch. Finally, there are those whose work depicts the interplay of trace and inscription in photography and other forms of image making, such as John Heartfield and Gerhard Richter. These artists' works understandably reflect ideas of contemporary influential theorists. As Grundberg (1999, p.258) notes, artists working in the 1970s and 1980s (for example Michals) were focussed on demonstrating that photographs were as artificial, mediated and subject to codes of representation as were painting and drawing. Since the 1990s, however, other artists have taken different approaches. Fuss, Derges and Lissel, among others, have produced cameraless images using little more than sensitised paper. Such images are "as un-mediated as photography can get" (Grundberg, 1999, p.261). Accordingly, I have chosen to structure this chapter through an examination of artists whose work reflects, is in agreement with or can otherwise be used as a counterpoint to the theoretical approaches to photographs as traces. While the work of artists discussed in this chapter may demonstrates agreement in with the theorists I have discussed, this is not to say that there is a causal effect between the practitioners and theorists. While theorists have utilized artists works to explain their theories (for example, Benjamin's use of Heartfield (2008, p.305) it cannot be said that the artists discussed here have been directly influenced (or indeed influenced at all) by the theoretical writings on photographs as forms of trace.

The first of these artists I wish to discuss is Gerhard Richter, whose work I examine with reference to the theories of Walter Benjamin.

Gerhard Richter, Walter Benjamin and the trace, blur and inscription

The art of Gerhard Richter and the critical writings of Walter Benjamin convey a shared appreciation of the way objects are used to make sense of the world. Photographic montage was important to Benjamin's notion of art in the age of mechanical reproduction (see, for example, his commentary on Heartfield) and a similar appreciation can be found in Gerhard Richter's *Atlas* project and his use of found images and reworked photographs. Richter's artwork shares the question at the core of Benjamin's work on art in the age of mechanical reproduction. It too is concerned with making sense of a reality irreversibly shaped by role of the photograph as a touchstone of reality in modern life, and the role of painting and the artist in the age of mechanical reproduction.

At the time of his death in 1940 Benjamin left behind a vast collection of essays, notes and documents that constituted his unfinished Arcades project. This collection of papers and ideas was a montage of information and ideas that Benjamin drew on throughout his life in the preparation of his articles and other published works. Benjamin's writings display a desire to explain how our thoughts and beliefs, particularly those related to ideology, aesthetics, memory and history, interact with technology and the built environment. His work as a historian, as he outlined in one of his last essays "On the Concept of History" was one of seizing a true picture of the past as it rushes by, rescuing it from the debris of history, and thereby delivering "tradition anew from the conformism which is on the point of overwhelming it" (1974, p.IX). Describing the challenge that faces the chronicler attempting to deal with the passage of time he writes:

There is a painting by Klee called *Angelus Novus*. An angel is depicted there who looks as though he were about to distance himself from something which he is staring at. His eyes are opened wide, his mouth stands open and his wings are outstretched. The Angel of History must look just so. His face is turned towards the past. Where *we* see the appearance of a chain of events, *he* sees one single catastrophe, which unceasingly piles rubble on top of rubble and hurls it before his feet. He would like to pause for a moment so fair [*verweilen*: a reference to Goethe's *Faust*], to awaken the dead and to piece together what has been smashed. But a storm is blowing from Paradise, it has caught itself up in his wings and is so strong that the Angel can no longer close them. The storm drives him irresistibly into the future, to which his back

is turned, while the rubble-heap before him grows sky-high. That which we call progress, is *this* storm. (Benjamin, 1974, p.IX)

The picture from history that Benjamin conceived of seizing could be equated to a photograph or tableau, as this was the form in which he believed we make sense of the past. In his work, Benjamin would often return to his collections of writings and information (his own rubble heap of ideas) on topics such as nineteenth century French architecture, theatre and painting to develop and rework his theories on the way societies make use of art and objects to fashion and buttress concepts of history and reality. Equally, common themes in the work of Gerhard Richter's reverberate repeatedly, though each tangent on face value may seem quite unrelated. The common thread linking the literary work of Benjamin and the images of Richter has been the central role of the photographic image in making sense of modernity.

Gerhard Richter has explored the boundary between painting and photography and between the nature of the trace and inscription since the 1960s. *Atlas*, a collection of photographic images he has amassed over forty years and comprising thousands of photographs, is at once a source of images for his paintings and a work in its own right. In his works, photographs often serve as a source document for his oil paintings. His paintings have often copied his photographs and those taken by others and as such can be seen to be "hand-made" copies of "mechanical traces". Here, Richter works to break down the distinction drawn between the image made by hand and the photograph, thereby collapsing the division between the two.

Richter's work conveys a recurring interest in the capacity of the artist to assert a voice in the face of the aura-stripping effect of mechanical reproduction. Through the blur applied to his paintings of domestic snapshots and smears applied directly to photographs Richter appears to be expressing a desire to "inscribe" the work. For Benjamin, photographers did not have to merely produce a trace record of what they observed. As he writes, harking back to concepts of magic and divination: "Isn't it the task of the photographer - descendant of the augers and haruspices - to reveal guilt and point out the guilty in his pictures?" (Benjamin, 2008, p.294). Richter's artwork seems to nuance this point. To copies he makes of

photographs, Richter adds the “blur” to image. This act represents an overt inscription onto the image and provides evidence of the presence of the artist by leaving an explicit trace (see *Frau mit Hund* (Woman With Dog) 1967). As noted by Hartley (2010, para.18):

More importantly, he has, from early on, blurred his images, often using horizontal brush strokes in the still wet paint, to make outlines less distinct and to emphasise the materiality of the paint surface. Above all, what this smearing and similar techniques have done is to make us question what exactly we are looking at and the complex relationship between paint, photographically based image and reality itself. Richter has at times wished to stress one of these three elements (realities themselves of course) at the expense of the others.

As noted by Batschmann (2002, p.34) the blurring serves as a form of “noise” or interference that prevents the thing shown being perceived clearly. It prevents the image being “seen through” and draws attention back to the medium. In a similar vein Richter has also for many years over-painted photographs, smearing family photographs or holiday snapshots with thick oil paint (see *14.2.98* (1998) below).

Image removed for reasons of copyright

Figure 2: Richter, G. (1998). *14.2.98*. [Oil on photograph] Retrieved from: www.gerhard-richter.com/art/overpainted-photographs/detail.php?14257.

The over-painting transforms the photograph from something of little value and capable of mass reproduction into a valuable commodity by applying the trace of the artist. It demonstrates Benjamin's contention that the unique object has value that the mechanically reproduced thing does not. In talking about this series, Richter explains the conflict between reality and image that this process engenders (and his difficulty in expressing this in words rather than as an image):

Now there's painting on one side and photography – that is the picture as such- on the other. Photography has almost no reality; it is almost a hundred per cent picture. And painting always has reality: you can touch the paint; it has presence; but it always yields a picture whether good or bad. That's all theory. It's no good. I once took some small photographs and smeared them with paint. That partly resolved the problem, and it's really good – better than anything I could say on the subject. (as cited in Elger, 1999, p.15)

Nonetheless through his actions Richter is emphasising and highlighting the presence of the artist in the production of the work. In so doing Richter is overturns the capacity for the mass reproduction by reasserting the touch of the artist in production of the work, and thereby allowing the re-emergence of aura.

Just as Benjamin was drawn to the photograph as a means of making sense of history, Richter too has been attracted to the photographic image as material for his work, as a model and as raw material for his series of over-painted photographs. This has taken the form of reproductions of family photographs, paintings based on newspaper images and snapshots smeared with paint using a squeegee. "Perhaps because I'm sorry for the photograph" he says, "because it has such a miserable existence even though it is such a perfect picture, I would like to make it valid, make it visible" (as cited in Storr, 2003, p.53). Richter denies the difference between photographs and his paintings, arguing that his paintings are photos produced by another means:

I'm not trying to imitate a photograph; I'm trying to make one. And if I disregard the assumption that a photograph is a piece of paper exposed to light, then I am practicing photography by another means: I'm not producing paintings that remind you of a photograph but producing photographs. (as cited in Elger, 1999, p.9)

In such works Richter is trying to understand the nature of photography and articulate a response to the challenge that it presents to painting. Such an approach can be seen to correspond to Benjamin's views on the impact that photography has had on the visual arts.

Image removed for reasons of copyright

Figure 3: Richter, G. (1967). *Frau mit Hund (Woman With Dog)* [Painting] Retrieved from www.gerhard-richter.com/art/paintings/photo_paintings/detail.php?14099.

Shomei Tomatsu and the photographing of traces

A more conventional realist approach to photography can be seen in the work of documentary photographers. For example, Shomei Tomatsu's 1966 photobook *11.02 Nagasaki* used photographs of people and objects to capture and convey experiences. This work documents the impact of the atomic bomb on the city of Nagasaki with images of artefacts and people marked by the blast. These photographs show objects such as a watch stopped at the time of the attack (11:02 am), a melted bottle and scarred bodies, thereby providing testament to the violence and horror of the blast (Parr & Badger 2004, pp.274 – 277). Writing on his images of the effects of atomic warfare he says:

In Nagasaki, time stopped at 11:02 in the morning of August 9, sixteen years ago, yet time has continued since then. The deaths of the hibakusha, the bomb victims, have bridged the two phases. Many people have died, quietly, in every one of these sixteen years. What I saw in Nagasaki were not only the scars of war, but a never ending post-war. I, who had thought of ruins only as the transmutation of the cityscape, learned that ruins lie within people as well. (as cited in Rubenfein et.al., 2004)

Tomatsu's book is an illustration of how traces of events can be used to make sense of the world. The violence of the bombing was concentrated in a moment, but marks left behind convey information about its intensity that helps the viewer to understand and better appreciate what has occurred. Such traces have particular power to operate as evidence and support a belief or memory by communicating information in what (or appears to be) an unmediated form. They seem to speak directly to the viewer about the object, person or event they have been in contact with. By viewing the melted bottle (which has the appearance of a blackened carcass) we gain a sense of the heat and force of the atomic blast. The bottle, a trace, reinforces the account of what occurred years after the event through its capacity to transport part of the past into the present. As Hauser notes in her account of photography and British archaeology, by photographing traces the photographer is fixing signs of the past in an image, which is itself also a trace (Hauser 2007, p.59). Tomatsu's work uses traces as illustrations of the power and nature of an extreme and violent occurrence that distorted and marked human beings and domestic objects.

Nagasaki was destroyed in an instant...looking at the city today, it is hard to imagine the atomic wasteland. But I see those ruins – the original landscape of postwar Nagasaki – in the depths of the revived city...You won't notice if you stroke the surface of the rebuilt town, but when you look intently you begin to see the misery the bomb made, interwoven with Nagasaki's prosperity. (cited in Rubenfein et.al., 2004)

Image removed for reasons of copyright

Figure 4: Tomatsu, S. (1961) Bottle Melted and Deformed by Atomic Bomb Heat, Radiation and Fire, Nagasaki. (Source: Runinfein et al., 2004).

Tomatsu worked many years after the bombing had taken place. Indeed it would have been impossible to record the events soon after the war due to censorship and restrictions placed on photographers by the occupying American forces. As John Dower notes, Tomatsu has, perhaps better than anyone, demonstrated that “inanimate objects must be summoned as testimony to nuclear destruction – to what he himself called the end of the world” (Rubenstein et al., 2004, p.69). The

testimony of inanimate things is a theme taken up by contemporary artist Cornelia Parker's work (which I discuss in detail later). Her work also uses photographs of commonplace objects that have been touched by extraordinary events, and is an approach that would be understandable as a formalist approach to photography – the form of the photographic image and its mode of production gives certainty of its connection to reality. Tomatsu's work does not, however, simply record a scene as his work is imbued with a personal perspective, and strongly conveys his horror of war. Yet despite the importance of his world view and the message implicit in his work the credibility of the image is, as Marien (2006, p.333) notes, reliant on the factuality of the object recorded by the lens. The assignment of credibility through the photographic process was challenged by post-modernist theorists to whom photography had no such capacity or power – photography is seen as a channel for power, but without power in itself. Such a conception of photography can be seen expressed by many artists practising the 1970s and onwards, such as Duane Michals, whom I will next discuss.

Postmodernist perspectives on photographs as traces

Photo-documentary practice such as Tomatsu's can be seen to align with the realist perspective of Andre Bazin. There is an implicit message that the photograph is conveying truthful information about the world, a truth that is implicit in the mode of its production. Such views on photography's relationship to reality were subject to criticism by post-modernist theorists such as John Tagg and Allan Sekula, and this criticism was taken up by many photographic artists in the 1980s and 1990s. Such a perspective is aligned with the work of American artist Duane Michals. Michals expresses a view that photographic meaning is a primarily a social construction, a post-modernist perspective such as that articulated by Tagg. Like Barthes' photograph of his deceased mother, Michals produces photographs that seem to render incorporeal things such as emotions or relationships into solid form. In his photo stories he illustrates how photographs can work as a means of confirming the "reality" of a relationship. He writes on the photograph, an image taken of his cousin and his cousin's wife seven years earlier, inscribing his interpretation of the scene on the surface of the image :

This photograph is my proof. There was that afternoon, when things were still good between us. And she embraced me, and we were so happy. It had happened. She did love me. Look see for yourself! (as cited in Kozloff, 1990, p.115)

Image removed for reasons of copyright

Figure 5: Michals, D. (1967) This photograph is my proof. [Photograph]. Retrieved from www.cmoa.org/searchcollections/details.aspx?item=10178.

Through such works, Michals demonstrates the role of the photograph as a preserver and touchstone for memory, or as a proxy for the absent thing it depicts. Yet, unlike Barthes, or Tomatsu, for whom the truth of what they show is paramount, for Michals the photographic image is a product of the mind and staged tableaux peopled by actors are a staple of his work. Michals is not convinced that photographs can convey the essence of a person. Instead his images prompt consideration of the use of photographs as proof and evidence, and of the capacity of any image to convey such qualities. Despite the exhortation “see for yourself”, all that can be perceived is a surface impression preserved by the camera. Michal’s works are photo-narratives that are staged as illustrations of “modern fables” (Scott, 1999, p.293) undermining any claims to be a presentation of an objective reality. The majority of Michals’ photographs bear handwritten captions (examples of what Benjamin referred to as inscriptions) guiding the viewer as to the intended meaning of the work.

Michals' construction and staging of photographs is an implicit criticism of the idea that photographs should be taken on "face value". Michals is convinced that photographs that focus on surface appearances do not convey "truth", and that what is significant cannot be seen, and notes in a work that consists of words written on a sheet of photographic paper headed "A Failed Attempt to Photograph Reality":

How foolish of me to believe that it would be that easy. I had confused the appearance of trees and automobiles, and people with a reality itself, and believed that a photograph of these appearances to be a photograph of it. It is a melancholy truth that I will never be able to photograph it and can only fail. I am a reflection photographing other reflections within a reflection. To photograph reality is to photograph nothing. (as cited in Livingston, 1984, p.12)

Michal's images are a reaction against the notion that photographs can convey reality, while recognising the reliance placed on them as a means for understanding and coping with a life in which much that is of importance is intangible. It is a theme that he repeatedly returns to. In *There are Things Not Seen in This Photograph* (1977), he lists the things a photograph he has taken of a bar room scene, cannot transmit – the taste of beer, the smell of sweat, the details that together with the visual sense go to make a total experience. His work strongly rejects the notion that a photograph is what it shows – that the photograph represents reality. Michals' work can be seen as an example (like that of Heartfield) of the message of the artist (that is the inscribed message and the message encoded through iconography) dominating the image. In this mode of practice the essential unreality of photography is exposed and embraced. This approach to photography has been applied by a diverse group of artists such as Barbara Kruger, Jeff Wall, Cindy Sherman and Joel Peter Witken. It represents an approach that was, as Grunberg (1999) notes, a dominant perspective during the 1980s.

However, more recently this approach has been accompanied another that has emphasised photography's connections to nature instead of its unreality. Writes Grundberg:

If we accept the notion that the major preoccupation of artists using photography in the 1980s was to demonstrate that photographic images are mere representations, as artificial and as subject to the codes of culture as paintings and drawings...then the task taken up by [current] photographic artists is to re-establish our faith in the medium's essential connectedness to its subject. (Grundberg, 1999, p.259)

Grundberg provides several examples, including Adam Fuss and Susan Derges (whom I discuss later) whose works echo Barthes' belief in the importance of the medium's connection to the subject. This concern with connectedness reflects a wish to form a bridge between the natural world and the image and thereby ground the image which has broken free from its subject. I suggest that the desire to re-establish this connection is symptomatic of the concerns raised by modernity, where the natural and man-made world are increasingly disjointed and alienated.

Photographs and contiguity

In contrast to Michals' staged photographs, British artist Cornelia Parker explores the idea of photographic truth through the photographing of relics and other traces. Her work *Avoided Objects* provides an example of the use of photographs to explore ideas of trace, memory and reality. The *Avoided Objects* series of works is concerned with traces other than those recorded in photographs. It records marks left on objects such as records and blackboards as relics. Through photographing traces Parker has, since the mid-1990s, produced a striking sequence of images (*Avoided Objects*) that questions the capacity of the trace to convey the aura of famous events and persons. Using microphotography and photograms as media to examine the nature of historic traces her works examine relics of important and infamous persons or events, such as Adolf Hitler's phonograph records and Albert Einstein's blackboard. By using extreme magnification, in some cases the objects are transformed into abstractions. Though the objects shown are of themselves mundane, the images produced are beautiful and mysterious. Their highly magnified nature prevents the observer immediately understanding what is shown, and even once the object is identified, its full meaning is only given by the context of its history of past contact with a significant event or person. These are photographs of traces, but in themselves they are also meaningless. For without the context provided by the caption the

images are either unintelligible or, if sense can be made of them, the normal meaning (a non-descript feather or blackboard) would be quite different.

Such works evoke Benjamin's contention that the aura of a thing is bound to its uniqueness and history (Benjamin, 2008, p.24). Parker's works prompt consideration of the nature of objects as relics and their capacity to convey information about the people who have come into contact with them (Cotton, 2004, p.205). They invite investigation to elucidate information about the famous individual with whom they have been in contact. Parker's works are, in a sense, photographs of relics. They question the nature of the trace, as well as the cult of fame or notoriety and the idea of aura. Through mundane objects the viewer is drawn to contemplate what information and what sense of a person or event can be derived from an object which has had contact with the famous subject.

The images draw on the idea of contiguity, the connection transmitted through the trace, by which, as Barthes expressed in *Camera Lucida*, the light that once touched the subject now touches the viewer. Barthes describes this notion as a description of a kind of contiguous umbilical cord, connecting past to the present through the trace. In viewing the photograph, formed by contact, there can be a sense that space and distance and time have been bridged (Barthes, 2001b, p.23).

Image removed for reasons of copyright

Figure 6: Parker, C. (1997) Feather that went to the top of Mount Everest. [Photograph]. Retrieved from <http://www.artnet.com/artwork/425024989/115003/cornelia-parker-feather-that-went-to-the-top-of-everest.html>.

This is a theme developed by Anne Ferran who in 1998 produced photograms of women's clothing from Sydney's Rouse Hill estate¹⁸. In speaking of her work, Ferran calls to mind Benjamin's concept of aura as a sense of distance, spatial or temporal.

When I try to reflect on these images two things I keep coming up with are these: on the one hand the obdurate barrier, like a high wall or a range of distant mountains, of short memory / thin skin; and on the other the longing to close the gap; recover the past, cross touch with sight or lose them in one another, to press up close to things, cloth against paper, skin against skin. (as cited in Batchen, 2001b, p.22)

Such works reassert the importance of the trace in photographs as it adds the nature of its production to the channels of information and assignment of meaning to the image. But equally importantly these images, and those of Cornelia Parker above, highlight their critical dependence on context – knowledge of the time, event or person to which the image provides a connection. See for example the titles of Parker's works. Images of Einstein's blackboard or Adolf Hitler's phonograph records gain meaning from the events associated with them. Without this knowledge-giving context, the trace can have no meaning or significance.

Adam Fuss and Edgar Lissel also produce works that explore the role of touch in the production of the image. Fuss and Lissel both focus on the material and process of photography, producing images that encourage examination of its means of production as much (perhaps more so) than what it seeks to depict. This draws the viewer back from the process of "looking through" the image to see the photograph anew. New York based artist Fuss has, from the 1980s to the present, used many photographic media including pinhole images, photograms and daguerreotypes to produce his works, reinterpreting its earliest forms to explore his interests in life, death and birth. This experimentation is driven in part by a desire to expand the ways that photography can be used to communicate. He states:

—

¹⁸ Note that in my photobook, photograms of my daughter's clothing use a similar technique applied to a elements drawn from my life and personal history.

We're so conditioned to the syntax of the camera that we don't realise that we are running on only half the visual alphabet....It's what we see everyday in the magazines, on billboards, and even on television. All those images are being produced basically the same way, through a lens and a camera. I'm saying that there are many, many other ways to produce photographic imagery, and I would imagine that a lot of them have yet to be explored. (as cited in London et al., 2005, p.299)

Experimentation with different forms provides Fuss with a means of exploring the nature of the image-making process. Speaking of his works he describes the photogram as having had contact with what is represented. In an interview in 1993 he said:

An echo is a good way to describe the photogram, which is a visual echo of the real object. That's why I like to work with the photogram, because the contact with what is represented is actual. It's as if the border between the world and the print is osmotic. (as cited in Frailey, 1993, p.78)

This osmotic process he refers to is reflected in his preoccupation with incorporating the natural world in his work, such as using flowers, smoke and spores in photograms (Barron & Douglas, 2006, p.50). Yet beyond exploring the external world, photography provides a means for interrogating his own consciousness:

Light is a metaphor: where you have a dark place and where that place becomes illuminated; where darkness becomes visible and one can see. The darkness is me, my being. Why am I here? What am I here for? What is this experience that I am having? This is darkness. This is a question I ask and when I ask it, it's like looking into a black space. Light provides an understanding. Not physical light, but understanding the question is like light. I have this dark space in me and when I ask a question, that is desire for light and perhaps the light will come. (as cited in Barnes, 2010, p.154)

The topics that he explores are focussed on the stages of life, using motifs such as babies, water, snakes and birds (Barnes, 2010, p.185). Photographic techniques, in his view, should be personalised and transfigured into a greater metaphor, and engage in processes that take place in the natural world (Baron and Douglas, 2006 p50). Described as working in the mode of a nineteenth-century scientist Fuss has produced works that demonstrate the ability of an experimental methodology to pull apart the photographic process and produce images that are at once affecting and pose questions about the nature of the photographic form.

Image removed for reasons of copyright

Figure 7: Fuss, A. (1992) Untitled. [Photogram] (Source: Campany (Ed.), 2003). The image above was produced by placing photographic paper below water in darkness, and firing a flashgun as the snake swam across the surface of the water.

German artist Edgar Lissel works in photography in an experimental mode. He has a particular interest in the “direct influence of light on the photocarrier” (Douglas & Barron, 2006, p.46), an interest he has pursued through the making of a wide range of pinhole photograph images using pinhole cameras manufactured from museum cases, shipping containers and rooms. Such works collapse the boundaries between the idea of inside and outside space (Douglas et al., 2007, p.46). One series of images was made by transforming a lorry into a pinhole camera. Driven around Berlin, this giant pinhole camera was used to photographing examples of Fascist era architecture. For Lissel, the important aspect of this process was the contact between the image and the object:

The original left its mark on the photographic material directly on site and without temporal delay. Exposure times of several hours did not allow for the depiction of strolling pedestrians and daily traffic. Life left no trace, and the monuments of collective desires turned into sculptures devoid of human life. (Lissel, 2008, p.439)

In these images it is the making of the mark that is the focus, and of equal importance as what the image itself shows, for the meaning of the things shown (fascist era architecture) is affected by the process used to produce the photograph. Lissel has also used alternative photographic recording surfaces, including using light sensitive algae and bacteria grown under a projected image

to produce a photogram (see *Bacterium Vanitas* below). This image used the bacteria's phototropic qualities to create images. The object depicted was suspended between a light source and dishes containing the dark coloured bacteria. These works are produced by the bacteria moving from the shadows in the projected image into light, at which point Lissel photographs the image they have formed. As Douglas and Barron (2008, p.46) note "[the bacteria] literally grow into the image".

Image removed for reasons of copyright

Figure 8: Lissel, E. (2000/2001). *Bacterium Vanitas (Fish)*. [Image formed by phototropic bacteria]. (Source: Douglas & Barron, 2006).

Another series used luminescent pigments to record a temporary impression of a *camera obscura* image. In *Mnemosyne I: Lightmemory* (2003) Lissel constructed a room sized *camera obscura* and painted the wall facing the pinhole with luminescent paint. This allowed the wall to be temporarily imprinted with the image projected through the pinhole onto it. Lissel described the process as akin to a memory – like a memory the image would fade with time until it was recharged by sunlight (Lissel, 2008, p.445).

Fellow German artist Michael Wesley, like Lissel, produces works using in which the form of production occupies a central place. For Wesley, as for Lissel, pinhole cameras play a central role in his oeuvre. Working since the late 1980s, Wesley produces images that are strongly influenced by the technology he uses to make them, and are equally concerned with the passage of time. His works use exposure times of months or even a year, not seconds or fractions of seconds as is usual in photography, and their titles are drawn from the length of exposure, reflecting the centrality of the passage of time to the meaning of the images. They reflect his rejection of the notion expressed by the French photographer Henri

Cartier-Bresson as the “decisive moment” where the role of the photographer was to capture the essential moment that was unfolding within a scene (Meister, 2004, p.10). While for Wesley a more complete image of a subject could come from an extended period of time rather than a moment, the subject of his photographs was, in some cases, the passage of time. As he notes in respect to one year-long exposure “Time itself is the subject, manifesting itself in many details. The details are the essential things that tell the story and for that reason it is important to look closely” (as cited in Meister, 2004, p13).

In Wesley’s long exposures, human presence is reduced to ghostly transparencies, barely visible traces recorded amongst solid architectural features. These works illustrate the transience of the human presence in the modern world and his photographs appear cold and denuded of life, aside from ghostly transparent forms. Writing of long exposure photographs taken in Brazilia in 2003 he explains that the photographs create representations of the urban world imbued with strangeness:

You can use long exposures to think visually about utopia. You lose the shadows and therefore the sense of orientation, and human life disappears too. The twelve hour exposure creates a picture that definitely looks unreal, reminiscent of the architects’ drawing tables, where the models are static and without any defined light. (as cited in Meister, 2004, p.27)

Wesley’s artworks are a photograph that encourages the viewer to search, make discoveries and interpret what is recorded in the image. Many of the details to be found are beyond the artist’s control, and are not the product of his deliberate choice.

In contrast to the way that Wesley’s work uses long exposure photographs to respond to the urban environment, British artist Susan Derges’ works explore the interrelationship between fire, earth, air and water, and look for metaphors in the natural world and the internal psyche. Like Wesley and Lissel, Derges uses photography in a mode akin to scientific investigation to produce her art. In one series of images she vibrated photographic paper with sound to produce patterns (Barnes, 2006, p.38). In another, her *Moon and Starfields* series from 2003 she combined photographs of the lunar cycle with photograms of material sourced

from Dartmoor in what she describes as an attempt to make visible the relationship between the moon, living matter, water and the observer (as cited in Barnes, 2006, p.38). Martin Barnes describes such works as “striking a chord within the unconscious, evoking dreams or childhood fantasies of fairy kingdoms; and moving between the real landscape and its internal metaphorical counterpart” (2006, p.38). Derges explicitly attempts to bridge the physical world and the inner world of the psyche. Quoted in Barnes (2010, p.88), she states:

Working directly, without the camera, with just paper, subject matter and light, offers an opportunity to bridge the divide between self and other – or what is being explored. There is a contact with the materiality of things that allows a different kind of conversation to happen. One is changed and in turn changes – a kind of dialogue between inside and outside worlds.

One technique she used to produce images in 1998 involved working at night and placing sheets of photographic paper in a metal box underwater in the Taw River. Taking the lid off she then exposed the paper with a flashgun, recording the patterns of water and shadows of vegetation. Cotton notes that such practices are a reminder of the experimentation undertaken by photography’s earliest practitioners (Cotton, 2004, p.207). Such works do engage in a form of experimentation and show a desire for the direct engagement of the natural world in the production of images that are made through a process of sampling aspects of the natural environment. Explicitly, her work is an attempt to fuse the imagination with the natural environment. She has stated “I wanted to visualise a threshold where one would be on the edge of two interconnected worlds; one an internal, imaginative or contemplative space and the other, an external, dynamic, magical world of nature” (as cited in Barnes, 2010, p.87).

The way that Fuss, Lissel, Wesley and Derges produce their artworks involves a high degree of experimentation and learning through engagement with materials and the natural world. Their art engages closely with nature. Parallels can be seen with the experimentation of these artists and other artist inventors, such as Daguerre, whose development of photography arose from his endeavours to improve on his production of painted canvases. Prior to his recognition for development of the daguerreotype, he had built a successful career in Paris in the

1830s painting and exhibiting panoramic entertainments. These dioramas presented detailed and immersive scenes (for example a Swiss village) and were the precursors of the cinematic experience (Daniels, 2008, p.31).

Lyle Rexer notes that the return to first principles implicit in cameraless photography involves a turning away from complexity and sophistication towards potential disorder. This provides the potential for new directions to be followed and for new orders to emerge. In Rexer's view, "beginning from scratch" as photogram artists do invites a break from old habits of seeing to see again (Rexer, 2002, p.131).

In Giblett's *Sublime Communication Technologies* he discusses how a gap, historically and culturally contingent, has opened between signs and the things they represent. Signs are disconnected and float free (2010, p.9). Giblett suggests that such separation made possible and gave rise not only to photography but also technologies such as cinematography and television, as it facilitated the commodification of signs. In capitalist modernity, signs are commodities. Referring to Foucault, Giblett argues that until the seventeenth-century signs and the things they represent were connected, parts of things themselves, where in the seventeenth century they became modes of representation (Giblett, 2010, p.9). This has evolved to a state of hypermodernity in which human experience is "mediated by even more technologically advanced systems producing an even wider gap between a technological scale of events and individual human experience" (2010, p.72). The works of Derges, Wesley, Fuss and Lissel (which I see my art practice being aligned with) can be seen as attempting to bridge that gap, by attempting to anchor the photographic sign to the thing it represents. The focus of these artists on images of the environment and living things seems to represent an attempt to reconnect the corporeal world with the sign, somehow repudiating what Barthes refers to as photography's "flat death" (1980, p.9). Such a direct unmediated connection may not be achievable (I conclude that some mediation in photography is unavoidable) but the exercise illustrates the desire implicit in photographic practices that seek to preserve the living and maintain personal bonds despite the challenges of time, distance and change.

In respect to the application of digital photographic techniques to the paradigm of traces, the works of Joan Foncuberta, Jason Salavon and Jon Rafman provide

examples of the way that the specific qualities of the digital image can be utilised – through the capacity of the digital image for manipulation; and for the internet to be used as an immense image archive.

Joan Fontcuberta's art practice has been focussed on the notion of the archive, that is the collection, ordering, classifying and narrating of traces, specifically traces in the form of images (Fontcuberta, 2006). His work has often questioned the truth of documents by faking the discovery of an archive. For example, for the exhibition *Sputnik* (1997) he faked the discovery of records of the death of a cosmonaut, and *Karelia: Miracles & Co.* (2002) which purported to show documentary photographs of miracles. He has also sought to utilise the internet as a digital archive of image traces and raw material for his art. In his 2006 work *Googlegrams* he used a computer program to order images sourced from the Google search engine to produce a photomosaic. This was used to search for images related to the Abu Ghraib prisoner abuse scandal to produce an image of one of the protagonists, Lynndie R. England. The effect is one of a mass of individual images that the mind coalesces into a single picture at a given distance. Fontcuberta relates the effect of these images to that of viewing a palimpsest: "What we have again here is a palimpsest effect of overlapping texts whose hierarchy is solely dependent on the observer's distance" (Fontcuberta, 2006). Such works illustrate the applicability of the notion of trace and archive in the digital age.

Jason Salavon is an artist who also uses the internet as an image source for his works. For some of these works (such as *100 Special Moments* (2004)) Salavon has sourced digital images from the internet which he has then composited to create a single composite photograph. While identifiable as (for example) a generic wedding photograph the layering effect blurs the feature of the subjects, rendering them anonymous. These images hark back to Galton's work identifying "criminal types". In Salavon's works the implication is that the effect of the proliferation of image making is the obliteration of the individual, who is subsumed to an image type rather than a person.

Since 2008 Jon Rafman has been searching and selecting images taken by Google Street View cameras for his project *9-eyes*. These works demonstrate the tension that exists between the agency of the photographer and the notion of the

photograph as an unmediated slice of the world. Rafman argues that his work is exploration of the paradoxes of modernity specifically “the tension between an uncaring camera and man’s need to interpret his experience” (Rafman 2013). Beyond this I suggest the work is a celebration of the photograph as a found object. It is the reduction of agency in their production which gives these images their special quality, a poignancy that harks back to Barthes’ description in *Camera Lucida* (1980) of his search for a photograph that captures the essence of his mother. In Rafman’s case, the search is a less personal one but the process of discovery, the searching of images for the one containing the essence of punctum, is the same.

Throughout this chapter I have discussed the work of artists whose work explores the paradigm of the photograph as a trace drawn from reality. For artists such as Richter this has taken the form of applying his “inscription”, an intentional marking applied to traces in the form of family photographs. Works by Tomatsu and Parker have been based on making photographs of traces. Parker in particular prompts questions as to what may be learned from traces and the critical role of context. The works of Fuss, Lissel and Derges all prompt consideration of the role that touch or physical contact plays in the production of photographs, and how central this is to the nature of photography and meanings that are ascribed to them. Fontcuberta, Salavon and Rafman illustrate how digital technology facilitates new process and form of image making to which the paradigm of traces remains relevant.

This overview of works related to the paradigm of photographs as traces demonstrates the way in which art practice can be used to interrogate theories and histories of photography. This brings me to my photographic works. I too experiment with photography to produce works which pose questions about the nature of the medium and the applicability of the paradigm of trace.

4. MY PHOTOGRAPHIC WORK

In my photographs I am drawn to experiment with materials and techniques as a way of engaging with writings on photography, in this case with the recurring idea that a photograph is a trace, a mark made through contact with the subject. I consider that a key means of gaining a fuller understanding of the medium is through the production of images using the many techniques associated with photography, rather than using a single process. Through experimenting with a range of basic photographic techniques that either aligned closely, or diverge significantly, from the paradigm, I have attempted to probe the nature of photography and question assumptions and theories about the use of the trace as in explanations of the nature of photographs. Whether these images are still what would be regarded as photographs or perhaps something else altogether adds to our understanding of the nature of the photograph through a better appreciation of what a photograph is and what it is not. Richard Bolton has argued that, due to the many forms and practices associated with the medium since its inception, “photography has no governing characteristics at all save adaptability” (Bolton 1989, xi). Yet it seems to me that there are some clear essential characteristics that define the photographic image – the presence of the person or thing depicted in the image, the recording surface, and the trace left on the recording surface by the presence of the person or thing. These are all essential components of what is commonly understood to be a photographic process.

During my research I have sought to use a variety of photographic methods such as pinhole cameras, digital image making, video and photograms in order to expand my understanding of the medium and implement my ideas. My work challenges common ideas about the nature of photography by extending the metaphors of imprints, footprints and emanations to a degree that their relationship to a traditional photograph comes into question.

The works I have reproduced in the photobook that accompanies this exegesis take three forms – photograms, pinhole photographs, and digital photographs that preserve temporary phosphorescent photographs. Each method of producing

images provides a means of examining the core question of “how is trace relevant to our understanding of photography?” in a way which illustrates or responds to the ideas of theorists such as Barthes, Sontag and Benjamin. Often these theorists have sought to explain photography by what it is like, or resembles. Sontag famously uses the analogy the footprint or a death mask (1977, p.154), while Barthes describes images that produce emanations (1980, p.80). By using photographic methods inspired by these notions I am able to examine the ideas of theorists and generate concepts for artworks. While the methods are wide ranging they share the common elements of a recording surface, a subject, and the action of light. To some degree I use a trial and error methodology that helps my thinking processes, for it pushes me to question theoretical assumptions about photography. For example, to what degree is there any contact between the subject and the image produced? How do different production methods give the image-maker greater or lesser degrees of control over the end result? In creating images in response to my readings on the trace, I am struck by four things. Firstly, it is the nature of the touch, the contact between what is depicted and the image that is implicit in writings about photographs as traces. Secondly, it is how this touch has been equated by some to give photographs a metaphysical dimension, a capacity to transmit the aura of their subject. Thirdly, it is the idea that the trace is dependent on contingency, and that although the camera is a mechanism for control, the image gains veracity through the removal of agency. Finally, it is the belief (sound or otherwise) that the trace connects the photograph to “reality” and gives it claims to veracity beyond other images.

Shadowprints

I initially approached the idea of photographs as traces by considering the idea that photographs are analogous to a footprint or other record of physical contact with a recording medium. As a medium to explore ideas of trace in photographs the photogram seems particularly apt. Produced by laying objects on light sensitive paper, both of which are then exposed to light, photograms resemble a fixed inverted shadow. The areas that light could not reach are white, while the areas of paper that are touched by light turn black. It seems to be an illustration of the legend of “Dibutades Shadow” told in Batchen’s *Burning with Desire*

(Batchen 1997), which recounts the legend of the invention of photography by the Greek maiden Dibutades, who traced the shadow of her sleeping lover. Photograms are, like a shadow or a footprint, an inverted indexical sign, a negative version of the thing or person that has left a trace.

Of all modes of producing photographs the photogram is the one most like the footprint in that it is the recording of an act of physical contact. In fact these photogram images are also known by the name of “contact prints”. Photograms are produced by quite a different method to traditional analogue photography. They may share the same chemical means of production (that is they use photographic chemicals and film or paper to register an image) but photograms are made without lenses. The photogram preserves a moment of physical contact, as opposed to the image formed by reflected light that is a photograph. Placed directly on the recording surface (usually photosensitive paper) the subject of the photogram blocks the action of light and so leaves a shadowy impression on the paper. It is in some respects more akin to the concept of a trace as footprint than is to be found in camera based photographs. The photogram records the physical contact of a thing – without the necessity of reflecting light through the intervening form of a lens. Unlike the photograph, the photogram is a life-sized impression of the thing it shows, not a miniaturised replica. In this way the photogram avoids one form of anamorphosis found in most other types of photograph.

Viewing photograms, one is struck by the way in which they differ from standard photographs. They do not follow the rules of perspective as subjects are rendered as flattened impressions. They are much less mimetic than standard photographs, and are therefore a reminder that the mimetic characteristics of photographs are not an essential characteristic of a trace. This lack of resemblance between the subject and the photogram means that, in the context of Peircian theory, photograms as compared to other forms of photograph, lean more to the category of index than icon. As Peirce notes, indexical signs are those “formed by physical connection” (Peirce, 2001, p.106), where by contrast iconic signs resemble the objects that they represent.

While to the modern eye photograms are somewhat strange and unworldly it is worth noting that some of their earliest uses were for empirical purposes. The cyanotype photogram originated in 1842 with Sir John Herschel, the nineteenth-century polymath who invented the cyanotype process. This method of producing images generates a stable blue and white image and was commonly used for the production of “blueprints” in architectural and engineering firms. In 1843 a contemporary of Herschel, botanist Anna Atkins, a member of the Botanical Society of London, used the method to produce a book of photograms of British algae, *Photographs of British Algae: Cyanotype impressions* (1843). The product of 10 years work, this was perhaps the world’s first photographic book and comprised more than 400 life sized cyanotype images of dried algae (Lenman, 2005, p.51). While the blue and white prints have aesthetic appeal in their own right, their precision and life size characteristics enabled them to also be considered suitable as scientific evidence (Marien, 2006, p.35). William Fox Talbot also experimented with photograms in 1839 and 1840, producing images by placing lace, drawings and plants on photographic paper (Harbison, 1991, p.4). Talbot referred to his direct contact print images as “photogenic drawings” (Talbot, 1844, p.44). The term “photogram” was coined by Laszlo Moholy-Nagy, drawing on the word “telegram” and perceiving a similar capacity for rapid and direct communication (Barron & Douglas, 2006, p.12). His work with photograms was part of his endeavours to develop new forms of perception suited to the modern age (Ades, 1986, p.150). In the photogram he found a form of experimentation and image making derived from the control of light. In describing his work with the medium he wrote:

I think that photogram is a better name than “shadowgraph” because - at least in my experiments – I tried to use not alone shadows of solid transparent or translucent objects but really light effects themselves e.g. lenses, liquids, crystals and so on. (as cited in Ades, 1986, p.150)

The photogram method was popular with the surrealists, including Man Ray, who valued the strangeness and dreamlike quality of the results (Baron and Douglas 2006, p.11). In photograms there is a disjuncture between the image and the referent, as the process makes images that reflect in a distorted form the original object. Man Ray considered that his “rayographs” were the product of his

unconscious mind, produced in a similar fashion to the automatic writing of surrealist poets (Baron and Douglas 2006, p.11), and considered the images to be imbued with psychological meaning and associated with immediacy, absence and chance. This is in part due to their qualities of distortion and inversion, but also due to the process by which the photogram preserves an image.

The photogram records the action of blocking light from reaching the photographic paper. What is attested to is the absence of the thing it depicts, not the thing itself. Photograms record an obstruction, leaving unmarked those parts of the paper that the light cannot reach because the contact between the paper and the object. This is the action that leaves the impression and creates the image. In making the image the object is in contact with the paper and a trace is left. The photogram records an event, showing that an object, for a time, was in contact with the paper and protected it from the blackening effect of the light. The process evokes Benjamin's observation that the techniques used in the early years of photography gave these images aura, for in these images "the procedure itself caused the subjects to live their way into, rather than out of, the moment; during the long duration of the exposure, they grew into the picture" (Benjamin, 2008, p.280). The objects recorded by a photogram have lived their way into the image. What is recorded is their act of resistance against the penetration of light.

The images I have produced are a combination of images and are a form of photomontage, although these are more "automatic" than most photomontages. Nonetheless they do share with the photomontage a similar "disrupted" quality by imposing another form of image, the photogram, on the traditional photograph. This intrusion interrupts the illusion that the photograph is a window through which reality may be seen.

Dadaists used photographs as raw materials and found objects, reappropriated from fragments of contemporary life for their visual works (Ades, 1986, p.13). The appeal to Dadaists of photographs as raw material for photomontage came from photographs' origins as products of the machine age. Hannah Hoch said of photomontage that "our whole purpose was to integrate objects from the world of machines and integrate these in the world of art" (as cited in Ades, 1986, p.13). Dadaists used the photomontage and photogram to produce juxtaposition and contradiction and transformation. For Heartfield the photomontage must involve

transformation. He says "A photograph can, by the addition of a spot of colour, become a photomontage, a work of art of a special kind" (as cited in Ades, 1986, p.16). But the photogram has more to do with chance, the incidental and contingent than does the photomontage. Ades distinguishes the two by this means (1986, p.17). Ades suggests that "the photograph obviously has a special and privileged place in relation to reality, and is also susceptible of being manipulated to reorganise or disorganise that reality (1986, p.66). In this manner they can function in the manner of dreams which can rearrange memories. The capacity of photographs to function in this fashion was noted by Ernst in his account of the development of the technique of photomontage.

One rainy day in 1919, finding myself in a village on the Rhine, I was struck by the obsession which held under my gaze the pages of an illustrated catalogue showing objects designed for anthropologic, microscopic, psychologic, mineralogic and palentologic demonstration. There I found brought together elements of figuration so remote that the sheer absurdity of that collection provoked a sudden intensification of the visionary facilities in me and brought forth an illusive succession of contradictory images, double, triple and multiple images, piling up on each other with the persistence and rapidity which are peculiar to love, memories and visions of half sleep. (as cited in Ades, 1986, p.119)

The photograms produced from 1919 by Dadist Christian Schad and published in the magazine *Dadaphone* are examples of a montage form of the photogram. Called *Schadographs*, an evocative name with associations with the word "shadow" and the German "schaden" meaning damaged (Miles, 2008, p.76), these works assembled paper, bus tickets, fabric and other found objects to create abstract compositions.

Despite the strangeness and surreal quality of photogram images, it is arguable that photograms are also perhaps "truer" than a photograph produced in a camera. This is because the photogram image is a one-to-one reproduction formed by direct physical contact with the recording surface. It therefore seems a better example, or a closer analogy, of the trace than do traditional photographs. The photogram is more like a found object, resembling a footprint in form and nature. If the camera can be viewed as a metaphor for the mind, the eyes are the lenses that produce the image that is manipulated by the mind. By contrast, the photogram is like a track left on sand.

Benjamin described a process of gradual removal of a sense of mystery in photography through at the increased accuracy of lenses that “overcame darkness and recorded appearances as faithfully as any mirror” (Benjamin, 2006, p.283). This to Benjamin represented a decline in technique (Benjamin, 2006, p.283), for it is the strangeness, that is to say otherness, present in these images that mystifies and thereby creates a sense of distance, essential to the presence of aura. Photograms also have a way of presenting the familiar in a new way, drawing our eyes to structures and forms that would otherwise have gone unseen. The internal structures of a radio valve, the shape of a seed, the tracery of a dragonfly’s wings or reflections created by a child’s toy are brought to our attention, revealed and privileged by the making of the image.

Some of the photograms I have made (for example human profiles) are sharp outlines. Where the photograms render objects as silhouettes, the lack of detail means that these images are more iconic than mimetic. What is seen is an image that corresponds to the thing or person it represents, but it is clear that the photogram is something quite different from its subject. The photogram is a void, the empty space once occupied by the thing but not the thing itself. The reduction of the image in the photogram to an outline avoids the masking effect that Barthes identifies in *Rhetoric of the Image* (Barthes, 1977). As Barthes notes, normal photographs are highly detailed and convince the viewer that they can be taken as a natural representation of the scene or thing they show (a convincing “innocent” illusion). The flat representation of a photogram does not. Where the photograms are made from more diaphanous things (for example the photograms of dresses) the images begin to appear three-dimensional and become more convincing representations – such images are therefore more akin to traditional photographs and the ideological misuse that Barthes points to in *Rhetoric of the Image*, where the convincing nature of the photograph is appropriated to mask and obscure (Barthes, 1977) .

Other photograms I have made using books also link to Benjamin’s ideas of a photographic parallel to the workings of the mind, hidden worlds and the unconscious in the way that they contain, yet at the same time, mask and obliterate information. These images are produced by laying pages from books that I owned as a child, namely a child’s storybook and a page from an

encyclopaedia (subject matter which to me evokes memories of childhood) onto photographic paper, and then exposing it to light. The image produced resembles the original page but is masked by the trace of printing on the other side showing through. The words showing through can only be read in places, some are obscured and half are inverted. The text provides disjointed messages that must be decoded and interpreted, and that resist understanding. They call to mind the pages of the palimpsest, the medieval overwritten Psalter that hides and preserves lost knowledge. There are parallels too to Benjamin's description of cities as sites bearing traces of past buildings and modes of life, repeatedly erased and overwritten with new constructions. This is alluded to in his account of memory in a 1932 article in the *Berlin Chronicle* where he describes the process of memory as akin to excavating a buried city, where the excavation of one's memories reveals a treasure trove of images (Benjamin, 2006, p.xii).

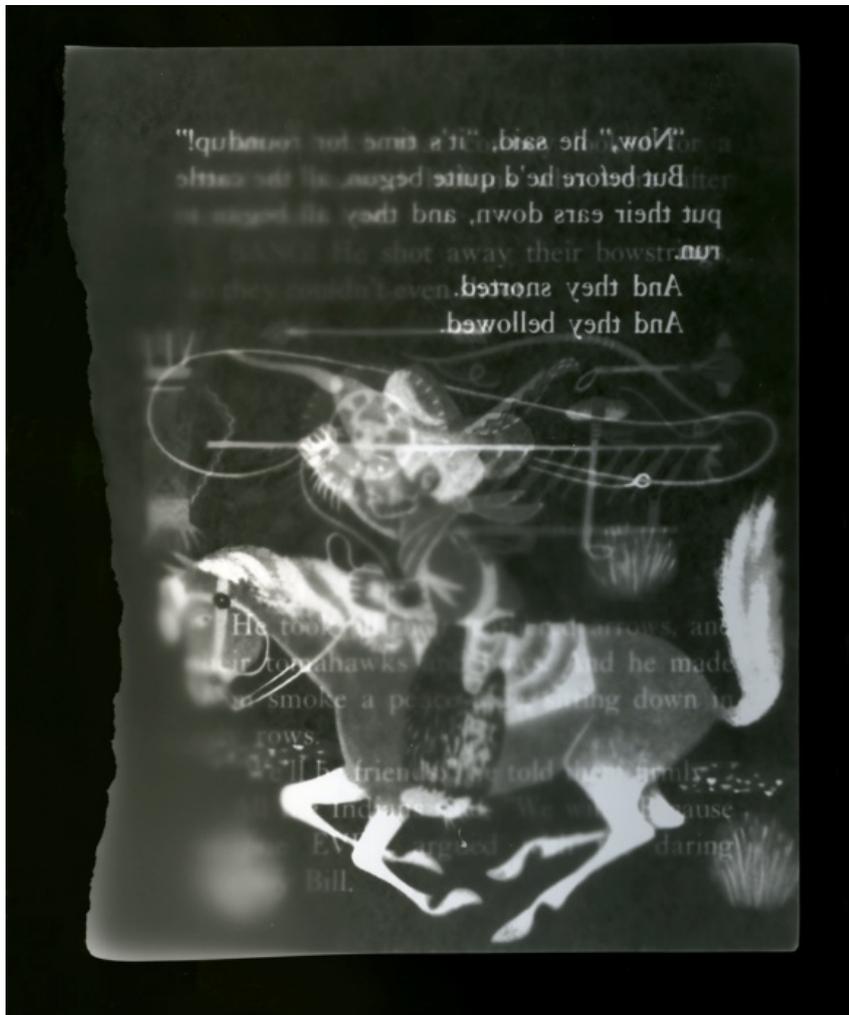


Figure 9: Nevin, D. (2008). Palimpsests 2008. [Photogram].

In these palimpsests I am presenting images of things that are drawn from my life and represent some of my earliest memories. Their confusing, inverted and interlaced imagery illustrates the way that things, particularly loved personal possessions (including photographs) can become both aids to memory and invested with interconnected desires and emotional values. Further, such objects can affect the way that remember events and make sense of the world. The understanding of such relationships between people and the matter of the material world is the subject of study by anthropologists such as Daniel Miller, Bruno Latour and Tim Ingold who have since the 1980s sought to study society through an examination of relationships between people and inanimate things, a relationship which can be understood as interactive, multifaceted and multidimensional. As Miller suggests in his 2009 book *Stuff*, we should consider “the idea that objects make us, as part of the very same process by which we make them” (Miller 2009, p.53).

There are aspects about these images that enable them to be regarded as “memory images”, and less likely to be seen as counter-memories (to use Barthes’ term (1980, p.91)). Firstly, these images do not record the mass of detail that a normal photograph would. They are not indiscriminate recorders of information, though it is true to say that the information recorded is not selected or filtered in the manner that Kraucuer ascribes to memory (Kracauer and Levin 1993, p.425). On a personal level, many of the images in the photobook are of objects that I have owned for a long time, in some cases from childhood. The palimpsest photographs have been produced using books which are part of my earliest memories. Such things are for me imbued with aura and tied to memories with which they are associated. These images, fuzzy, selective, distorted and disordered evoke for me the sensation and experience of memory, particularly that of the involuntary memory. Such memories are not the clear detailed images of standard photography, but are rather something more nuanced and difficult to decode and understand.

In making these images I was prompted to consider how apt the analogy of touch and trace is for a photogram. For the image is recording the touch of light rather than the touch of the subject. In response, I thought about how a photographic image could be made that would show the touch of the subject rather than light.

The following image is the result. This has been formed by my arm made wet with developer and placed against photographic paper in a darkroom. Once exposed to light and then fixed, the paper reveals a black arm print.



Figure 10: Nevin, D. (2008). Hand 2008. [Chemigram].

Photograms, through the blocking of light, are also a form of preserved shadow, another analogy for photography which has a long history. “Secure the Shadow ‘ere the Substance Fade” was a popular advertising slogan of nineteenth-century photographers, who readily likened their work to the preservation of shadows. In

1841, New York photographer L. P. Hayden declared in his advertisement “The Daguerreotype art is nothing more or less than the power of rendering shadow tangible (as cited in Henisch, 1994, p.224). Heinsch reports that photographers were referred to as “shadow catchers” by some Native American Indians (Heinsch, 2004, p.211). Sontag too, in her 1977 book *On Photography*, makes an extended comparison of the modern world’s fascination with photographic images to the shadows described by Plato in his essay on the nature of perception. Indeed, it can be argued (as Giblett does [2010, p.58], citing Talbot) that the preservation of shadows was the focus of early photographic practitioners, and not recording the object itself.

The photogram/photograph brings to mind two ways in which touch is used to understand and explain the nature of photographs – the touch of a shadow and the touch of light. This “touching” is an essential characteristic, as Krauss notes writing about Nadar: “photography can only operate with the directness of a physical graft; photography turns on the activity of direct impression as surely as the footprint that is left on sand” (Krauss, 1978, p.34). It is, she says, based on physical intimacy. Photographs are dependent on “an act of passage between two bodies in the same space” (Krauss, 1978, p.35). Krauss makes the point that in the nineteenth-century, this presence of the trace in photographs contributed to them being simultaneously a focal point of interest in the fields of science and spiritualism.

Photographs use traces to produce images and are therefore sourced from traces. In addition to this they are a manipulation, and inversion and a recreation of the referent. By contrast, a photogram represents a simpler, less manipulated and more direct form of trace. Photograms are, however, less mimetic and more symbolic than photographs. The photogram is more like a footprint than a photograph is. Like a footprint, the photogram is a recording of actual physical contact. On that paper at one time a thing was in contact and left a mark. Its presence has been recorded at life size. It represents an event unique in time and location capable, as Benjamin would say, of possessing aura.

In the photogram, the physical relationship between the object and trace is more direct and immediate than is the case for other forms of photographs. As noted by Hauser, it is the photogram that comes the closest to being “a pure trace, the direct imprint of an object” (Hauser, 2007, p.74). The claim that photographs have contact with the things they show is key to the idea that they are traces, or as Peirce would say, indexical signs (Peirce 2001, p.106). But for most photographic images this contact is somewhat removed or mediated. At best Polaroids and photographic negatives can be said to have been affected by light reflected from the thing they show. Most analogue photographs, though, are not. They are one step removed from contact, formed by light projected through the negative by an enlarger. Digital photography is further alienated, with the image preserved and translated through a process of recording binary data as a magnetic record. While the trace has a role in explaining photographic meaning, analogies of the photograph as akin to a footprint are somewhat weaker than may first appear. To be re-presented the scene shown in the photograph must be drawn through several processes of inversion and interpretation. In this regard the photograph sits on a continuum between the icon and index, not fully one or the other. As such, perhaps a more fitting analogy for consideration of the photograph is that they are akin to a memory, recalled and interpreted, rather than a footprint or fossil.

The hidden room

The second form of photographic image making I experimented with was based around the use of pinhole cameras. Pinhole photography reduces the technology involved in the production of the photograph to its simplest form (bar that of the photogram), paring away lens and other devices to leave only a box, light and a hole with which to admit light onto a recording surface.

Since at least the tenth-century scientists and artists had been aware that a small hole could produce an inverted image of the outside world within a darkened room. The phenomenon was noted by the 10th century medieval philosopher Ibn al-Haytham, also known in the West as Alhazen (Shapiro, 2007, p.79). In his works,

the *Book on Optics* and *On the Shape of the Eclipse*, Ibn al-Haytham used the term *al-bayt al-muzlim* or “dark room”, to describe his experiments in optics where he sat within a darkened room into which light entered through a small hole (Sabra, 2007, p.54). Although it is unclear from the text whether Ibn al-Haytham was seeing an image, or simply patches of light, by the time of the fifteenth-century, use of the technique as an aid to drawing was well known enough to be described by Leonardo da Vinci in his *Treatise on Painting* (Pirenne, 1970, p.15).

Ibn al-Haytham’s experiments were influential in the West with scholars such as Roger Bacon, Robert Hooke (Wenczel, 2007) and others whose work led to the development of the *camera obscura*, the tracing aid that was the predecessor of the camera. These devices generate images through basic optics that create inverted and flattened replicas of their subjects. The only capacity that *camera obscura* lacks, and provided in the case of a pinhole camera equipped with photographic paper, is a means of automatic registration of the traces left by reflected and manipulated light. Pinhole cameras represent a simplified version of photographic technology that, while basic, still encapsulates many of its essential characteristics. They have the capacity to produce images that have apparent visual veracity, while still inverting and reframing the world. The camera itself could hardly be simpler. It is no more than a box with a small hole for a lens, with the image recorded on film or paper. Therefore a key difference between the pinhole camera and more advanced types of cameras is the degree of control that the photographer may exert over the final image. The pinhole camera lacks a viewfinder and therefore the image can only be estimated. There is no aperture control and therefore no capacity to alter depth of field, which, for pinhole cameras, is always very deep. Nonetheless the photographer still has the capacity to control two things. The length of exposure may be chosen and therefore the subsequent darkness of the image, and the subject of the photograph may be selected as well.

The pinhole camera is even more primitive than the earliest cameras. Even some forms of *camera obscura* preceding the daguerreotype used lenses and mirrors to right the images. The *camera obscura* evokes a sense of wonder, that such a

simple device can lead to the apparent capture of the world in a box. It is a reminder that despite the wonder that accompanied the announcement of the daguerreotype, photography is derived from some basic natural processes.

Ibn al-Haytham observed the effects of a pinhole camera while serving house arrest, sitting in a darkened room with a small opening permitting light to enter (Sabra, 2007, p.53). When I have replicated the dark room experience of Ibn al-Haytham by making a pinhole to project an image within a darkened room, what has struck me is that the inverted image that forms is not confined to the wall opposite the pinhole. Instead it covers all of the surfaces of the room except the wall with the pinhole itself. The sky and clouds are reproduced on the floor of the room, while the ground outside becomes the ceiling. This illustrates one way in which the form that the photograph takes is a mediated one. Most photographs adopt a rectangular flat shape that records the world as seen in window. The common photographic form is also the product of choices and cropping. By contrast within the *camera obscura* the image forms on all surfaces, the roof, the floor as well as the sides of the hidden "cell".

This illustrates that if a photograph is a trace it is an anamorphic one, inverted and ordered to take the idealized form of the image that is seen in the mirror. Anamorphic images have a long history in Western art, arising alongside the development of perspective in the sixteenth and seventeenth centuries (Renner, 2004, p.47). Artists including Leonardo da Vinci, Fra Andrea Pozzo and Hans Holbein the Younger produced paintings using anamorphic perspective which required viewing from a particular vantage point. Berger, describing Holbein's 1533 painting *The Ambassadors* in which an anamorphic skull lies before the portraits of the Ambassadors, argues that in this particular example the purpose of anamorphosis was to indicate that the skull had an alternative meaning to the rest of the painting. Everything else in the painting was an indicator of the wealth and prestige of its subjects. The skull, a *memento mori* was a reminder of the impermanent nature of life (Berger, 1972, p.91).

The replication of the outside world within an enclosed space can be seen as a metaphor for how we rely on observations to form concepts of reality within our

minds, an analogy similar to that identified by Coleridge, writing on the *camera obscura* in the nineteenth-century (Batchen, 1997, p.84). It also can be seen as an analogy of Plato's story of the cave, where the inhabitants made inferences about reality from the shadows they could see on the walls.

The pinhole images I produced were made by shaping photographic paper into an enclosed space around a pinhole. In effect the paper walls create an enclosed room (a *camera obscura*) whose walls provide surfaces for the recording of traces. These photographs illustrate that the translation of the world into two dimensions inevitably introduces distortions. The boxes replicate the role of the bourgeois sitting room described by Benjamin (Benjamin cited in Leslie, 1999, p.75). Like the sitting rooms the boxes provide surfaces for the recording of traces, the passage of time. In these photographs marks have also been left on every surface that has encountered light which entered the camera through the pinhole.



Figure 11: Nevin, D. (2012). The City. [Unfolded pinhole photograph].

The mode of production of these images means that I have comparatively little control over framing. The actual image is a mystery until it is developed, at which point I attempt to interpret what is revealed. Some of the examples I show here are in the original negative form in which I encounter them. This is because the photographic paper records the image in a negative form, with the light registering as black and shadows and dark areas are rendered white. While this is an effect of the chemistry used, it has an additional benefit as I believe the negative magnifies the need for interpretation or augury in order to be understood. These images resist interpretation in their negative form, and the mind must translate the trace into an understandable form.

As the camera is opened the image is separated into the individual photographs that make up the sides of the camera. The individual photographs are separated by their edges into six frames. One photograph, the least exposed to light, remains almost white. This is the side of the camera through which light entered the hidden space via the pinhole. The other sides are anamorphic images, aside from the one opposite the pinhole. These photographs illustrate the largely unperceived process of selection that accompanies the standard photographic process. In a standard camera, only one form of perspective is acceptable and preserved, that which is directly opposite the lens. This process of selecting a particular perspective or point of view reflects the structure of the human eye, where the cells with the highest acuity are to be found in the fovea region, opposite the cornea.

Despite claims that photographs offer a truthful representation of the world (see for example Andre Bazin, 2004) distortion is always present in a photographic image. Such distortion may be unperceived because of our familiarity with the manner in which photographs represent the world – it may be that photographs are perceived as accurate representations of the world in part because of our familiarity, not only with photographs but also the form of perspective that the photograph adopts, which has a long history in western art.

The issue of distortion in photography calls to mind the challenges faced by cartographers endeavouring to translate information about the world into map form. Mapping the sphere into a two dimensional form is a process that inevitably results in distortion. Accordingly, the challenge for cartographers in producing a

map of the globe is not to eliminate all distortion, but rather to select a form that best suits the message that they are trying to convey to their particular audience. As Black notes, mapmaking is a process of making choices, and “reflect values and interests that have changed across the centuries (Black, 2003, p.13). In 1909 the American cartographer Bernard Cahill proposed a new way of mapping, producing the “butterfly map”, to overcome what he described as the “gross exaggerations” of the commonly used Mercator projection (Cahill, 1909, p.450). Mercator’s map, produced in 1569, reflected a Eurocentric sensibility. By making the meridians parallel, rather than converging at the poles, temperate land masses were greatly expanded compared to tropical ones. Europe was placed top and centre of the map, giving it primacy over the southern hemisphere. As Black notes, such maps highlighted the imperial world of Spain and Portugal (2003, p.48).

Cahill saw the Mercator map as more suited to ocean navigation, the purpose for which it was originally designed, enabling as it did the depiction of accurate bearings at all points of the map. Cahill suggested that his map better displayed the relative proportions of the continents. He saw his map as something that could “like philosophies, religions and governments, be made to suit the world as the world actually is.” (Cahill 1909, p.464). Despite these advantages and the efforts of Cahill to promote his map, this form of cartographic presentation never gained popular acceptance. This is perhaps because people were more comfortable with the traditional Mercator form of world map that, regardless of distortions, fitted preconceptions of how a map of the world should look.

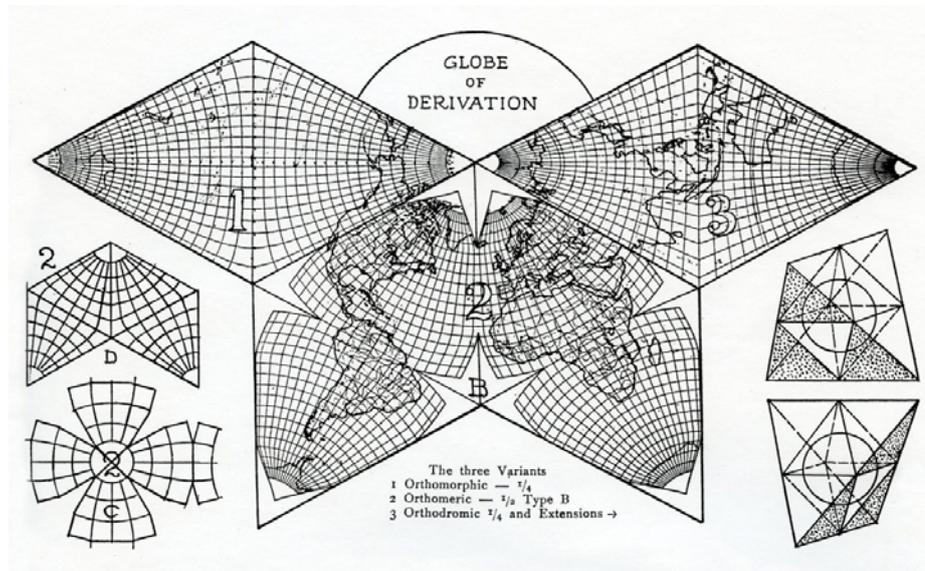


Figure 12: Cahill, B. (1934). The Butterfly Map. (Source: Cahill, 1934).

Drawing on the work of Cahill I attempted to apply his form of mapping and projection to the production of photographic images. These *Octahedron images* explore the idea that photographs make a copy of our world through recording traces. By folding a piece of photographic paper into an octahedron (see the following figures 13 and 14) I formed an enclosed space onto which a pinhole produced the image, and as a result the image covers all sides of the octahedron. These photographs demonstrate and make visible the way that the form of technology used to produce the photograph affects the image. To be viewed the image is folded flat which once again changes the image, again displaying the distortion inherent in the image-making process. An impression is taken of the world, but its relationship to reality is uncertain. It also calls to mind other forms of presenting views of the world, such as mapping. Maps are attempts to present an accurate impression of reality but there is inevitable distortion arising from their production because they convert a spherical world into a flat two dimensional surface.

Cahill's butterfly map was illustrative for me of the longstanding human endeavour to symbolically represent the world. In Cahill's case he was trying to more exactly render the relationships of the world's land masses and overcome what he perceived as inaccuracies embedded in traditional mapping techniques. He expressed this goal in the title of one of his papers "A world map to end all world maps" (Cahill, 1934). By taking the form of the map developed by Cahill and applying to it an image created using photographic processes I am combining the indexical trace with representational, inscribed forms.

The sectioning of the image into planes (a gross form of inscription) makes obvious the artificial division forced by the rendering of a curved surface into flat areas. Photographs may naively be perceived as a representation of the world without interpretation. In this form of photograph it is plain that the image is shaped by the process that was used to derive it. As are Cahill's butterfly maps, these photographs are an interpretation of the world, through which it has been translated into symbolic form.



Figure 13: Nevin, D. (2010). Folded photographic paper. [Photograph].



Figure 14: Nevin, D. (2010). Pinhole camera. [Photograph]

Such works point to the difficulties writers such as Tagg and Sekula had with the notion that photographs could be considered unmediated traces drawn from the real. In Tagg's view, all photographs introduce significant distortions and are the product of specific social practices (Tagg, 1988, p.2). Their relationship to prior reality is therefore, not as direct or unproblematic as, for example, envisaged by Bazin. Indeed to Bazin, for whom the photograph is "the object itself, the object freed from the conditions of time and space that govern it" (Bazin, 2004, p.14), it is possible that my images would not fit his conceptions of photographs. Although Bazin accepted photographs would be fuzzy, distorted or discolored, he also claimed that the photograph shares, by virtue of the very process of its becoming, the being of the model of which it is the reproduction (Bazin, 2004, p.14). Where the image is distorted it can be argued that these are in fact not reproductions at all, but are instead impressions or registrations.

Further, by producing photographs in this fashion another otherwise unseen process of mediation of the images can be perceived. The design of standard cameras is such that only a limited area of any potential image is recorded – that which is directly opposite the lens. This means that the photograph most closely accords to traditionally accepted principles of perspective. It can be seen that the form of the camera itself determines the form of the photographic image. By the nature of its design, the camera automatically discards or simply does not record possible traces that do not conform to accepted principles of representation. It reflects decisions of the camera's designers (who are in turn influenced about what is socially acceptable in images) about what traces are to be valued.



Figure 15: Nevin, D. (2010). Octahedron photographs. [Pinhole photographs].

The subjects I have chosen for the pinhole photographic images reproduced in the photobook are primarily portrait photographs, photographs of the city and the natural environment. These subjects represent the natural world and modern life which provides the underlying theme for the photobook. Photographs, as suggested by Sontag, Batchen and others have been produced to respond to the pressures and uncertainties of modernity. The selection of subjects for these photographs is also driven by the restrictions imposed by their means for

production. Like early photographs, the images require long exposure times and cannot therefore record moving images. All have exposure times of longer than a minute, and some have exposure times of many minutes. Most of the images of the city show how challenging it is to record a human presence using this technique due to the long exposure times needed. A moving human presence is generally not recorded. The traces left by life on the photographic paper are blurred, if present at all.

The blur in these images can be seen as an expression or trace of the action of time. In a long exposure photograph, only what is still, fixed or dead is preserved in sharp focus. In the work of Gerhard Richter blur is a recurring theme which distinguishes the painted work from the photograph it is based on. Koch, in writing on Richter, suggests that blur in photographs is a result of the medium failing to temporal shape of objects into consideration, “electing instead to run roughshod over them” (Koch, 1992, p.142), but in the work of Richter it can be seen to represent the indistinct images of our memories (Koch, 1992, p.142). In the images I have made the imperfection of blur too draws a parallel to the recording process of memory.

The manipulation of form that these images display has been explored by many other artists. Most closely related to my work is contemporary American photographer Neal W. Cox who constructs pinhole cameras based on platonic solids. Using multiple pinholes (as opposed to the single pinhole used in my works, Cox collects “ordered samples of light” to produce photographic compositions based on geometric forms such as icosahedrons and geodesic domes (Cox n.d). Photographer Charlotte Bonjour has also used pinhole photographic process to produced images that are perfect spheres, illustrating and exploring the opportunities that exist to present photographs in forms other than the traditional flat rectangles (Bonjour, n.d.).

In Australia several artists have also explored alternative forms for photographs, including contemporary artists such as Jenny Nayton, Marjo Lopenen and Jessica M Williams.

Jenny Nayton is a Western Australian artist whose works explore photographs and mimesis. The form of the photographs are modified from their original flat form by cutting and folding to adopt the shape of the object they depict, such as can be seen in her 2007 work *Shallow Water*. Her works are often related to water. One of her works takes a photograph of a wave and cuts and shapes it into a three dimensional wave form. In another a photograph of water is cut and formed into ripples. The shaping of the photographs to represent prompts consideration of the mimetic trace, and of the traditional photographs flattened depiction of reality.

Sydney based artists Marjo Lopenen and Jessica M Williams have also reinterpreted the photographic form through shaping images into platonic forms (the icosahedron) in their 2010 work *Past, present, future*. This piece is a folded sculpture created from photographs taken from twenty angles, shot twenty times and using 20 year-old film. The resultant sculpture was presented on a template for an icosahedron (Williams, 2010).

The combination of photogram and photograph and a hierarchy of traces

“What matters to me,” Barthes writes, “is not the photograph’s ‘life’ (a purely ideological notion) but the certainty that the photographed body touches me with its own rays and not with a superadded light” (1981, p.81). Yet how truthful is this analogy of touch and trace and photograph? To examine this issue I determined to bring together the photographic and “photogramatic” image. By combining the photograph and the photogram I believed I could highlight the way that these things are like and unlike traces. The results of this process highlights the media’s similarities and differences and helps explore the idea that these things can be considered as traces. The combined images represent an intrusion of the corporeal world into the image world of the photograph. As noted previously photographers, such as Shomei Tomatsu and Cornelia Parker, have produced

photographs of traces. Such photographs can be said to be a trace of a trace. In these works I attempt to produce traces within the trace by simultaneously making a photograph and a photogram, thereby combining two analogue processes – the photogram image (normally a darkroom technique rather than an “in-camera” technique) and the pinhole camera photograph.

Other photographers who have worked using similar methods include Abelardo Morell and Ilan Wolff.

Morell is a Cuban-American artist who has been working with the camera obscura since the 1990's (Woodward 2005, p.8) to create photographs that explore the nature of the medium. By creating works that show the familiar in a strange and distorted manner Morell's works evoke the origins of photography and reminds us of its surreal, magic like nature. The simplicity of the means of creating this inverted projection, by making a small hole allowing light into a darkened room, is both disarming and disconcerting.

By making camera obscura and photographing the results (a photograph taken in effect from inside the camera), Morell prompts reflection on how the camera works – how it “sees” the world and translates it into an object. The results convey the surreal nature of the photographic medium and seem a combination of magic trick and a demonstration of scientific principles. His camera obscura based works are often produced in the home, which give them an introspective and introverted perspective. The photographs bring the outside world inside the room, from the public sphere to the private. In so doing they demonstrate how photographs can be a metaphor for the human thought process, where observations are analysed within the mind. An example of this are his photographs taken inside rooms converted to a camera obscura (such as Camera obscura image of Times Square in hotel room, 1997 Woodward p.55, 2005)

The work of Ilan Wolff unites pinholes and photograms through conversion of a van into a pinhole camera. The size permits the artist to be inside the camera. He calls the images "stenograms". He notes the images combine interior and exterior landscapes (Renner 2004, p.126).

The images that follow have been made using a large format pinhole camera that holds a sheet of photographic paper measuring 80cm x 40cm. It requires long exposures. Working in bright sunlight and using paper as a recording medium the exposures take approximately 10 minutes. In low light it can take very much longer. This is caused by the small aperture of the camera and the low sensitivity to light of photographic paper. The camera itself is large, a box 90cm long, 50cm high and 50cm deep. Girded by black cotton cloth to enable it to be entered while remaining light-proof, the camera has the disconcerting appearance of a small coffin, or perhaps less ominously, a magician's chest. The resemblance goes further for the process of producing a photograph is of course a transformative one, and not lacking in parallels to the art of magic. The photographic paper is placed within the sealed box, exposed to light, then the image is summoned by developing, and finally fixed. It is as Talbot suggests "a little bit of magic realised" (Talbot, 1839b, p.74).

The intent behind making the camera this large is to enable the location of objects inside the camera. These things block the light cast by the pinhole lens. Where the light is blocked, the object leaves a shadow, while elsewhere the lens leaves a photographic impression on the photographic paper. The end result is at once a photograph and a photogram. The photographs I have produced using this technique have been landscapes and combinations of manufactured things and nature. These choices seem relevant to the form of these simple technologies and use the principles of optics to learn about the world through a process of experimentation.



Figure 16: Nevin, D. (2010). Plane tree. [Pinhole photograph].

The above image combines a photogram of the leaves of the plane tree, gathered at its base, with an image of the tree itself. The leaves are the fallen traces of the tree, their shadows combined with another trace of the tree – that produced by the pinhole photograph. These images are negatives of the scene as the photographic paper renders where light has touched shows black, where it has not is shows white. Therefore the shadows of the leaves are rendered white. This presentation of a negative demonstrates in one fashion the inversion process inherent in photographs. The photogramed objects appear as ghostly bat-like forms, an intrusion on the photographed scene. The photogramed things are perhaps an intrusion of reality, at least certainly a by-passing of the inverting and transforming process of light passing through the lens.



Figure 17: Nevin, D. (2010). Toys. [Pinhole photograph].

In the image *Toys*, it is possible to see the spatial inversion that occurs in photography. All images formed within a camera are inverted from the scene as perceived by the human eye. The photogramed toy car is shown the right way up, as positioned inside the camera, where the photograph shows an inverted depiction of the environment within which the camera was located.

These images bring to mind a photograph described by Peter Geimer in his 2007 essay on images as traces (Geimer, 2007 p.12). The photograph, showing the streets of Cairo, was taken in 1870 by Antonio Beato. Together with the minarets

and Mameluke graves, the photograph also inadvertently records the presence of a fly that entered the camera while the picture was being taken. The fly inserted itself into the image without the knowledge of the photographer and was recorded as a photogram, in life size and by direct contact with the photographic plate, and not by the means of reflected light entering the camera through the lens as was the case for the city scene. Geimer suggests that such a photograph/photogram creates tensions about the relationship between photographs, photograms and the notion of the trace. Can the same explanation apply to both modes of representation? While Geimer is satisfied to pose these questions but leave them unanswered, he does note that it is easier to regard the photogram of the fly as a form of trace than it is to do the same with the photograph of the city. He also notes that the photogram has often been used as the starting point for explanations that use the analogy of photographs as traces.

Like Beato's photograph, my images are "photomontages" as they combine photographic images from two sources. For Max Ernst, the juxtaposition of images from different media such as photography, drawing and painting, was a means of generating dissonance through aesthetic disharmony (Ratcliffe, 1991, p.36). In the photogram/photograph there is an overlap of images in the manner of a multiple exposure that collapses space and time to a single surface. Similarly, in the combined photogram-photograph there it is possible to see two forms of traces. One, the photograph, is a reflected contact that shows marks made by light reflected from the subject. The photogram, by contrast, shows a mark left by an object in immediate physical contact with the recording surface. The photogram shows and highlights the absence of the thing, the mark left once the object has been removed. It is a void. The photograph seems to present the thing, standing for it in a way that other traces are not perceived. It is in some ways "seen through" so the object it presents appears to be observed directly. When a photograph of a person is held up and someone says "this is Mr Smith", it does not seem ridiculous. It is as though the physical form of the photograph itself is not seen, and what it purports to show is seen instead. The photogram resists this. The photogram is a shadow of the thing, not the thing itself, as photographs are seen to be. While the photogram is a trace, it is arguably not a photograph. It

does not have the transparent quality of the traditional photograph because of its flatness. The photogram does not produce the perception of a three-dimensional form that is part of the essence of the photographic image.

Combining the photogram and pinhole photograph also prompts consideration of the use of the *camera obscura* (literally translated as the dark room) as a metaphor for the human mind, a place separate from the world, but from which observations can be made and conclusions drawn. Consistent with this metaphor the photograph preserves the observation, recording a trace of the observation and operating in effect as a form of memory.

Such themes are explored in Jonathon Crary's *Techniques of the Observer: On vision and Modernity in the 19th Century* (1990). Crary outlines the use of the *camera obscura* in the seventeenth and eighteenth centuries as a model for explaining not only the workings of the eye and human vision, but also as an explanation of the way in which observation may be used to make truthful inferences about the world. Examples of those who used the model of the *camera obscura* in this fashion included Isaac Newton (*Opticks*, 1704) and John Locke ("An Essay on Human Understanding", 1690). Crary argues that for this era, the structural and optical principles of the *camera obscura* provided the dominant paradigm for explaining the roles and possibilities of an observer. As an example, Locke's "An Essay Concerning Human Understanding" illustrates this application of the paradigm of the *camera obscura* to human thought:

External and internal sensations are the only passages that I can find of knowledge to the understanding. These alone, as far as I can discover, are the windows by which light is let into this dark room. For, methinks, the understanding is not much unlike a closet wholly shut from light, with only some little opening left...to let in external visible resemblances, or some idea of things without; would the pictures coming into such a dark room but stay there and lie so orderly as to be found upon occasion it would very much resemble the understanding of a man. (Locke, 1836, p.95)

For Locke the observer within the *camera obscura* is performing the reflective introspection of the mind, policing the dialogue between exterior world and interior representations, deciding what shall be admitted or excluded.

In illustration of the application of the model of the camera lucida to the processes of thought, Crary uses two paintings by Vermeer: *The Geographer* and *The Astronomer*, both painted around 1668. The figures in these paintings are shown in contemplation in a room with a single window, with the geographer studying a map and the astronomer examining a celestial globe. For these scholars, knowledge comes not from the direct observation of the world, but from the solitary study and contemplation of representations of it.

Crary notes that use of the concept of the *camera obscura* as a paradigm for mental processes continued beyond the eighteenth-century, but in a changed form. For while in the seventeenth and eighteenth-centuries the *camera obscura* was used as a model to explain the possibility of observation and contemplation for discovering truth, this was reversed in the nineteenth and twentieth centuries, by Marx, Freud and others for whom the *camera obscura* became the model for forces that mystify and obscure truth (Crary, 1990, p.29).

The act of bringing objects inside the camera itself bridges a gap between conception, image and reality. The photographic image is produced inside the camera, where a representation of the outside world is formed. The insertion of things inside the camera seems to bring that outside world and image together, collapsing the separation described by Crary of the interior and exterior worlds. The camera brings a replica of the world inside to be preserved and fixed. In the photograph/photogram image there is, at the same time, an intrusion that is blocking the formation of the image and leaving an impression of itself in the process. In the photogram/photograph the role of the negative and positive in the generation of photographic images is highlighted. The trace, being an impression, is always a negative of the subject. To produce the photographic image, the negative is inverted to produce the subject. It is therefore an inversion of the trace. Combining the photographic image with that of the photogram makes explicit the process of inversion that photographs go through in order to represent the world discerned by the lens. Further, the image formed inside the camera is also spatially inverted in addition to the inversion of light that occurs with the photograph. Negative or positive are irrelevant terms in perceiving the photogram. Neither state adds to or detracts from the photogram's resemblance

to the thing that formed it. By contrast the negative of a photographic image is a strange and alien thing.

Benjamin suggests that photographs possess the power of revelation (Benjamin, 2008, p.278). Through photographs, he argues, it is possible to see things hidden from our vision, just as the unconscious mind holds desires hidden from our perception. In his essay "Little History of Photography" (Benjamin, 2008, p.278) he notes that the individual:

first learns of this optical unconscious through photography, just as he learns of the intellectual unconscious through psychoanalysis... photography reveals in this material physiognomic aspects, image worlds, which dwell in the smallest things – meaningful yet covert enough to find a hiding place in waking dreams, but which, enlarged and made available for formulation, make the difference between technology and magic visible as a thoroughly historical variable.

This "making visible" and revealing of hidden information is a quality innate within the photographic process. While exposed film and photographic plates appear unchanged from their unexposed state, they hold latent, hidden images that can only be seen following the development stage. The step of treating the exposed plate to draw forth the hidden image was a requirement in all pre-digital photographic methods. This process of drawing information from the image does not end with development, as the analysis of photographs for information on their subjects is an enduring fascination. As Talbot, in his photobook *The Pencil of Nature* himself noted "it frequently happens, and this is one of the enduring charms of photography – that the operator himself discovers on examination, perhaps long afterwards, that he has depicted many things that he had no notion of at the time" (Talbot, 1844, p.40).

In the production of combined photogram-photographs I have examined the process of forming the trace that the photograph preserves. Two of the ways that theorists have used to describe or explain the trace in photographs are of the photograph as a type of fixed or printed shadow; and alternatively, photographs have been described as images that are formed by, or acting as a channel for, emanations of its subject. These conceptions of the photograph represent diametrically opposed ideas. For the shadow is not a projection of the referent, but rather the obstruction of light reflected from the subject.



Figure 18: Nevin, D. (2010). Flame tree. [Pinhole photograph].

In describing the nature of photographs, theorists have depended on a raft of metaphors. Barthes talks of the *punctum* (the piercing quality) and emanating nature of some photographs (1980, p.27), while Sontag remarks that the photograph is like a footprint, death mask or relic (1977, p.154). This multiplicity of metaphors reflects a difficulty in confining photographic images to a single conceptual framework. Perhaps this is understandable as the use of photographic images spans the boundary that divides beliefs associated with rational, scientific thought, and the traditional domains of image-making associated with the subconscious, ritual and the sacred. A product of the age of scientific process, photographs were almost immediately put to some most unscientific purposes, such as spirit photography and memorialising the living and the dead. Examples of the use of photography in these ways can be seen in the memorialisation of the dead documented in Batchen's *Forget Me Not* (2004) and the practice of spirit photography in Jolly's *Faces of the Living Dead* (2006) which explores the popularity of spirit photography from the 1870s to the 1930s. It is arguable that the adoption and application of photography arose from its capacity to span the divide between rational thought and the subconscious, which met a pressing social need to provide certainty and security (through the "scientifically accurate" image) at a time of uncertainty regarding social relationships and belief.

Living into the image and the quality of aura

In Benjamin's view, the quality of aura may be transmitted from a person or thing to a photograph through prolonged exposure. He describes early photographs where the subject lived into the image and became imbued with its aura (Benjamin, 2008, p.27). Such photographs preserved a record of the presence of their subject, in the manner that clothing may record evidence of long contact with its wearer. He referred to an 1850 photograph of the philosopher Schelling as an example "just consider [his] coat. It will surely pass into immortality along with him: the contours it has borrowed from its wearer are not unworthy of the creases in his face" (Benjamin, 2008, p.281).

My reading of Benjamin's writings on aura and photography prompted me to consider how one might go about creating an image that expressed his ideas on the aura of things. As Benjamin sees it, aura is a weave of time and space, and is dependent on its history and location (Benjamin, 2008, p.285). He considered that photographs may have aura, particularly those produced by early cameras with slow lenses and slow film. The procedure itself caused the subjects to live their way into, rather than out of, the moment; during the long duration of the exposure, they grew into the picture, in the sharpest contrast with appearances in a snapshot (Benjamin, 2008, p.280). He was dismissive of the attempts made by photographers in later years to mimic aura in their photographs. The "snapshot" freezes motion, even against the will of the photographed subject. By contrast long exposure requires the participation of the subject to make the image because it requires the subject to sit still and leave an impression on the recording medium. This desire to slow down the photographic process can be seen to be an echo of the practice of over-painting photographs reported by Batchen (2004, p.24), who describes the use of the technique to enhance photographs in 1860-1890s America, and in India from the 1860s to the early twentieth-century.

The difference between the American tintypes and Indian painted photographs are obvious, but what links these practices is an attempt to make the photograph unique, and thus to make any memory it might conjure unique too. In both cases the photographic base is removed or painted over. This makes the

image that remains look less situated in a specific moment, more ageless, less mortal. But that image is also slowed down. The photograph is no longer just the remnant of an instant's exposure to light. It still represents that instant, of course, but it now conveys as well the added time lavished on it by the hand of a painter. The image has been made more slowly, and it takes more time to look at. You can't take it in quickly but instead must "read" its elaborated surface. This changes the nature of the perceptual experience. In the words of Czech novelist Milan Kundera, "the degree of slowness is directly proportional to the intensity of memory; the degree of speed is directly proportional to the intensity of forgetting". (Batchen, 2004, p.24)

With early photography, the need for patience and stillness was necessitated by the technology. Unless the subject remains in one position all that will be recorded is a blur. To live into an image invests it with aura. It is the opposite of the action of the fast lens and the fixed, dead process. The word "aura" itself is associated with life as it comes from the Greek for "a breath of air" (Butler, 2012, p.108). The process of "living" into an image brought to my mind the writing of Barthes, who saw photographs as emanations produced by their subjects. Aura, too, is essentially an emanation, an atmosphere that surrounds a thing. This then brought me to the idea of making images that are themselves emanations. To produce this work I prepared a glass plate with fluorescent paint. Exposed for several minutes to an image on a video screen the board recorded an image, which I then photographed. The image is only visible in the dark, a glowing green recording of a presence. The result you see here is a documentation of the process, but not the image itself which has since dissipated. This is not an object, it is an emanation that is transient and will fade. It also has the characteristic of being unique to a time and a place for it can only exist and be seen in that dark room for a brief time before fading. The use of fluorescent paint to produce temporary photographic images provides a means of exploring the paradigms of photographs as a preservation of contact. They record an emanation and are also emanating – projecting light themselves. The images both record the touch of light and project light that touches the viewer. The temporary nature of these images poses interesting questions about the nature of photographic images. These are very temporary marks, destined to quickly fade, unlike most photographic images. They are destined to be overwritten and their physical

substance, a layer of phosphorescent paint, assigned to display another image. Are these photographs at all, when their physical substance is so fleeting? Likewise are photographic images stored in digital form (magnetic traces) on a computer and never printed out, to be regarded in the same way as the printed image considered by Barthes in the 1970s, something that has a life, a physical thing that yellows, becomes brittle and fades?

The choice of portraits as the topic for these phosphorescent images draws on Benjamin's notion that the trace in the photograph records a lived into experience. The portrait is the focus in Barthes *Camera Lucida* (the winter garden); Benjamin is drawn to portraits of Kafka, the philosopher Schelling, the unnamed wife of a poet. As noted by Duttlinger (2008, p.84) almost all of the photographs which Benjamin explores in detail when discussing aura are portraits. As Benjamin also notes it is in the portrait photograph that the aura can be seen: "in the fleeting expression of the human face, the aura beckons from early photographs for the last time" (Benjamin, 2008, p.27). The images also bring to mind Benjamin's description of early images having an aura produced by the way that "light struggles out of darkness" (Benjamin, 2008, p.283).

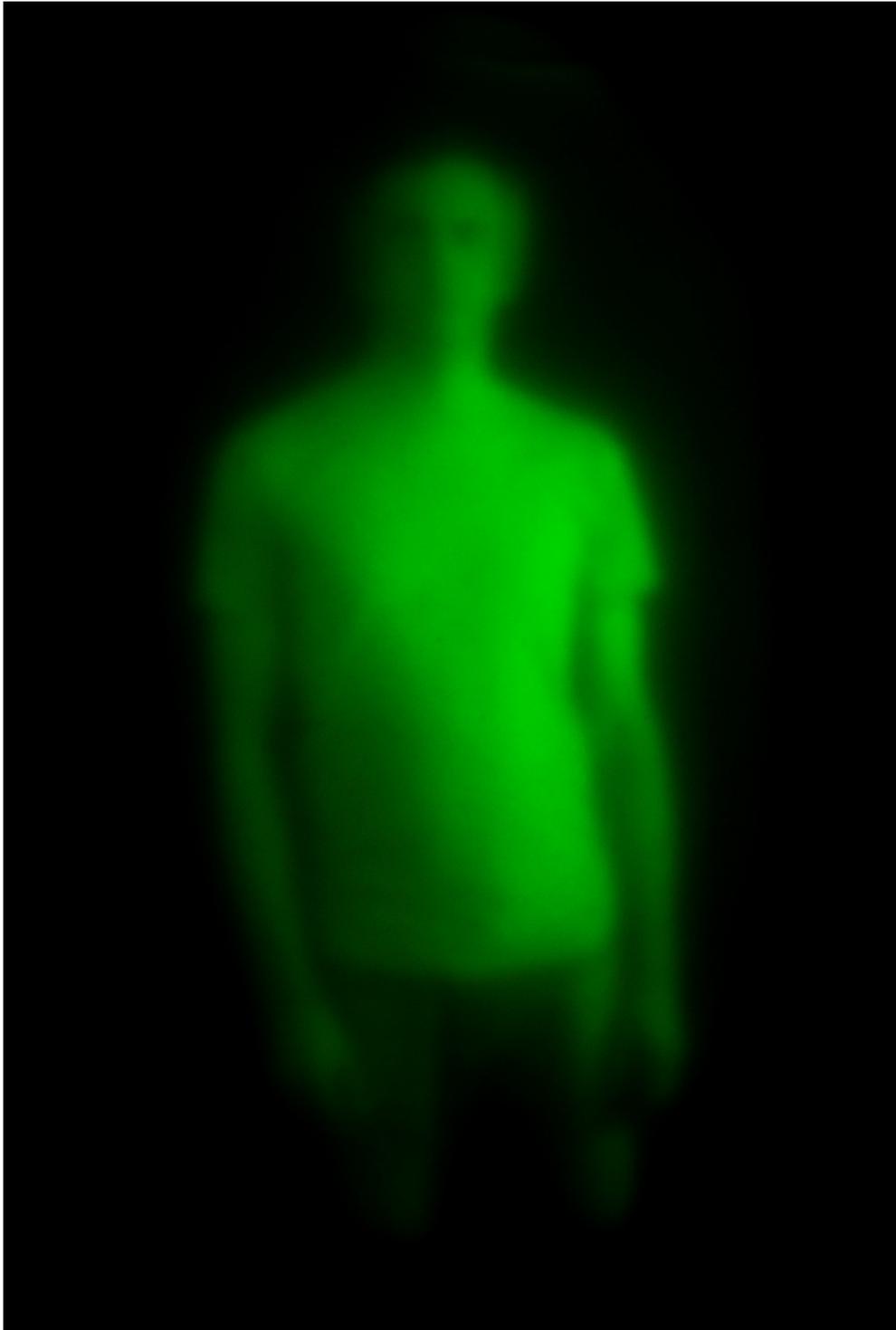


Figure 19: Nevin, D. (2012). Self portrait 5 minutes. [Photograph produced using a phosphorescent plate].

The method of producing these images, laying a moving image onto a fixed surface recalls the concepts of photographs expressed by Balzac in the nineteenth century. Nadar, writing on Balzac, reports:

According to Balzac's theory, all physical bodies are made up entirely of layers of ghostlike images, an infinite number of leaflike skins laid one on top of the other. Since Balzac believed man was incapable of making something material from an apparition, from something impalpable—that is, creating something from nothing—he concluded that every time someone had his photograph taken, one of the spectral layers was removed from the body and transferred to the photograph. Repeated exposures entailed the unavoidable loss of subsequent ghostly layers, that is, the very essence of life. (Nadar, 1978, p.9)

Here the subjects live into the image, laying down layer on layer of presence, like Balzac's conception of photographs taking a spectral layer from their subject. Balzac's view of photographs (as noted by Pettersson 2011, p.189) is that they are a fragment of the original subject, like hair left at the scene of a crime by burglars. Such traces differ from those that are marks caused by an event, which is the usual kind of trace that photographs are taken to be.

The phosphorescent portrait also harks back to the nineteenth-century photographic works of the British eugenicist, Francis Galton. Galton produced composite photographs by combining layers of photographs of many individuals of different "social types", such as "working men" or "criminals" (Galton, 1879, p.132). In this way he sought to produce images that by "averaging" physical characteristics would produce a stereotypical image. Such work encapsulated his prejudices and provided support for the beliefs that he brought to the project, namely that humanity could be reduced to physiological types, the interpretation of which could then be used to predict future behaviour, such as criminality. The phosphorescent image is also a form of "averaging," for a period time is condensed and expressed in a single image. It is not a single 'decisive moment' in Cartier Bresson's¹⁹ terms but a series of moments compressed and expressed in a single image.

—

¹⁹ French photographer Henri Cartier-Bresson (1908-2004), in the preface to his 1952 book *The Decisive Moment*, suggests that the essence of photography lies in the capacity to capture a

It is pertinent to note that the phenomenon of luminescence and phosphorescence were popular topics for investigation by early pioneers of photography including Daguerre, Thomas Wedgwood, and Talbot. Mike Ware, in an essay outlining the links between pioneers of photography and investigations of luminescence (2002, p.4) argues that the phenomenon of luminescence can be seen to be the antithesis of photography, for instead of absorbing light, light is emitted. He describes how key discoveries that led to photographic images resulted as unintended consequences from investigations into phosphorescence and luminescence. The phosphorescent portraits I have produced bridge this divide, absorbing light in their recording of the image and emitting the light in the presentation of the image. I suggest that the development of photography was linked to a desire to understand the physical world, particularly the phenomenon of light. It is therefore to be expected that an interest in understanding the origins of luminescence was also a field of interest to many pioneering photographers.

The use of phosphorescent paint in artworks has a history going back at least to the 1960's when German artist Konrad Lueg (1939–1996) produced paintings that used phosphorescent colour on canvas. Lueg, who worked and exhibited with Gerhard Richter, intended that the shadows of viewers would become part of the images. These images, which he called *Schattenwände* (shadow walls) would be a form of art created by the public, and so challenge the notion of what constitutes a painting, a recurring theme in his work (MoMA, 2012). More recently artists have combined phosphorescence with photographic imagery, often exploiting the medium's capacity to produce a temporary image as a way of exploring notions of the passage of time.

In 2005 Pauline Fouche exhibited *Persiste* a work utilizing colour slide projectors displaying portraits on phosphorescent screens (Fouche n.d.). In this work the still images persist on the phosphorescent screens (akin to Galton's layering of photographs), and over time accumulate, a process which renders the images (in Fouche's words) "monstrous" (Fouche n.d.).

—

significant event at the fraction of a second in which in which the image has its ideal form and expression.

Matt Collishaw's 2008 work *Shooting Stars* also made use of slide projectors and the temporary nature of images recorded on phosphorescent screens. This work projected images of Victorian child prostitutes are projected in rapid succession onto walls coated with phosphorescent paint. The temporary images (which Collinshaw describes as "ghost") evoke the short existence of their subjects. In the words of Collinshaw, "the lives of these girls sadly often resembled their presentation here; a light that burnt brightly and as suddenly extinguished in its prime, with just a ghostly image in a photograph to remind us of their ever having existed" (Collinshaw, n.d.).

In 2012 artists Daito Manabe and Motoi Ishibashi produced *Fade Out*, an artwork comprised of a phosphorescent screen on which an image captured by an infrared camera is drawn to a phosphorescent-painted screen by laser. The image is painted by the laser point by point producing a temporary glowing point which eventually fades (Daito, M. (n.d.).

In 2011 artist Matt Richardson made use of phosphorescence to comment on the temporal nature of information put on the internet. In a work (titled *Fade Away*) illustrating his perception of the impermanence of data he combined a phosphorescent surface on which a computer controlled light emitting diode was used to write phrases including the words "fade away" sourced from twitter (Richardson n.d.).

The works I have produced using this technique convey two things related to time: firstly the sense of a prolonged contact to produce the image, and secondly, the inevitability of the fading and dissipation of the trace over time. The images demand patience in the sitter. To sit still for such a photograph is not a commonplace experience (though once it was) and brings the image closer to that of sitting for a painted portrait. Further, the capacity to sit completely still requires a degree of focus, control and capacity for stillness, which may be perceived in the final image. When the photographs are viewed, the blur operates as a sign of life, a trace presence in the image that has escaped the deathly sharpness and stillness of the standard photographic portrait.

In response to the questions I earlier raised about whether these images can be understood as photographs, I argue that they are still to be regarded as photographs as they are images formed by the action of light on a recording medium. Their impermanence illustrates a form of accelerated decay – a process of decay that is in the inevitable eventual fate of all photographs once they have been turned into a photographic print.

Further, it can be seen that these images, like all photographs, are both traces and, at the same time, carriers of information as inscriptions. For in the selection of subjects for these images I am conveying information through shared cultural understandings and using a shared symbolic lexicon around portraiture, landscape, depictions of city life and of nature. Where simplified photographic techniques are used this reduces the amount of mediation involved in the images because of the reduction in the level of control allowed. But this is never to the extent that inscription is totally excluded.

In his “Rhetoric of the image” (1977) Barthes outlines an analytical method for reading the coded information that photographs contain, using photographs used in advertising as a subject. In this essay Barthes suggests that photographs contain linguistic messages (such as captions), coded iconic messages, and non-coded iconic messages. Coded iconic messages are the meanings that can be derived from shared cultural understandings. Barthes example was the use of the colours of the Italian flag in a photograph to represent “Italianicity” (Barthes 1977, p.153). The third form of messaging is the non-coded iconic message, where the image is a literal, visual message – as he terms it “a message without a code” (Barthes 1977, p.154). While Barthes acknowledges that photographs flatten, frame and reduce the subject in its representation, he argues that such images do not transform what they show, “at least not in the way that coding can be”.

Of these three forms of messaging it is the third (which he calls the denoted image) that Barthes uses to differentiate photography from drawing. Photographs he notes record every detail, where drawing can record very little. Thus photographs do not distinguish between the significant and the trivial. Barthes

argues that the photographic process is a recording, not a transformation – contributing to “the myth of photographic naturalness” (Barthes emphasis) (Barthes 1977, p.158). He suggests:

The denoted image can appear as a kind of Edenic state of the image; cleared utopianically of its connotations, the image would become radically objective, or in the last analysis, innocent (Barthes 1977, p.158).

The images I have produced pose interesting questions for this form of analysis. They are more radically “transformed” than the types of photographs that Barthes was analyzing. The photograms, in particular record only specific elements of their subjects, usually only an outline. The phosphorescent portraits have transformed their subjects into glowing blurs. None of these images have the effect that Barthes ascribes to photographs – the effect of “naturalizing the symbolic message...(there by) innocents the semantic artifice (Barthes 1977, p.159). I suggest that while these images utilize the trace in their production, and indeed use simpler technology (and therefore artifice and control than most modern digital photographs) the degree of transformation that they effect means that the strangeness of the resultant images means that they are not perceived as un-coded or innocent. These images are not readily absorbed into “the myth of photographic naturalness”.

Images reproduced in the photobook

The photobook accompanying this thesis reproduces images that I have produced during my research. These include cyanotypes, photograms, pinhole photographs and a series of portraits produced using phosphorescent plates as a recording medium.

While many theorists have used the idea that photographic images are traces of the things they show to explain the essence of the medium, the images in this photobook prompt consideration as to how applicable these theories are to the spectrum of practices that fall within the scope of photography. The works in the book draw a connection between digital forms of photography, traditional forms and alternative photography processes.

The book is in three parts. The first part reproduces photograms, produced by using either cyanotype paper (which produces blue and white images) or black and white photographic paper. In this part of the photobook I have included a number of photograms in which I have replicated methods and topics utilised by artists who I have found to be inspirational and whom I have referenced in my exegesis. These include the botanical cyanotypes of Anna Atkins which I have mirrored with cyanotypes of plants. I have made photograms of curtains that echo photograms of lace produced by William Talbot, and photograms of my daughter and her clothes that reflects the clothing photograms of Anne Ferran and the infant photograms of Adam Fuss. This illustrates my exploration of the techniques and methods of other artists, which is an important part of my work. It is through this process I gain an understanding of the work of other artists and which is also part of my process for learning about photography and developing new photographic techniques.

Some of the photograms, for example the palimpsest photographs, and those showing toys or children's clothing were produced in a dark room. Others, specifically those showing the aftermath of a crash, fig leaves and pigeon feathers were produced using a simple shutter which allowed the photogram to be recorded outside, at the location where the things were found.

The second part of the book reproduces pinhole photographs and some combined photogram/pinhole photographs. These images are distinguished from those in the first part of the book (which mostly used traditional photogram or cyanotype methods) in having been produced using unconventional processes. In this part of the book photograms are merged with pinhole photographs, or pinhole photographs are distorted by the form of the camera used to produce them.

The third part of the book consists of portrait photographs produced using the phosphorescent image making technique. Digital photographs were taken of the temporary phosphorescent images, allowing them to be reproduced in the photobook.

Each photograph is captioned, thereby applying my inscription to the photographic trace. Through the inscription I am guiding the viewer's interpretation of the trace. It provides a crucial additional connection between the image and the person or thing depicted. The name of what (or who) is shown is given, as is the date the image was created. For the phosphorescent images, the length of time the video image was played against the phosphorescent plate (for example *Anetta, 3 minutes and 4 seconds*) is recorded. While these inscriptions provide some guidance to the viewer, their utility is arguably contingent on the viewer having sufficient understanding of the thing depicted and the circumstances under which the image was produced in order to interpret the information given. As such the captions and images are illustrative of the importance of context, that is the cultural understandings that surround any image, to its interpretation and use.

The context for these photographs are they are traces of my personal life. While the photographs in the book have been produced using several differing techniques the common connecting characteristic for each image is that they record traces of my life and my personal environment. The "palimpsest" images are taken from books I have known since childhood or have inherited from my parents. The portraits depict family, friends, or are self portraits. Other images are drawn from personal objects or things found in the streets near my home. Taken together they represent an attempt to understand the significance of such preserved fragments of life, and how traces and photography relate to the experience of the passage of time, existence, and memory.

During the development of works in the course of my research I had to consider the best way in which to document and present these images. Two obvious options were available, that of the exhibition, and that of the photobook. While I exhibited my works in the course of this research I concluded that the best way to document and present my work for assessment was through the production of a photobook.

In recent years the production of photobooks has blossomed as new production technologies have lower the barriers to this form of presenting images. Yet as Parr and Badger (2004, p.9) note, the photobook has always been an important method for expression and dissemination of photography. Indeed for many

pioneers of photography the manner in which their work was made available was through publication in book form. In Parr and Badger's 2004 history of the photobook the argument is made that the photobook is a primary facet of photography, a shared view with that expressed in a 2003 interview for *Le Monde*, Henri Cartier-Bresson expressed the view that "The wall is for paintings; photographs belong in books." (Metelerkamp, 2002, p.4). Such a view is supported by the fact that some of the most powerful and influential photographic works were presented in the form of photobooks, Walker Evans *American Photographs* (1938), Frank's *The Americans* (1959), or Masahisa Fukase's *Karasu* (1986) being but a few examples. Such books illustrate the power of the book format to convey an artistic vision in a way that is intimate (the viewing of a book is private and solitary experience compared to that of a gallery setting) yet also capable of reaching a wide audience.

An appeal of producing a photobook is it enables to share my work over a more extended period of time and to a wider audience than would be possible through an exhibition. As Miles (2004, p.53) notes, books can reach a far wider audience than most exhibitions, and offers a valuable means of bringing together a much larger number of photographs than what is often feasible within the limits of a gallery space. This was an important consideration in my work which has developed along diverging paths as I pursued separate lines of inquiry. While the photobook is a complete creative work in its own right it also is intimately connected to the exegesis. One of the principles I followed in selecting works for the book was that they should illustrate the proliferation of ideas that arose associated with my practice led research, reflecting the variety of potential approaches to the idea of photographs being forms of traces. This multiplicity of techniques illustrated in the photobook is reflective of my creative process.

The progression of images that it shows from simple photograms to more technically complex pinhole images and finally phosphorescent images maps the experimental process by which I developed a range of photographic techniques in response to my consideration of the paradigm of photographs as traces. I considered that a photobook was particularly suited to illustrating such a process of development. By proceeding through the book the viewer is led through the images in a guided fashion which encourages consideration of the relationship of

images to each other through their placement in the book. In this way I was able to set out a progression of images leading the viewer through my creative process in a manner that reflected the written account in the exegesis.

A further reason that guided my decision to produce the creative work in a photobook rather than an exhibition was the nature of the images. Generally small items or portraits were the subject of these works, subjects which I felt were better presented in a fashion that was reflective of their content and scale. While the images could be enlarged for exhibition, to do so would I believe be a distortion, distancing the images from their subjects and their relationship to traces.

In this chapter I have discussed how my work illustrates and explores the idea that photographs are a form of trace. My work demonstrates both the usefulness and limitations of this paradigm. A common feature between some of these images is the creation of the connection between a single place, a point in time, and the image. The combined photogram/photograph images, through the process by which they are produced, link the presence of the photogrammed image with the place in which they were formed. The phosphorescent image is also formed by contact between the subject and the surface on which the image is registered for it requires a long still presence of a subject in order to leave an impression on the phosphorescent plate. This appears to be the key to the idea of an image that is formed through the leaving of a trace: that it is understood to have been formed by the presence of the subject in a specific place at a specific time. Yet it also can be seen that none of these images are created without the mediation or the inscription of the photographer or indeed, as shown by the anamorphic photographs, the influence of the mode of production of the photograph.

5. CONCLUSION

The evolution of photography

The idea that the medium of photography today is a continuation of that which commenced with Daguerre is based on the acceptance of a common conceptual framework between past and current photography rather than a continuation of actual practices involved in producing photographic images. For the history of photography is one of a technology has undergone constant change, a process of development which, in terms of external appearances at least, has seen the devaluation of the photograph from a precious treasure to an ethereal magnetic trace. The first age of photography saw the production of images in silver and gold. Daguerreotypes were precious unique objects and available only to the wealthy. They were made on silver plates, usually gold toned and mounted in leather cases. They were produced through a practice of alchemy involving the use of iodine crystals, metal and mercury. The second age of photography saw cheaper modes of production using glass to produce ambrotypes and metal to make tintypes. The modern era saw the predominance of production of paper photographs and the use of negatives that enabled many copies of an image to be produced. Printing on paper was much cheaper than earlier methods. The current age is the era of the digital photograph. Photographs can now be recorded as electronic data, a binary magnetic registration of 1s and 0s. As time has passed photographic images have become more easily reproducible and less substantial. For many photographs, their only mode of existence is as code. Stored on hard drives or online as digital information, many are destined never to be converted into a printed, physical form.

The development of digital photography was seen by some such as Mitchell (1992) to be such a decisive break with the analogue, chemically based, forms of photography that it marked the “death of photography” and beginning of a post-photographic age. This end of photography has repeatedly been predicted since the 1980s. While in recent times this prediction has been the result of the development of new digital technologies that herald a post-photographic age,

Barthes himself wrote “it has already disappeared...and this book is its archaic trace” (1980, p.94). Yet over 30 years after Barthes expressed these views photography continues to persist and endure.

It can be argued that the connection between the practice of digital photography today and earlier analogue forms depends on acceptance of a continuity of a paradigm that sees these forms of images created by the registration of light reflected from a subject and recorded on a sensitised surface. This, in essence, is the paradigm of the trace.

Trace - a resilient paradigm for photography

As shown in this research, the idea that photographs are traces formed by contact with the world has been a recurring and resilient theme. First expressed by early practitioners of photography, it is a paradigm that has been used since by Benjamin, Sontag, Barthes and many others. Such theorists have concluded that there is a material link between the image and the object, which is an essential characteristic of the photograph. In each process, from daguerreotype to digital file, the image is formed by the recording of a trace left by light reflected from a subject. Theoretically the trace is the product of the light reflected from the subject touching the recording surface of the negative or digital recording surface. This touch has been equated by some to give photographs a metaphysical dimension, a capacity to transmit the aura of their subject, and has led to beliefs (sound or otherwise) that the trace connects the photograph to “reality” and gives it claims to veracity beyond other kinds of images.

Yet while the use of the analogy of trace has endured, as the history of the paradigm shows, attitudes to the notion of photographs as traces have usually been ambivalent. While photography seemed to satisfy the demand for an objective, independent reality, and an incorruptible memory device, it is not an unalloyed success. The promise made by photography, to be the unimpeachable account of reality remains unsatisfied. For writers such as Tagg and Burgin this was never achievable. But the elusive nature of this goal can even be perceived in

Barthes' search for a photograph of his mother that captures the essence of his memory of her. While he finds one particularly moving example, he finds more examples that are unsuitable for this task.

Even those who recognise the importance of the trace may consider it to have potentially negative effects. Benjamin, for one, argued that cult value and aura, and the generally mystifying nature of art could be used to obscure and hide the truth. Sontag, in her analogy of photography to Plato's cave, likewise echoes the view that by being fixated by the view of the world presented by photographs we are being misled about the true nature of existence. Thus, the trace in photographs provides a means of mystification. It is the means by which these products of modernity are linked to religion and spirituality. Critically, regarding photographs as unmediated traces of reality can mislead because it can obscure other meanings within a photograph and encourage the perception that the photographer's inscribed message is the product of natural processes.

Therefore, the trace cannot explain all the meanings embedded within a photograph and claims for the photograph's capacity to convey an objective independent reality can be oversold and misleading. Yet to totally deny that the indexical nature of photography has any relevance is as wrong as the claims by some that photography has an unproblematic relation with an objective reality.

Theorists such as Burgin and Tagg who challenge the notion that photographs present an objective presentation of reality are correct to claim that photographs are always mediated to some degree. Even the simplest photographic techniques involve mediation through the selection of subjects. Yet it is also wrong to dismiss the significance of the trace in photographs because this particular quality is what enables the photograph to operate in the modes of talisman, memento mori and evidence. And while Bazin can be criticised for claiming a direct relationship between "reality" and the photographic image, his perceptions of the links between religion, photography and a desire to deny death were insightful.

Barthes could see that by attempting to demystify photographs and disperse the aura of authenticity they hold, theorists (including himself in some of his previous essays) were dismissing essential characteristics of photographs that distinguish them from other images. It is a denial that photographs, in addition to their qualities of representation, could also perform other roles specifically because of their mode of production. Even though the mode of production of photographs does not guarantee accuracy or truth, Barthes was reasserting that the mode of production was still important, and specifically the idea of a direct relationship between the photographic image and its subject was a critical characteristic that defined photographs and set them apart from other forms of images.

Such debates about the significance of the trace to photographic meaning are reflections of the difficulties inherent in conceptually grasping the passage of time and our relationship with reality. Running parallel but intertwined with the notion of the photograph and trace as evidence – its secular role – is the spiritual (that is to say, ritual) role, whereby the photograph conveys the aura of the thing it depicts. While somewhat separate from the notion of the photograph as evidence of reality, the use of photographs as relics still requires belief in their veracity.

The examination of photographs produced by artists provides further means of testing, analysing and critiquing these ideas about the trace and the meaning of photographs.

The trace and art photography practice

The artists I have described in this paper have, through their use of varied photographic techniques, explored different aspects of trace and photographic meaning. The work of some artists serve as illustrations of the insertion of messages in photographs through the use of adding captions to works. Duane Michals' images illustrate the subjective nature of photographs and question their capacity to demonstrate objective truth, or to fulfil a role of making safe memories. Heartfield's works and those of Gerhard Richter contain a further form of inscription, where the hand of the artist is made apparent through the use of

montage, or in the case of Richter, the smear. Richter's works represent a response to the challenge that mechanical reproduction, especially the photograph, poses to traditional forms of art, while Heartfield's photomontages represent the subversive and demystifying power of the medium, where photographs intended to glorify and glamorise are repurposed for use in satirising and mocking the powerful.

Adam Fuss and Edgar Lissel's work explores the material vestige of the subject preserved in photographs, and thereby prompts consideration of aura and the cult value of images. By contrast, the photographs of Tomatsu and Parker depict auratic things, things that are traces of significant events. These are photographs of traces, impressions of impressions, and they prompt consideration of the ways that auratic value is attached to things, giving them cult value.

Through my work I have sought to add to the body of work that questions the nature of photography. Using earlier forms of photography in new ways I have endeavoured to, in effect, montage techniques and to utilise discarded forms in new ways in an effort to better understand the nature of the medium and the applicability of the paradigm of trace to this understanding. Understanding the form of photographs is relevant as the form of things affects their use, as does an understanding of their means of creation. Exploring the form and method of creation of the image opens an avenue to understanding the many uses of the medium.

During the course of my research my photographic works were exhibited in three exhibitions at the Spectrum Gallery in Perth. I participated in a group exhibition *Cameraless* (2008), in which local and interstate Australian artists exhibited works produced using alternative photographic techniques such as scanner based image making, pinhole photography and photograms. My work was exhibited at the International Visual Sociology Association annual conference in Buenos Aires in 2008, and at the Cultural Studies Association of Australasia conference held at Kalgoorlie the same year, where I also presented a paper on my work. I published a preliminary chapter of my work, titled "Digital traces: The impact of digital

technology on personal photography” in the academic peer reviewed journal *Illumina*, in 2009, and my photogram *Palimpsests* was used as the cover image for the October 2008 issue of *Continuum Journal of Media & Cultural Studies*. I will be seeking to further exhibit works produced during this research, particularly the series of phosphorescent portraits which has not been shown publicly to date. I believe these works will be of particular cultural interest due to their combination of digital and alternative analogue processes, and the questions that they raise about ideas of the nature of photography, ideas of aura, and the role of contact in production of a photographic image.

The methodologies by which my works have been produced differ from standard photography but all seek to record and illustrate the making of traces. The unfolded pinhole photographs illustrate that all photographs are, by virtue of the means of production, subjective and tied to a particular point of view. The combined pinhole and photogram images illustrate the gap that exists between the footprint and shadow, which are used as metaphors for the photograph. The phosphorescent images help to illustrate characteristics of modern photography that distinguish it from its earlier forms, and in this way better to understand Benjamin’s concerns with slowness, contact and the preservation of aura. Use of each of these methods has been an exploration of the ways that photography can be used to interact with our environment and create an impression of our world.

Together the writings of theorists on photography and the images produced by artists create a framework through which the significance of the trace to photographic meaning can be understood. Despite clear demonstrations that photographs are subjective representations of reality, the paradigm of trace retains significance and continues to recur in explanations of photography because it provides the ability for photographs to be applied to more purposes than evidence alone.

As Geimer (2007, p.20) states “there are many and diverse uses of photography today”. The purpose of ontological studies of photography such as this is not about looking so much for some “truth” in photography, as acknowledging the

roles that the processes associated with producing photographs and the physical (or insubstantial) forms that photographs take play an important part in the social uses of these images and the roles and meanings ascribed to them.

Perhaps the most socially significant growth area in the use of photography is the growth of robotic technology, drones and the use of surveillance cameras. This area of photography represents an important area of further research and investigation that could build on the work from this thesis. The model applied in this thesis to analyze the paradigm of trace could also be applied to examine the theories of agency and inscription in the production and use of photographs.

Be it the monitoring of passengers on public transport, satellite photography, camera traps for recording elusive wildlife or robotic probes for space exploration such "robotic" photography shares the common feature of eliminating the presence of the human hand in the photograph making process. As such they can be seen to be fulfilling in a fashion the earlier photographer's desire to remove human agency in the production of an image (for example Talbot, 1839, p.196). But the image formed is produced by a mechanical hand rather than any "natural magic".

Such image making (photography without photographers) poses implicit challenges to the notions of authorship and inscription in relationship to these images. With inscription, Benjamin saw the photographer applying meaning to the photographic trace. Yet with these "photographer free" photographs, meaning may be inscribed by whoever is in charge of the image. Further, such diminution of the role of the photographer can be argued to represent a further development of Benjamin's view of the impact of mechanical reproduction on the aura of the work of art. In my exploration of the paradigm of trace in photography I now consider the question for future research for the case that when the photographer is a mechanical, robotic creature (and therefore reproducible and replaceable) can any photograph so produced be considered to hold aura?

6. REFERENCES

- Abram, D. (1996). *The spell of the sensuous*. New York NY: Pantheon Books.
- Abrams, H. (2002). *The invention of photography*. London, England: Thames and Hudson.
- Ades, D. (1994). Dada and Surrealism. In N.Stangos (Ed.). *Concepts of Modern Art*. Third edition. London, England: Thames and Hudson.
- Ades, D. (1986). *Photomontage*. London, England: Thames and Hudson.
- Allmark, P. (2008). Photography after the incidents: we're not afraid! *M/C Journal* 11 (1), Retrieved from www.journal.media-culture.org.au, accessed 10 November 2008.
- Avital, T. (1998). Footprints literacy: The origins of art and the prelude to literacy. *Symmetry Culture and Science*, 9, (1), 1-112.
- Barthes, R. (1980). *Camera Lucida*. London, England: Fontana.
- Barthes, R. (1972). *Mythologies*. New York, NY: Hill and Wang.
- Barthes, R. (1977). The Rhetoric of the Image. In S. Heath (Ed.), *Image, Music, Text*. New York: Hill and Wang, 153-163.
- Barthes, R. (1982). The photographic message, in S. Sontag, (Ed.), *A Barthes Reader*. New York, NY: Hill and Wang, 194-210.
- Barron, K. & Douglas, A. (Eds.).(2006). *Alchemy*. London, England: Purdy Hicks.
- Barnes, M. (2006). The mirror of alchemy. In K. Barron & A. Douglas, (Eds.), *Alchemy*. London, England: Purdy Hicks, 25-35.
- Barnes, M. (2010). *Shadow catchers: Camera-less photography*. London, England: Merrell.
- Batchen, G. (1997). *Burning with desire*. Cambridge, MA: Massachusetts Institute of Technology.
- Batchen, G. (2001). *Each wild idea*. Cambridge, MA: Massachusetts Institute of Technology.
- Batchen, G. (2004). *Forget me not*. New York, NY: Princeton Architectural Press.
- Batchen G. and Dillon, B. (2004) Forget Me Not: An Interview with Geoffrey Batchen. *Cabinet Magazine*. Issue 14 Doubles Summer 2004.
- Batchen, G. Ed. (2010). *Photography degree zero: Reflections on Roland Barthes' Camera Lucida*. Cambridge, MA: Massachusetts Institute of Technology.

- Bate, D. (2001). Blowing it: Digital images and the real. *Optic*, (7) 21-23.
- Batschmann, O. (2002) Landscape at One Remove. In D.Elgar (Ed.). *Gerhard Richter: Landscapes*. Ostfildem- Ruit and New York: Hatje Cantz, 33-39.
- Baudrillard, J. (1994). *The art of disappearance*. Brisbane, Australia: Institute of Modern Art.
- Bazin, A. and Gray, H. (1960) The Ontology of the Photographic Image. *Film Quarterly* (13), No. 4, 4-9.
- Bazin, A. (2004). *What is Cinema?* Los Angeles, CA: University of California Press.
- Bello, P. (2010). Photography and sculpture: A light touch. *Art History and the Senses 1830 to the Present*. Surrey, England: Ashgate Publishing Ltd.
- Benjamin, W. (2008). *The work of art in the age of its technological reproducibility and other writings on media*. Cambridge MA: Harvard University Press .
- Benjamin, W. (1985). *One Way Street and Other Writings*. London, England: Verso.
- Benjamin, W. (1974). *On the concept of history*. Frankfurt am Main, Germany: Suhrkamp Verlag.
- Benjamin, W. & Tiedeman, R. (1999). *The Arcades Project*. Cambridge, Mass: Harvard University Press.
- Benjamin, W. (2006). *Berlin childhood around 1900*. Cambridge, Mass: Harvard University Press.
- Bentham, J. (1995). *The Panopticon Writings*. London, England: Verso.
- Berger, J. & Mohr, J. (1982). *Another way of telling*. New York, NY: Writers and Readers Publishing Cooperative Society Ltd.
- Berger, J. (1972). *Ways of seeing*. New York, NY: Viking Press.
- Berman, M. (1982). *All that is solid melts into air*. New York, NY: Simon and Schuster.
- Black, J. (2003). *Visions of the world*. London, England: Octopus Publishing.
- Bolton, R. (1989). *The contest of meaning: Critical histories of photography*. MA:MIT Press.
- Bode, L. (2005). Digital doppelgängers, *M/C Journal*, 8(3). Retrieved from www.journal.media-culture.org.au, 18 October 2008.
- Bolt, B. (2010). *Practice as research: approaches to creative arts enquiry*. London: Tauris.

- Borgdorff, H. (2006). The debate on research in the arts. Sensuous knowledge: focus on research and development, 2. Bergen, Norway: Kunsthogskolten Bergen National Academy of the Arts.
- Brewster, D. (1843). Photogenic drawing, or drawing by the agency of light, *Edinburgh Review*, 76, 309-44.
- Brumm, A. & Moore, M. (2005). Symbolic revolutions and the Australian archaeological record. *Cambridge Archaeological Journal* 15(2), 157–75.
- Burnett, R. (1995). *Cultures of vision*. Bloomington, IN: Indiana University Press.
- Burgin, V. (Ed.) (1980). *Thinking Photography*. London, England: Macmillan Press.
- Burgin (2006). Thoughts on ‘research’ degrees in visual arts departments. <http://avphd.wordpress.com/2006/11/21/avphd1-27th-28th-january-2006/>
- Butler, S. (Ed.) (2012). *The Macquarie Dictionary*. Retrieved from www.macquariedictionary.com.au, 1 December 2012.
- Cadava, E. (1997). *Words of light: Theses on the photography of history*. Princeton, NJ: Princeton University Press.
- Cahill, B.J.S. (1909). An account of a new land map of the world. *The Scottish Geographical Magazine*, 25, (9), 449-469.
- Cahill, B.J.S (1934). A world map to end world maps. *Geografiska Annaler*, 16, 97-108.
- Campany, D. (Ed.). (2003). *Art and photography*. London, England: Phaidon Press.
- Cartier-Bresson, H. (1952) *The Decisive Moment*. NY: Simon and Schuster.
- Clarke, G. (1997). *The photograph*. Oxford, England: Oxford University Press.
- Coles, A. (Ed.) (1999). *The optic of Walter Benjamin, Vol.3*. London, England: Black Dog Publishing.
- Collinshaw, M. (n.d.) <http://www.matcollishaw.com/art/archive/shooting-stars/>
- Cohen, K. (2005). What does the photoblog want? *Media Culture Society*, 27, (5), 883-901.
- Cotton, C. (2004). *The photograph as contemporary art*. London: Thames and Hudson.
- Cowie, E. (2007). Specters of the real: documentary time and art. *Differences*, 18 (1) 87 – 127.

- Crary, J. (1990). *Techniques of the observer: On vision and modernity in the 19th Century*. Cambridge, MA: MIT Press.
- Crump, J. (1997). Visceral Photography: The work of Adam Fuss. *Afterimage*, 25, (1) 11-12.
- Curtis, Neal (Ed.) (2010). *The Pictorial Turn*. Oxon: Routledge.
- Daito, M. and Motoi, I. (n.d.)
<http://www.creativeapplications.net/openframeworks/recent-work-by-daito-manabe-motoi-ishibashi-of-profile/>
- Daito, M. (n.d.) <http://www.daito.ws/en/work/uvlaserfadeout.html>
- Damisch, H. (1978). Five notes for a phenomenology of the photographic image, *October* 5, 70-72.
- Daniels, D. & Schmidt, B. (Eds.) (2008). *Artists as inventors*. Ostfildern: Hatje Cantz Verlag.
- Daston, L. (Ed.) (2004). *Things that talk: Object lessons from art and science*. New York, NY: Zone Books.
- Dean, R.T. & Smith, H. [Eds.] (2009). *Practice-led research, research-led practice in the creative arts*. Edinburgh: Edinburgh University Press.
- Dennis, K. (2009). Benjamin, Atget and postmodern photography studies. in Long, J.J. Noble, Andrea and Welch (ed.) *Photography: Theoretical snapshots*. New York, NY and London, England: Routledge, 112-124.
- Doane, M. (2007)a. Image as Trace: Indexicality: Trace and Sign: Introduction. *Differences* 18, (1) 1-6.
- Doane, M. (2007)b. "The indexical and the concept of medium specificity." *Differences* 18, (1) 128 – 152.
- Douglas, A. & Barron, K. (Ed.) (2006). *Alchemy: Twelve contemporary artists exploring the essence of photography*. London, England: Purdy Hicks.
- Duttlinger, S. (2008). Imaginary Encounters: Walter Benjamin and the aura of photography. *Poetics Today* 29, (1), 79-101.
- Duve, T. (2007). Time exposure and snapshot: the photograph as paradox. In J. Elkins (Ed.). *Photography Theory*. London and New York, NY: Routledge, 109-123.
- Edwards, E. and Hart, J. (Eds.) (2004). *Photographs objects histories – on the materiality of images*. London and New York, NY: Routledge.

- Edwards, E. (2009). Thinking photography beyond the visual, J.J. Long, A. Noble, and E. Welch (Eds.). *Photography: Theoretical snapshots*. New York, NY and London, England: Routledge, 31-44.
- Elger, D. (Ed.). (1999). *Gerhard Richter. Landscapes*. Ostfildern-Ruit: Hatje Cantz Verlag.
- Elkins, J. (Ed.). (2007). *Photography Theory*. London and New York, NY: Routledge.
- Enfeild, J. (2002). *Photo-imaging: A complete guide to alternative processes*. New York, NY: Amphoto Books.
- Fiske, J. (1982). *Introduction to communication studies*. Methuen, London: England.
- Fontcuberta, J. (2006). "Archive Noise."
<http://www.zabriskiegallery.com/artist.php?artist=5&page=45>
- Fouche, P. (n.d.). Retrieved from
http://www.paulinefouche.fr/en/presentation_persiste/
- Frailey, S. (1993). Thin air. *Artforum International* 32, (3), 78.
- Fuller, P. (1980). *Seeing Berger: A revaluation of ways of seeing*. London, England: Writers and Readers Publishing Cooperative.
- Galton, F. (1879). Composite portraits. *Journal of the Anthropological Institute*, 8, 132-144.
- Geimer, P. (2007). Speculation about an undead paradigm. *Differences* 18, (1), 7-28.
- Giblett, R. (2008). *Sublime communication technologies*. Basingstoke, England: Palgrave MacMillan.
- Good, J. (2011). How many photos have ever been taken? Retrieved from www.blog.1000memories.com, accessed 11 June 2012.
- Green, D. (2007). Indexophobia. In Elkins (Ed.). *Photography Theory*. London and New York, NY: Routledge, 244-248.
- Grundberg, A. (1999). *Crisis of the real: Writings on photography*. New York, NY: Aperture Foundation.
- Gunning, T. (2007). Moving away from the index: Cinema and the impression of reality. *Differences* 18, (1) 29-52.
- Guerin, F. and Hallas, R. (2007). *The image and the witness: Trauma, memory and visual culture*. London, England: Wallflower Press.

- Gye, L. (2007). Picture this: the impact of mobile camera phones on personal photographic practices. *Continuum: Journal of media and cultural studies* 21, (2), 279-288.
- Hall, S. (1974). "The determination of news photographs", in Cohen, S., & Young, J., (Eds.), *The manufacture of news*. Constable, London. Revised edition 1981; pp. 147-156.
- Harvey, P. (1990). Venerated objects and symbols of early Buddhism. *Symbols in art and religion*. In K. Werner (Ed.). London, England: Curzon Press, 68-102.
- Hartley, K. (2009). Gerhard Richter: Radical Senses. *Map Magazine* 16. Retrieved from www.mapmagazine.co.uk, accessed 9 February 2010.
- Hartley, J. (1982) *Understanding news*. Methuen, London: England.
- Hauser, K. (2007). *Shadow sites: Photography, archaeology and the British landscape 1927-1955*. Oxford, England: Oxford University Press.
- Hayles, N. K. (1999). *How We Became Posthuman : Virtual Bodies in Cybernetics, Literature, and Informatics*. Chicago, IL: University of Chicago Press.
- Heath, S. (Ed.) (1977) *Image, Music, Text*. New York: Hill and Wang,
- Henisch, H. and Henisch, B. (1994). *The photographic experience, 1839-1914: Images and attitudes*. Pennsylvania, PA: Pennsylvania State University.
- Henisch, B. and Henisch, H. (2004). Secure the shadow ere the substance fade. *History of photography* 28, (3), 211-212.
- Heinzelmann, M. (Ed.) (2008). *Gerhard Richter : Overpainted photographs*. Ostfildern: Hatje/Cantz.
- Hershberger, A. (2006). Krauss's Foucault and the foundations of postmodern history of photography, *History of Photography* 30, (1), 55-67.
- Holland, P. (2009). 'Sweet it is to scan...': Personal photographs and popular photography. In L. Wells (Ed.). *Photography a critical introduction*. 4th ed. London, England: Routledge.
- Holsbach, S. (2007). Continuities and differences between photographic and post-photographic mediality. *Photo/Byte*. Retrieved from www.medienkunstnetz.de.
- Hopkinson, A. (2004). Gerhard Richter's Atlas. *Aperture*, (176), 8-9.
- Hopkinson, A. (2005). The appliance of science. *Art Review* 3, (9) 57-8.
- Hustvedt, S. (2008). Truth and rightness. (pp. 71-78) in M.Heinzelmann (Ed.) *Gerhard Richter : Overpainted photographs*. Ostfildern: Hatje/Cantz,.

- Iversen, M. (1994). What is a photograph? *Art History* 17, (3), 450-464.
- Iversen, M. (2004). Readymade, found object, photograph. *Art Journal* 63, (2), 44-57.
- Jolley, M. (2006). *Faces of the living dead: The belief in spirit photography*. London, England: The British Library.
- Keenan, C. (1998) On the Relationship between Personal Photographs and Individual Memory, *History of photography*, 22 1 (Spring) 60-64.
- Koch, G. (1992). The Richter-scale of blur. *October* 62, 133-142.
- Kodak (2009). Kodachrome discontinuation notice. 22 June 2009. Retrieved from <http://www.kodak.com> on 21 March 2012.
- Kofman, S. (1973). *Camera obscura of ideology*. Ithaca, New York: Cornell University Press.
- Kozloff, M. (1990). *Duane Michals: Now becoming then*. Altadena, CA: Twin Palm Publishers.
- Kracauer, S. and Levin, T. (1993). *Critical Inquiry*, 19, No. 3, Spring, 421-436.
- Krauss, R. (1977). Notes on the index: Seventies art in America. *October* 3, 68–81.
- Krauss, R. (1977). Notes on the index: Seventies art in America. Part 2. *October* 4, 58–67.
- Krauss, R (1978). Tracing Nadar. *October* 5, 29-47.
- Krauss, R (1999). Reinventing the medium. *Critical Inquiry*, 25, (2) 209-385.
- Krauss, R. (1984). A note on photography and the simululacral. *October* 31, 49-68.
- Krauss, R. (1990). The story of the eye. *New Literary History*. 21, 283-298.
- Kriebel, S. (2007). Theories of photography: a short history. In J. Elkins (Ed.). *Photography Theory*. London and New York, NY: Routledge, 3-43.
- Lee, H. (Trans.) (1955). *Plato: The Republic*. Middlesex, England: Penguin Books.
- Lefèvre, W. (2007). (Ed.). *Inside the Camera Obscura – Optics and Art under the Spell of the Projected Image*. Berlin, Germany: Max Planck Institute for the History of Science.
- Lenman, R. (2005). (Ed.). *The Oxford companion to the photograph*. Oxford, England: Oxford University Press.

- Lesley, E. (1999). Telescoping the microscopic object: Walter Benjamin the collector. In A. Coles (Ed.) *The optic of Walter Benjamin*. London, England: Black Dog Publishing, 58-91.
- Levey, L. (2009). The question of photographic meaning in Roland Barthes *Camera Lucida*. *Philosophy Today*, 395-406.
- Lissel, E. (2008). The return of images: Photographic enquiries into the interaction of light. *Leonardo* 41, (5), 438-445.
- Lister, M. (2007). Photography, presence and pattern. In J. Elkins (Ed.). *Photography Theory*. London and New York, NY: Routledge, 350-358.
- Livingstone, M. (1984). *Duane Michals Photographs/Sequences/Texts 1958-1984*. Oxford, England: Museum of Modern Art.
- Locke, J. (1836). *An essay concerning human understanding*. London, England: T.Tegg and Son.
- London, B. Upton, J. Stone, J. Kobre, K. Brill, B. (2005). *Photography*. (8th ed). New Jersey, NJ: Prentice Hall.
- Long, J.J. Noble, A. and Welch, E. (Ed.). (2009). *Photography: Theoretical snapshots*. New York, NY and London, England: Routledge.
- Marien, M. (2006). *Photography: a cultural history*. (2nd edition). London, England: Laurence King Publishing.
- Marien, M. (1997). *Photography and its critics. A cultural history 1839-1900*. New York, NY: Cambridge University Press.
- Meister, S. (2004). *Michael Wesely: Open shutter*. New York, NY: The Museum of Modern Art.
- McCole, J. (1993). *Walter Benjamin and the antinomies of tradition*. New York, NY: Cornell University Press.
- Melara, M. (1997). Photographics/Autographics: Felix Nadar and the face of resemblance. *French Cultural Studies* 8, 183-199.
- Metelerkamp, P. (2002), <http://www.metelerkamp.com/writing/the-photographer-the-publisher-and-the-photographers-book/>.
- Metz, C. (1985). Photography and fetish. *October* 34, 81-90.
- Michaels, W. (2007). Photographs and fossils. In J. Elkins (Ed.). *Photography Theory*. London and New York, NY: Routledge, 431-450.
- Miles, M. (2008). *The burning mirror – Photography in an ambivalent light*. North Melbourne, Australia: Australian Scholarly Publishing.

- Miles, M. (2010), The drive to archive: Conceptual Documentary Photobook Design. *Photographies*, vol. 3, no. 1, 49-68.
- Miller, D. (2009) *Stuff*. Cambridge, MA: Polity Press.
- McQuire, S. (1998). *Visions of modernity : representation, memory, time and space in the age of the camera*. London, England: Sage Publications.
- Mitchell, W. (1992). *The reconfigured eye: Visual truth in the post-photographic era*. Cambridge, MA: The MIT Press.
- MoMA (2012) *Shadow walls* (MOMA) from <http://momaps1.org/exhibitions/view/230>
- Nadar, F. Tournachon, G. and Repensek, T. (1978). My life as a photographer. *October* 5, 6-28.
- Navab, A. (2001). Re-Picturing Photography. *Journal of Aesthetic Education* 35, (1), 69-84.
- Nickel, D. (2000). Roland Barthes and the snapshot. *History of Photography* 24, (3), 236-239.
- Olin, M. (2002). Touching photographs: Roland Barthes's "mistaken" identification. *Representations* 80, 99-118.
- Ong, W. (1982). *Orality and literacy*. London, England: Routledge.
- Orvell, M. (2003). *American photography*. New York, NY: Oxford University Press.
- Palmer, D. (2005). Mobile Exchanges. In L. Jones, P. Anastasiou, R. Smithies, K. Trist (Eds.). *Vital Signs: Creative Practice & New Media Now*. Melbourne, Australia: RMIT Publishing.
- Parr, M. and Badger G. (2004). *The photobook: a history. Vol. 1*. London, England, New York, NY: Phaidon.
- Pauwels, L. (2008). A private visual practice going public? Social functions and sociological research opportunities of Web-based family photography. *Visual Studies* 23, (1).
- Peim, N. (2005). Spectral bodies: Derrida and the philosophy of the photograph as historical document. *Journal of Philosophy of Education* 39, (1).
- Peirce, C. S. (1974). *Collected Papers of Charles Sanders Peirce*. C. Hartshorne and P. Weiss (Eds.). Cambridge, Massachusetts: Harvard University Press.
- Peirce, C. S. (1955). *Philosophical Writings of Peirce*. J. Buchler (Ed.). London, England: Routledge.

- Peirce, C. S. (2001). *The Philosophy of Peirce: Selected Writings, Volume 2* J. Buchler (Ed.). London, England: Routledge.
- Pirenne, M. (1970). *Optics, painting and photography*. Cambridge, MA: Cambridge University Press.
- Preziosi, D. (2009). Plato's dilemma. In J.J. Long, A. Noble, and E. Welch (Eds.) *Photography: Theoretical snapshots*. New York, NY and London, England: Routledge.
- Price, M. (1994). *The photograph: A strange, confined space*. Stanford, CA: Stanford University Press.
- Rafman, J. (n.d.). <http://9-eyes.com>.
- Rafman, J. (2013). http://www.saatchi-gallery.co.uk/artists/jon_rafman.htm.
- Ratcliffe, C. (1991). Collapsing hierarchies: photography and contemporary art. *Aperture*, (125), 36 – 41.
- Renner, E. (2004). *Pinhole photography: Rediscovering a historic technique*. Oxford, England: Elsevier Focal Press.
- Rexer, L. (2002). *Photography's antiquarian avant-garde: the new wave in old processes*. New York, NY: Harry N Abrahams.
- Richardson, M. (n.d.) <http://matrichardson.com/Fade-Away/>
- Ritchin, F. (1990). Photojournalism in the age of Computers. In C. Squires (ed.). *The critical image*. Seattle, WA: Bay Press.
- Ritchin, F. (2009). *After Photography*. New York, NY: W.W.Norton and Company.
- Rubinfien, L. Phillips, S. Dower, J. (2004). *Shomei Tomatsu Skin of the Nation*. San Francisco, CA: Museum of Modern Art.
- Rubinstein, D. and Sluis, K. (2008). A life more photographic. *Photographies 1*, (1) 9-28.
- Ruby, J. (1995). *Secure the shadow: Death and photography in America*. Cambridge MA: MIT Press.
- Sabra, A. (2007). Alhazen's optics in Europe: Some notes on what it said and what it did not say 53-58. In W. Lefèvre (Ed.). *Inside the camera obscura: Optics and art under the spell of the projected image*. Berlin, Germany: Max Planck Institute for the History of Science.
- Salavon, J. (n.d.). <http://salavon.com>
- Sand, M. (1993). Adam Fuss. *Aperture*, (133), 44.

- Sandler, M. (2002). *Photography: An illustrated history*. New York, NY: Oxford University Press.
- Schjeldahl, P. (2008). *Let's see - Writings on art from the New Yorker*. New York, NY: Thames and Hudson.
- Schneede, U. (2008). Reality, the photograph, the paint, the picture. In M. Heinzelmann (Ed.). *Gerhard Richter : Overpainted photographs*, 193-201. Ostfildern: Hatje/Cantz.
- Scott, C. (1999). *The spoken image*. London, England: Reaktion Books Ltd.
- Sekula, A. (1982). On the invention of photographic meaning. In *Thinking Photography*, V. Burgin, (Ed.). London, England: Macmillan Press, 84-109.
- Shapiro, A. (2007). Images: Real and Virtual, Projected and Perceived, from Kepler to DeChales, 75-94. In *Inside the Camera Obscura – Optics and Art under the Spell of the Projected Image*. In W. Lefèvre (Ed.). *Inside the camera obscura: Optics and art under the spell of the projected image*. Berlin, Germany: Max Planck Institute for the History of Science.
- Sobieszek, R. (2000). *Ghost in the shell: Photography and the human soul*. Cambridge, MA: MIT Press.
- Sobchack, V. (2003). Nostalgia for a digital object in J. Shaw & P. Weibel (Eds.). *Future cinema: The cinematic imaginary after film*. Cambridge, MA: MIT Press with ZKM.
- Sonesson, G (1989). *Semiotics of photography – on tracing the index*. Lund, Sweden: Lund University.
- Sontag, S. (1977). *On photography*. London, England: Penguin.
- Sontag, S. (Ed.) (1982). *A Barthes reader*. New York, NY: Hill and Wang.
- Sontag, S. (2003). *Regarding the pain of others*. New York, NY: Picador.
- Spencer, S. (2011). *Visual research methods in the social sciences: Awakening vision*. Oxfordshire, England: Routledge.
- Stein, S. (1981). The Composite Photographic Image and the Composition of Consumer Ideology. *Art Journal*, Vol. 41, No. 1, Photography and the Scholar/Critic (Spring, 1981), pp. 39-45.
- Store, R. (2003). *Gerhard Richter: Doubt and belief in painting*. New York, NY: The Museum of Modern Art.
- Strauss, B. (2008). The painter breaks the spell. In M. Heinzelmann (Ed.). *Gerhard Richter : overpainted photographs*. Ostfildern: Hatje Cantz, 203-207.

- Sullivan, G. (2010). *Art practice as research: inquiry in visual arts*. 2nd ed. Thousand Oaks Ca: Sage Publications.
- Szarkowski, J. (1989). *Photography until now*. New York, NY: The Museum of Modern Art.
- Talbot, W.H.F. (1844). *The pencil of nature*. London, England: Longman, Brown, Green and Longmans.
- Talbot, W.H.F. (1839a). Art of photogenic drawing. *Philosophical Magazine*, 196-211.
- Talbot, W.H.F. (1839b). The new art. *The Literary Gazette: A Weekly Journal Of Literature, Science* 2, 72-74.
- Tagg, J. (1988). *The burden of representation. Essays on photographs and histories*. London, England: Macmillan Education Ltd.
- Tagg, J. (2009). Mindless photography. In J.J. Long, A. Noble, and E. Welch (Eds.). *Photography: Theoretical Snapshots*. New York, NY and London, England: Routledge, 16-30.
- Terdiman, R. (1993). *Present past: Modernity and the memory crisis*. Ithaca, NY: Cornell University Press.
- Tremlin, T. (2006). *Minds and gods: the cognitive foundations of religion*. New York, NY: Oxford University Press.
- Van House, N. Davis, M. Takhteyev, Y. Good, N. Wilhelm, A. and Finn, M. (2004). From "What?" to "Why?": The social uses of personal photos. Berkeley, CA: University of California at Berkeley.
- Vestberg, N. (2008). Archival value. *Photographies*, 1:1, 49-65.
- Wadley, L. (2001). What is cultural modernity? A general view and a South African perspective from Rose Cottage Cave. *Cambridge Archaeological Journal* 11, (2), 201-21.
- Walton, K. (1984). Transparent Pictures: On the nature of photographic realism. *Critical Inquiry* 11, 246-277.
- Ware, M. (2002). "Luminescence and the Invention of Photography" in *History of Photography* 26, 4-15.
- Wells, L. (Ed.) (2009). *Photography: A critical introduction*. (Third Edition). New York, NY: Routledge.
- Wiehager, R. (Ed.) (1998). *Photography as concept*. New York, NY: Distributed Art Publishers.

Williams, J. (2010). "Past, present future". Retrieved from
<http://cargocollective.com/jessicawilliams/Past-Present-Future>

Woodward, R. (2005) Abelardo Morell. Phaidon Press Inc. New York: NY.

Wright, C. (2004). "Material and memory: Photography in the Western Solomon Islands" in *Journal of Material Culture* 9 (1), 73–85.

7. LIST OF IMAGES

- Figure 1: Heartfield, J. (1935). Hurrah die Butter is alle! [Photomontage]. Retrieved from: www.gallery.ca/1930/educational_activities.htm.
- Figure 2: Richter, G. (1998). 14.2.98. [Oil on photograph] Retrieved from: www.gerhard-richter.com/art/overpainted-photographs/detail.php?14257.
- Figure 3: Richter, G. (1967). Frau mit Hund (Woman With Dog) [Painting] Retrieved from www.gerhard-richter.com/art/paintings/photo_paintings/detail.php?14099.
- Figure 4: Tomatsu, S. (1961) Bottle Melted and Deformed by Atomic Bomb Heat, Radiation and Fire, Nagasaki. [Photograph] (Source: Rubinfiel et al., 2004).
- Figure 5: Michals, D. (1967) This photograph is my proof. [Photograph]. Retrieved from www.cmoa.org/searchcollections/details.aspx?item=10178.
- Figure 6: Parker, C. (1997) Feather that went to the top of Mount Everest. [Photograph]. Retrieved from www.artnet.com/artwork/425024989/115003/cornelia-parker-feather-that-went-to-the-top-of-everest.html.
- Figure 7: Fuss, A. (1992) Untitled. [Photogram] (Source: Campany (Ed.), 2003).
- Figure 8: Lissel, E. (2000/2001). Bacterium Vanitas (Fish). [Image formed by phototropic bacteria]. (Source: Douglas & Barron, 2006).
- Figure 9: Daniel Nevin (2008). Palimpsests 2008. [Photogram].
- Figure 10: Daniel Nevin (2008). Hand 2008. [Chemigram].
- Figure 11: Nevin, D. (2012). The City. [Unfolded pinhole photograph].
- Figure 11: Daniel Nevin (2010). Folded photographic paper. [Photograph].
- Figure 12: Cahill, B. (1934). The Butterfly Map. (Source: Cahill, 1934).
- Figure 13: Daniel Nevin (2010). Octahedron photographs. [Pinhole photographs].
- Figure 14: Daniel Nevin (2010). Pinhole camera. [Photograph].
- Figure 15: Daniel Nevin (2010). Plane tree. [Pinhole photograph].
- Figure 16: Daniel Nevin (2010). Toys. [Pinhole photograph].
- Figure 17: Daniel Nevin (2010). Flame tree. [Pinhole photograph].
- Figure 18: Daniel Nevin (2012). Self portrait 5 minutes. [Photograph produced using a phosphorescent plate].



trace

DANIEL NEVIN

trace

DANIEL NEVIN



trace

This book is a record of my research on photography and the paradigm of the trace – a recurring motif used by Walter Benjamin, Susan Sontag, Roland Barthes and many others to explain the nature of photography. The idea implicit in this paradigm is that photographs may be understood as products of contact between the subject and a recording medium, a contact which enables the image to be used as evidence or as a relic.

The photogram reproduced opposite is an example of one form of the photographic trace. It is a record of a car accident that occurred in the street near my house, and the broken glass, wire and other debris are the traces left of a momentary event. Preserved as a photogram these have become a fixed shadow, a trace of a trace. Like all traces it can be interpreted and studied to glean information about the encounter it documents.

In addition to photograms, reproduced in this book are cyanotypes and pinhole photographs. The cyanotypes of feathers and plants recall those made of algae by Anna Atkins and the early experimental works of William Fox Talbot, while the photograms (for example that of my infant daughter, and those of her clothes) are akin to those of produced by artists Adam Fuss and Anne Ferran. A further series of works combines photograms with pinhole photography through placing objects within the camera forming the image.

The final part of this book comprises a series of phosphorescent portraits, produced by playing digital video images against a glass sheet coated with phosphorescent paint. The resultant temporary portraits are transient emanations. The life of the person is recorded as blur, as a living being inevitably moves during a long exposure time, even if only to blink or breathe. The portraits exist for a brief time before fading. The images both record the touch of light and project light that touches the viewer.

While the photographs in this book have been produced using differing techniques the common connecting characteristic for each image is that they represent traces of my life. The palimpsest images are taken from books I have known since childhood or have inherited from my parents. The portraits depict family, friends, or are self portraits. Other images are drawn from personal objects or things found in the streets near my home. Taken together they represent an attempt to understand the significance of such preserved fragments of life, and how traces and photography relate to the experience of the passage of time, existence, and memory.

Daniel Nevin

2012

Aftermath of a car accident

Photogram

2012

photograms

My hand
Developer print
2008



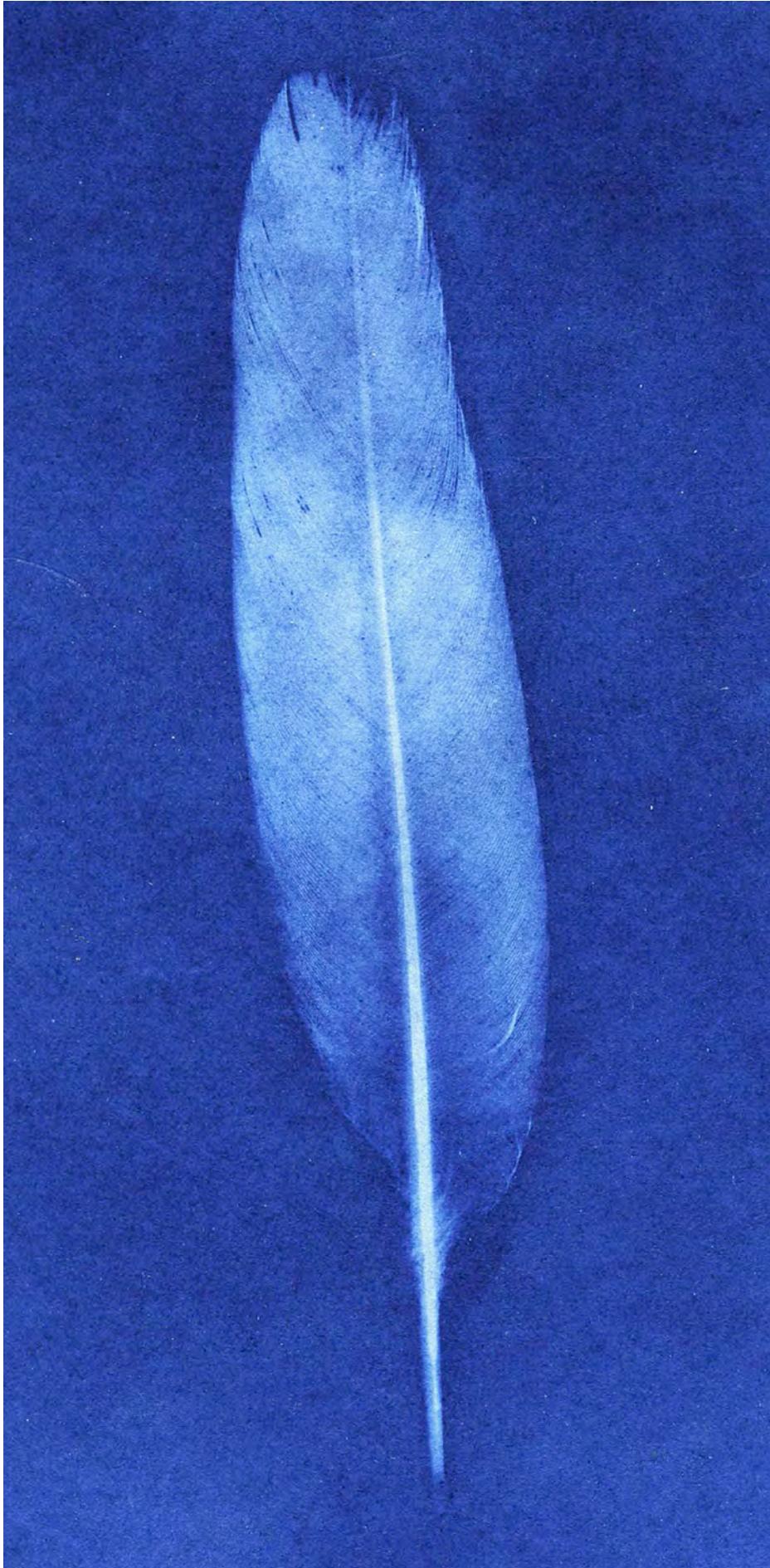
Weed
Photogram
2008



Feather and leaves

Cyanotypes

2010

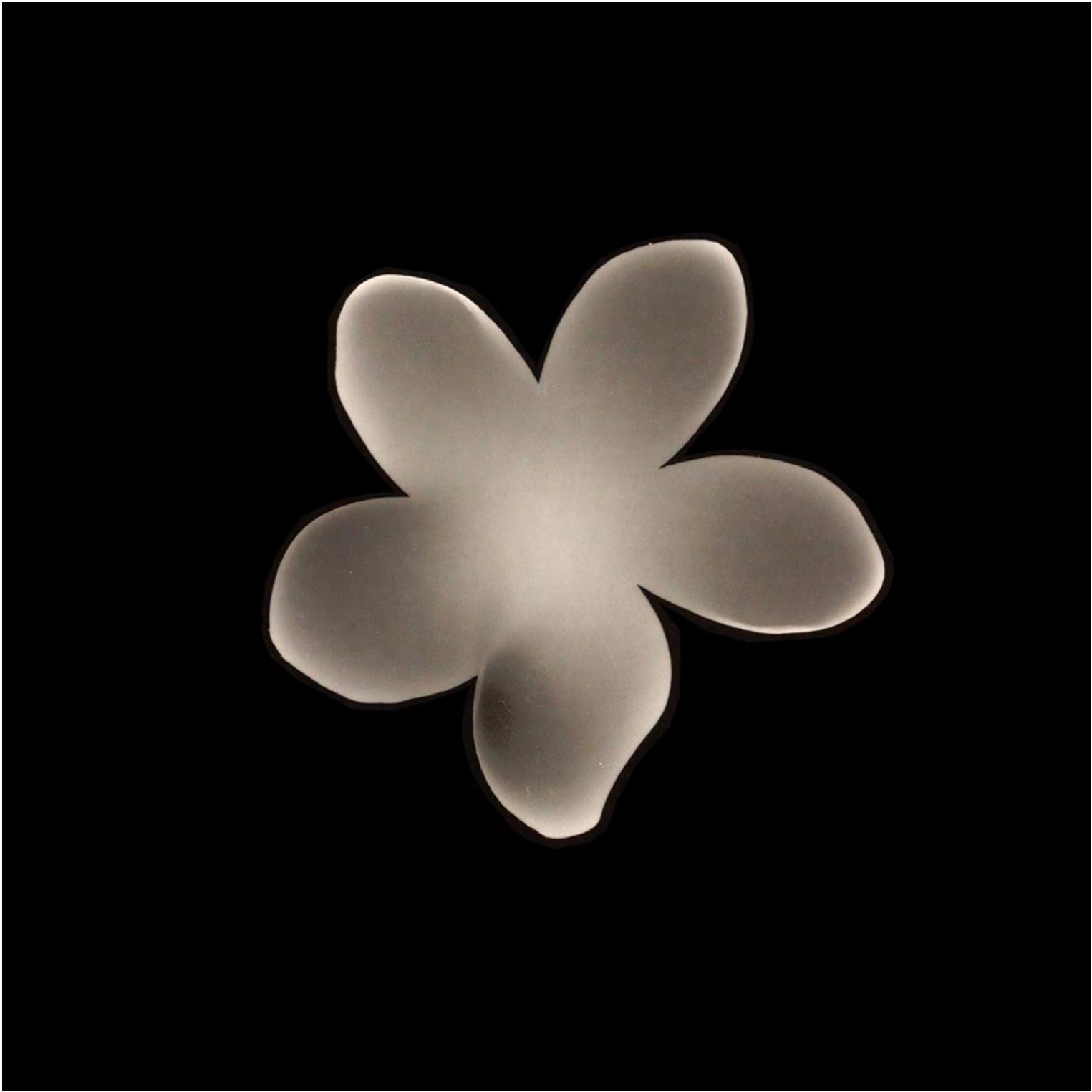


Seeds
Cyanotypes
2010

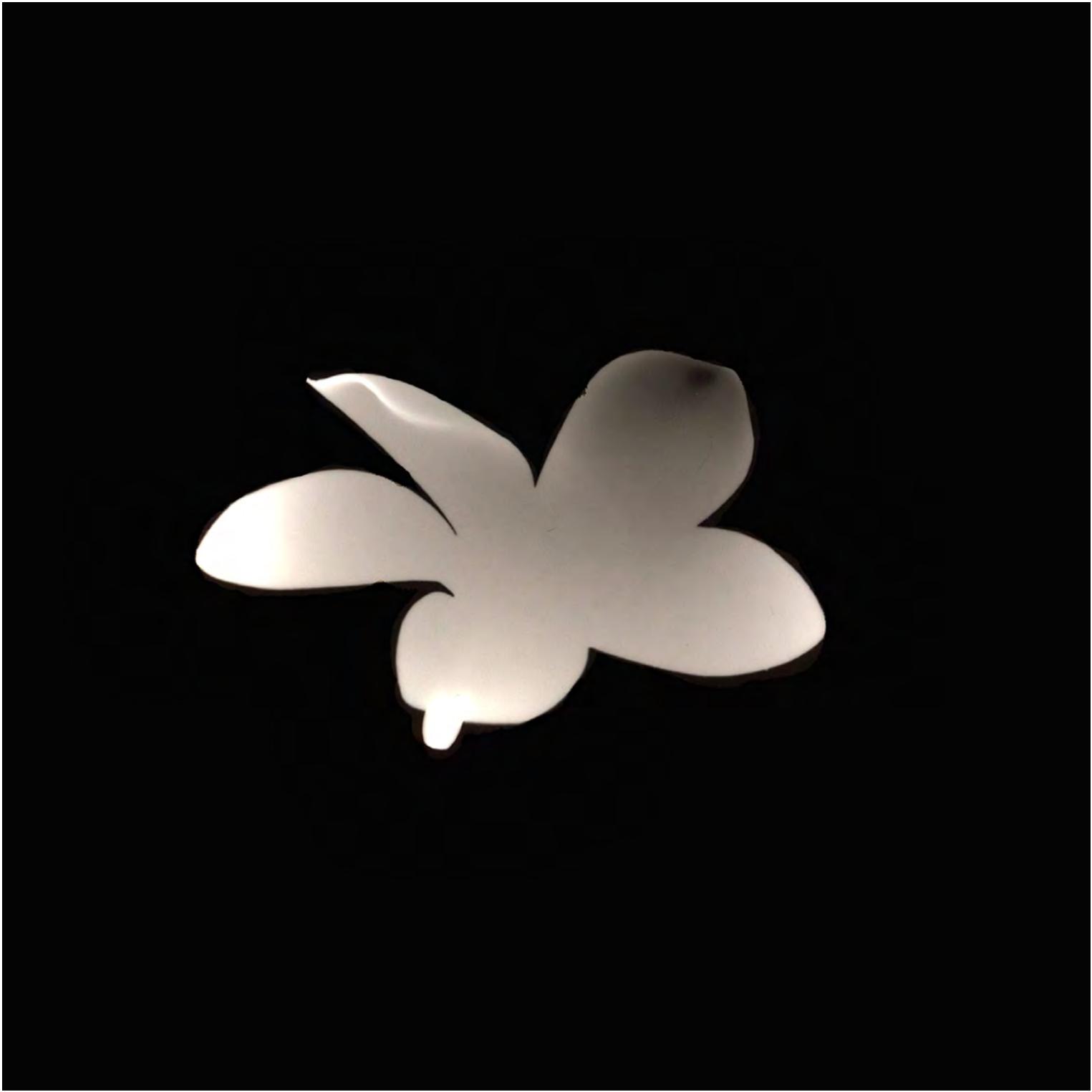


Grevillea
Cyanotype
2010

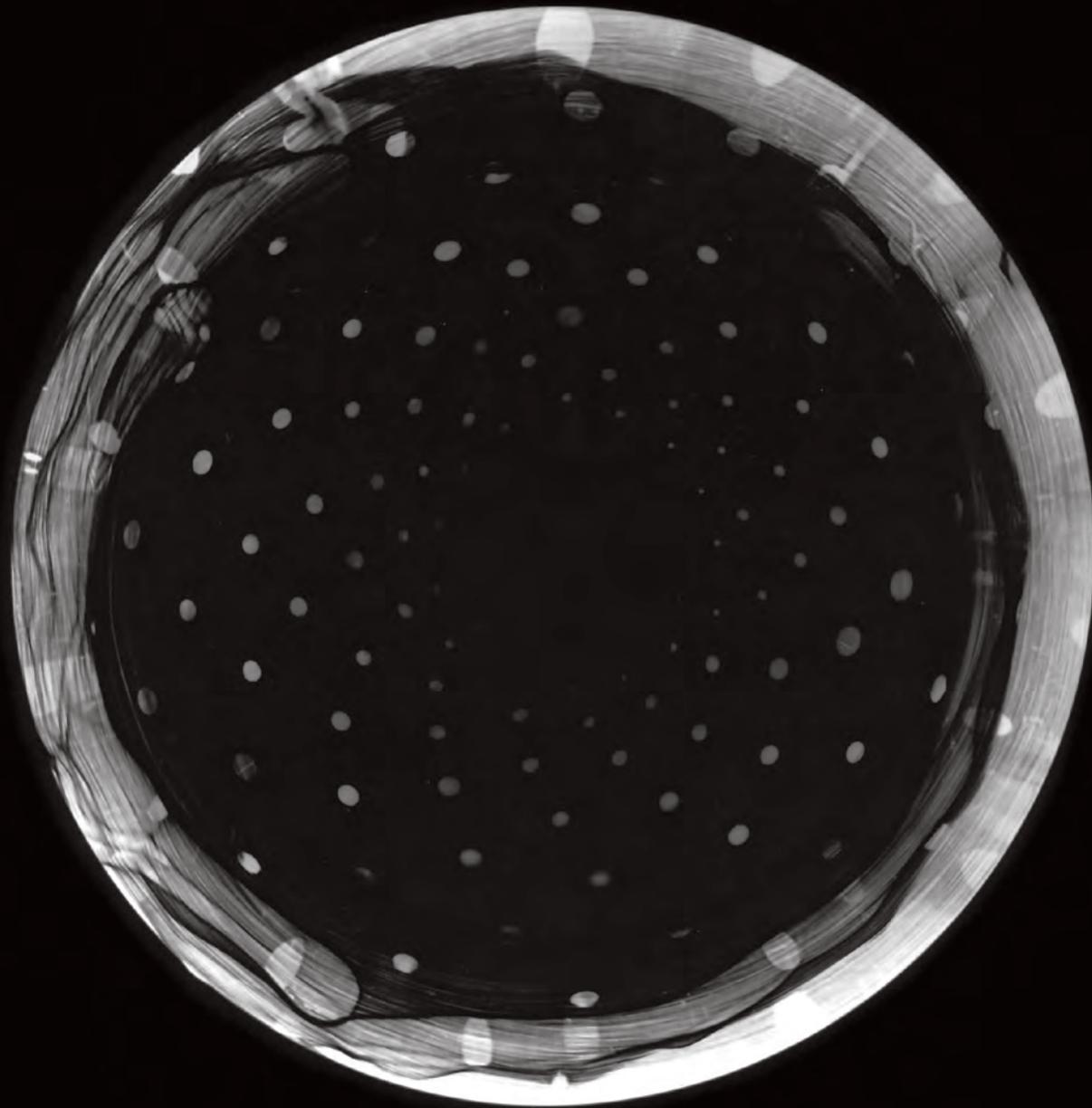




Frangipani flower 1
Photogram
2008



Frangipani flower 2
Photogram
2008



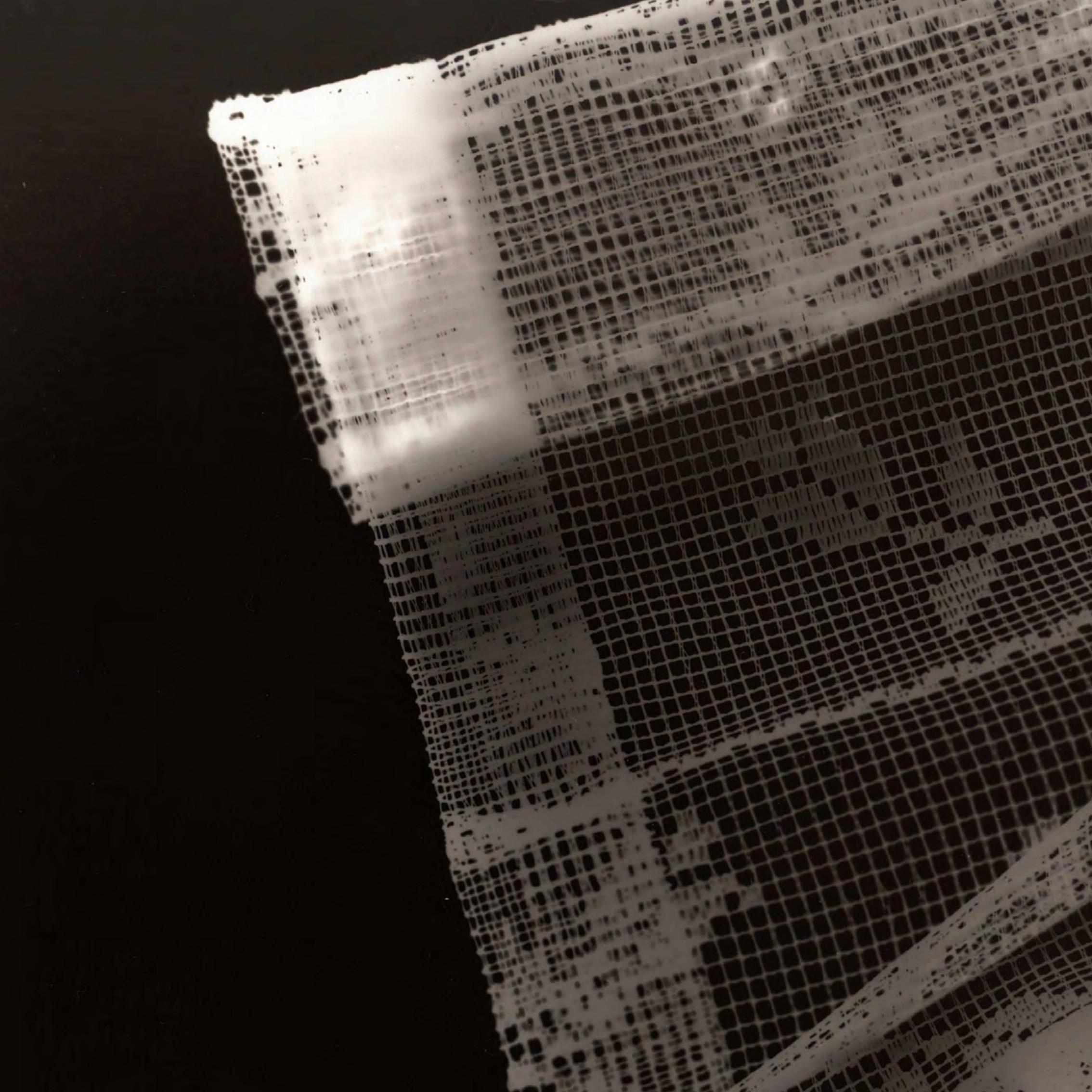
Bowl
Photogram
2008



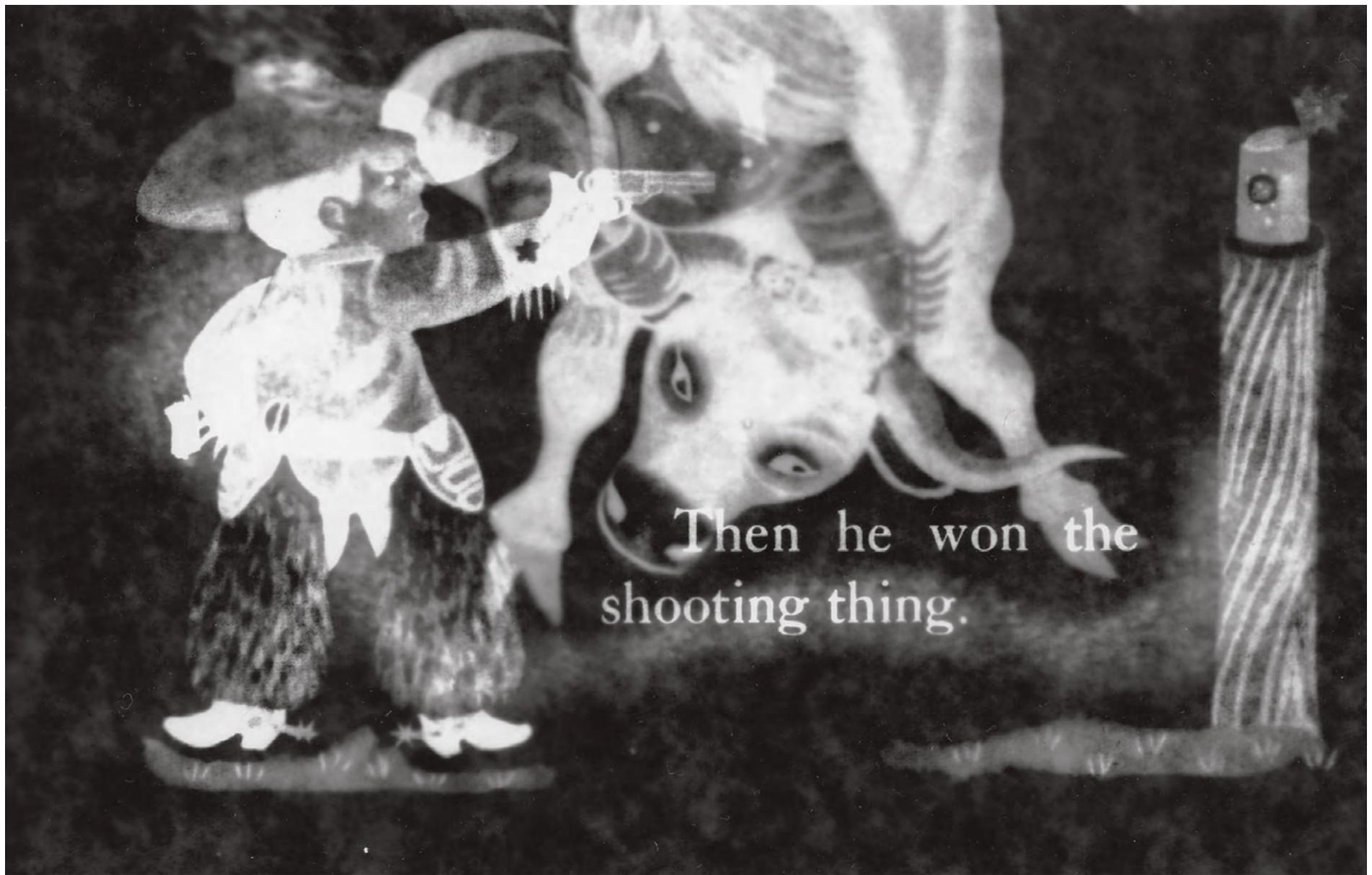
Child's toy
Photogram
2008



Curtains
Photograms
2008



Palimpsest 1
Photogram
2008



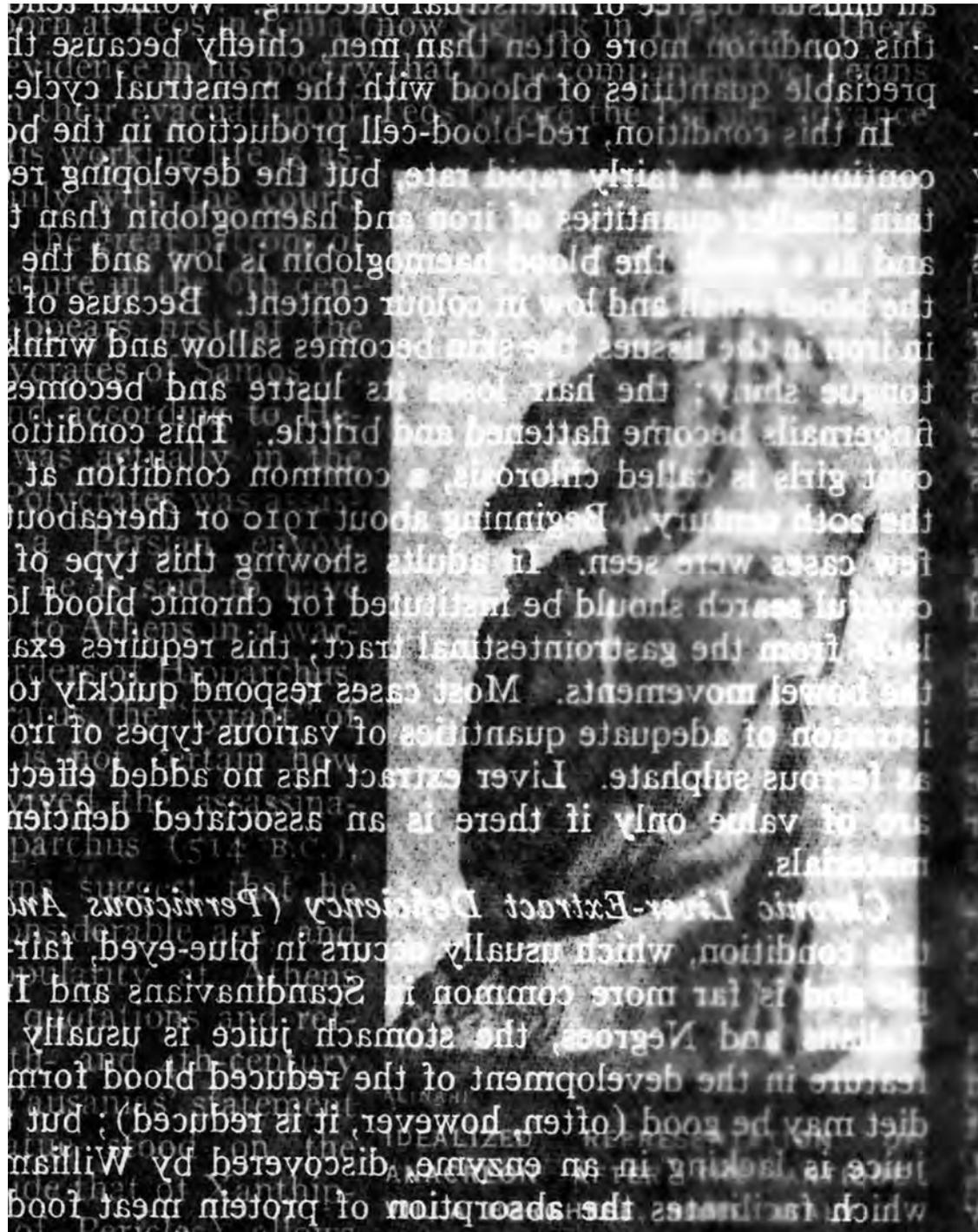
Palimpsest 2
Photogram
2012



Palimpsest 3
Photogram
2012



Palimpsest 4
Photogram
2008



Palimpsest 5

Photogram

2008





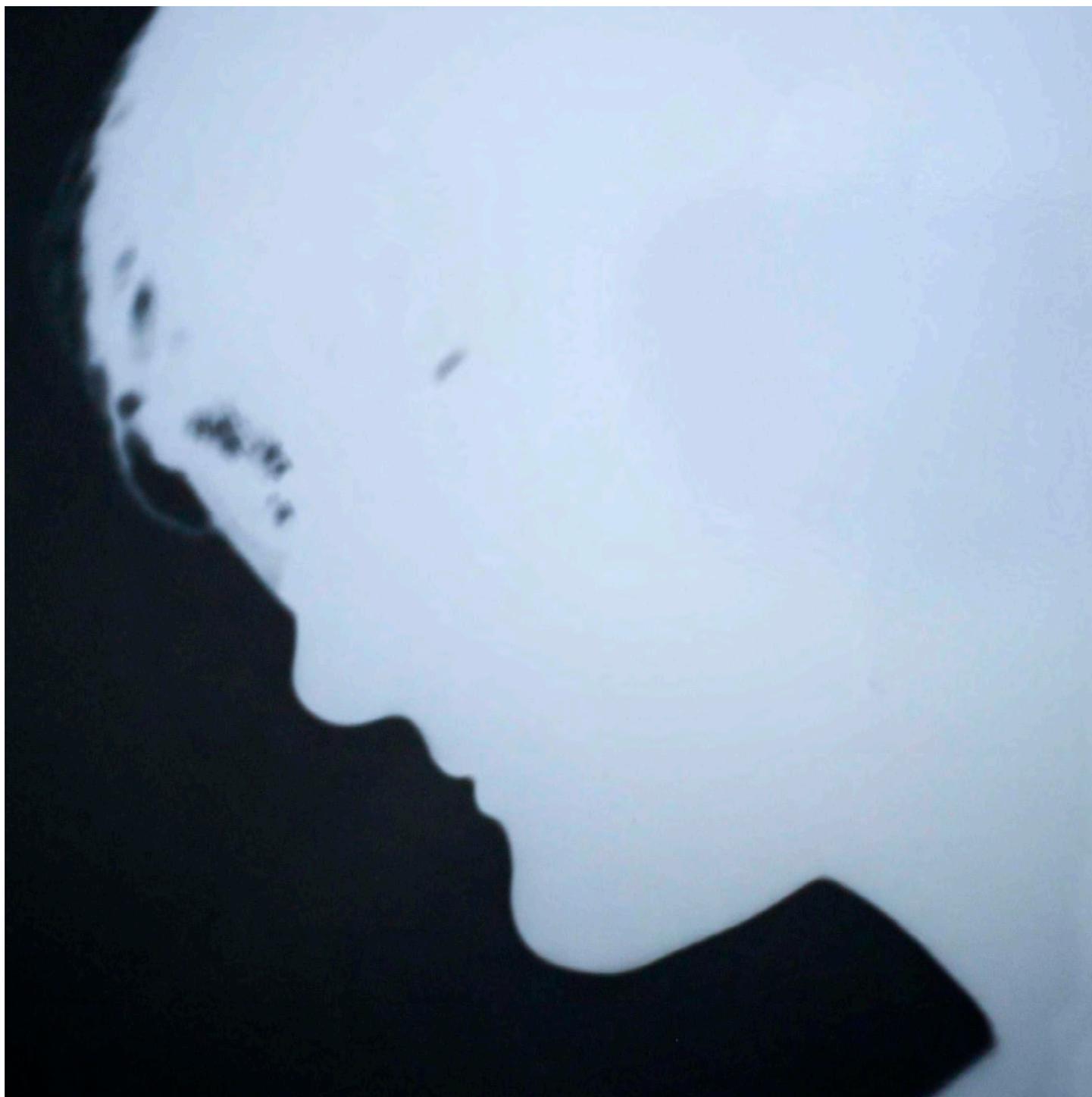
Pigeon feathers found at an abandoned building
Photogram
2012



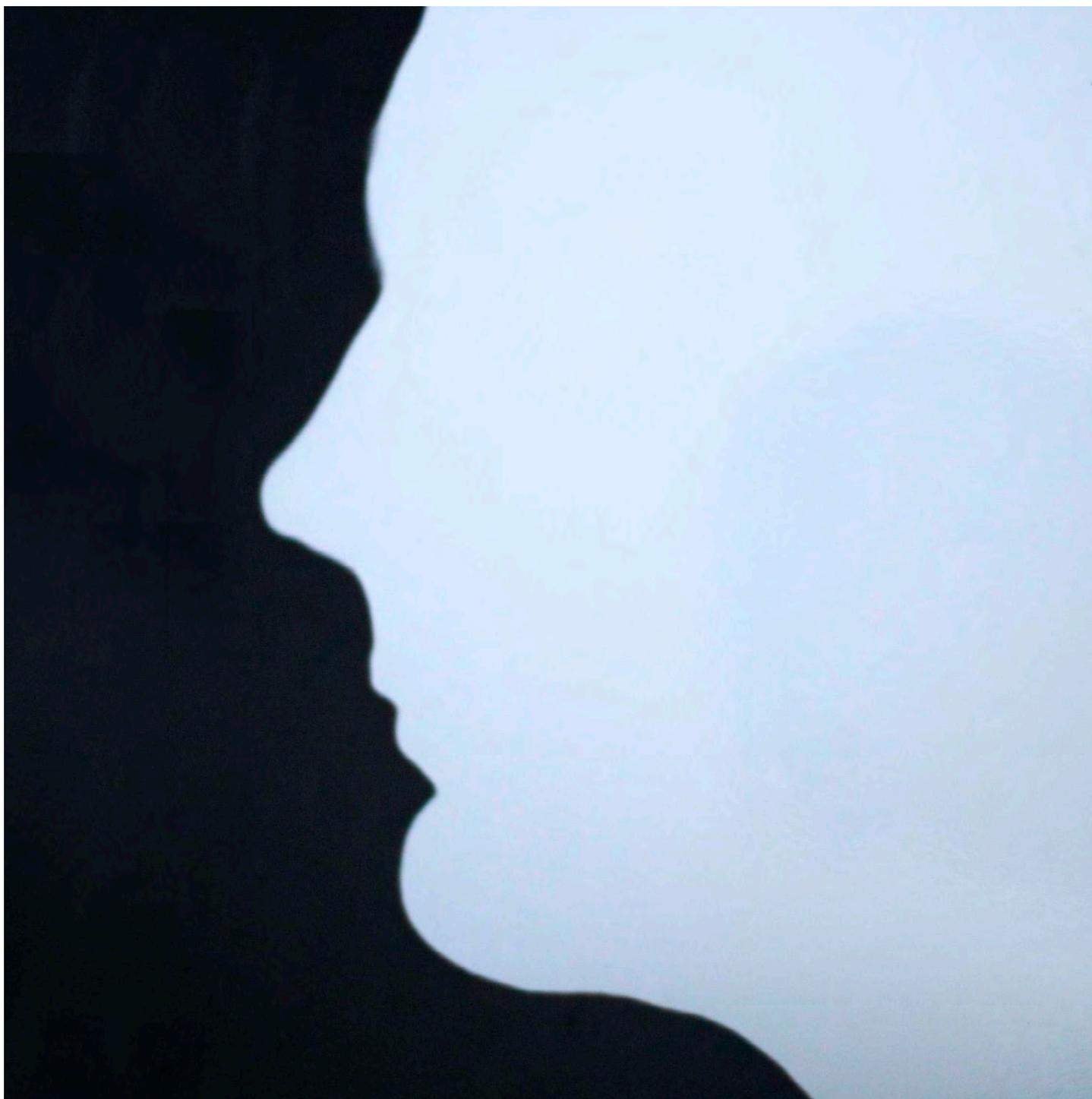
Fig leaf 1
Photogram
2008



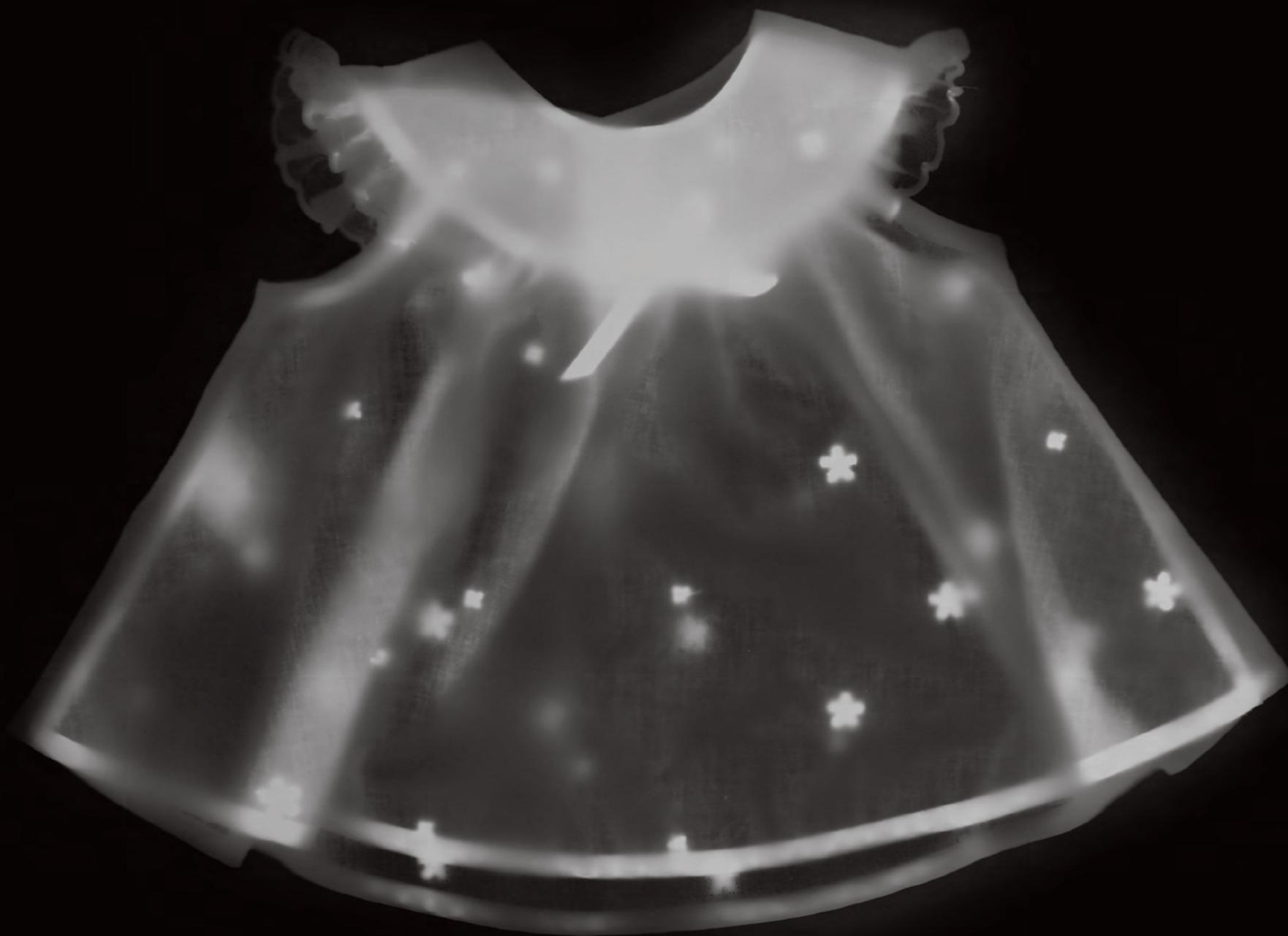
Fig leaf 2
Photogram
2008



Anetta
Photogram
2008



Self portrait
Photogram
2008



Elodie's dress 1
Photogram
2012



Elodie's dress 2
Photogram
2012

Elodie
Photogram
2012



Derek's bear
Photogram
2012



pinholes & photograms

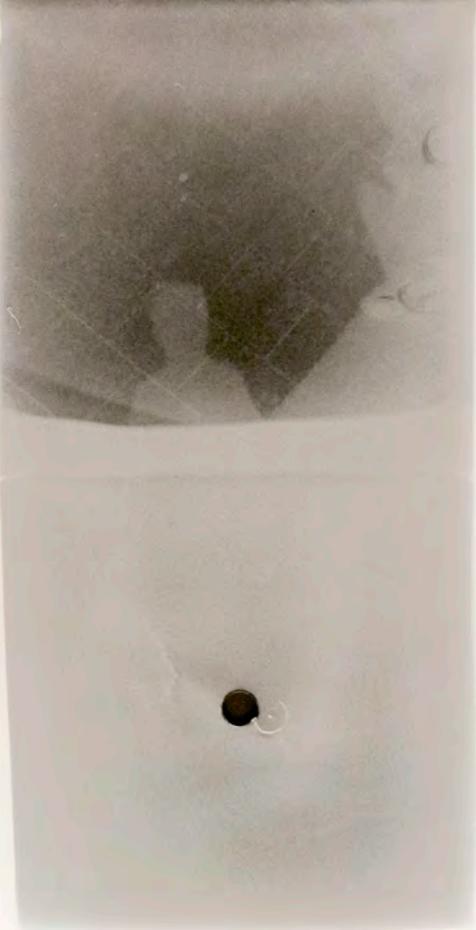


Cahill butterfly map 1
Pinhole photograph
2008

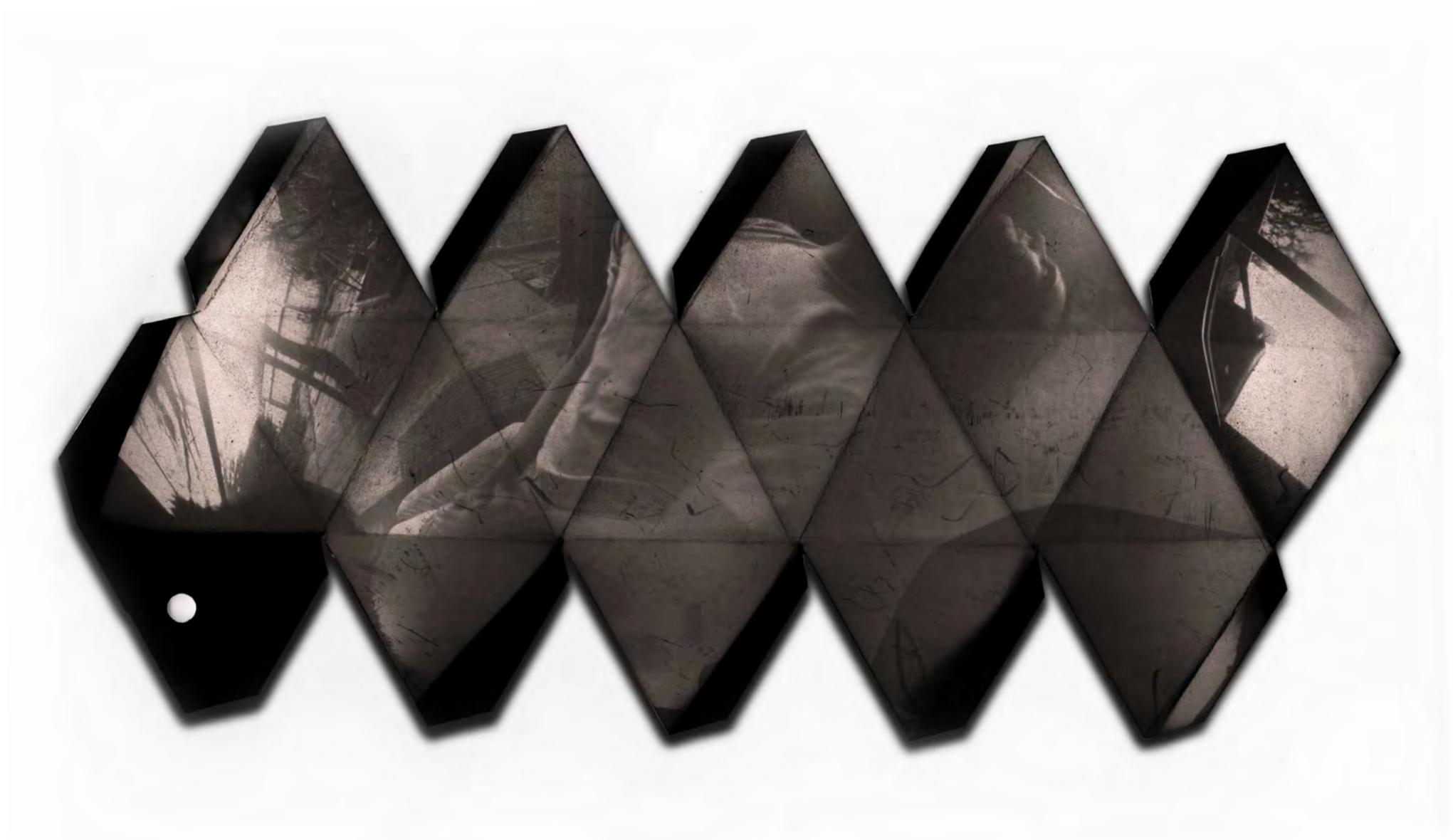


Cahill butterfly map 2
Pinhole photograph
2008

The City
Pinhole photograph
2012



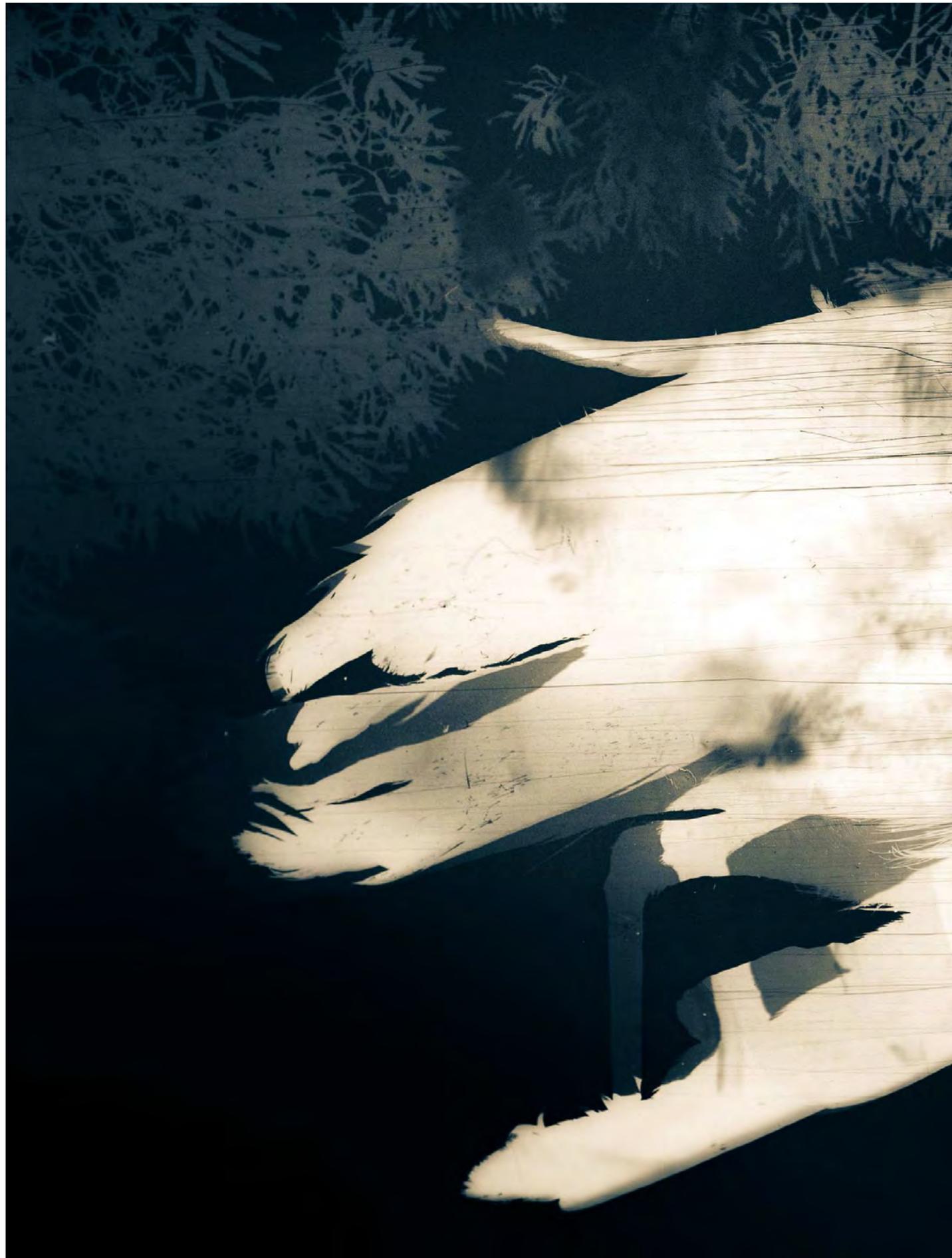
Icosahedron self portrait
Pinhole photograph
2007

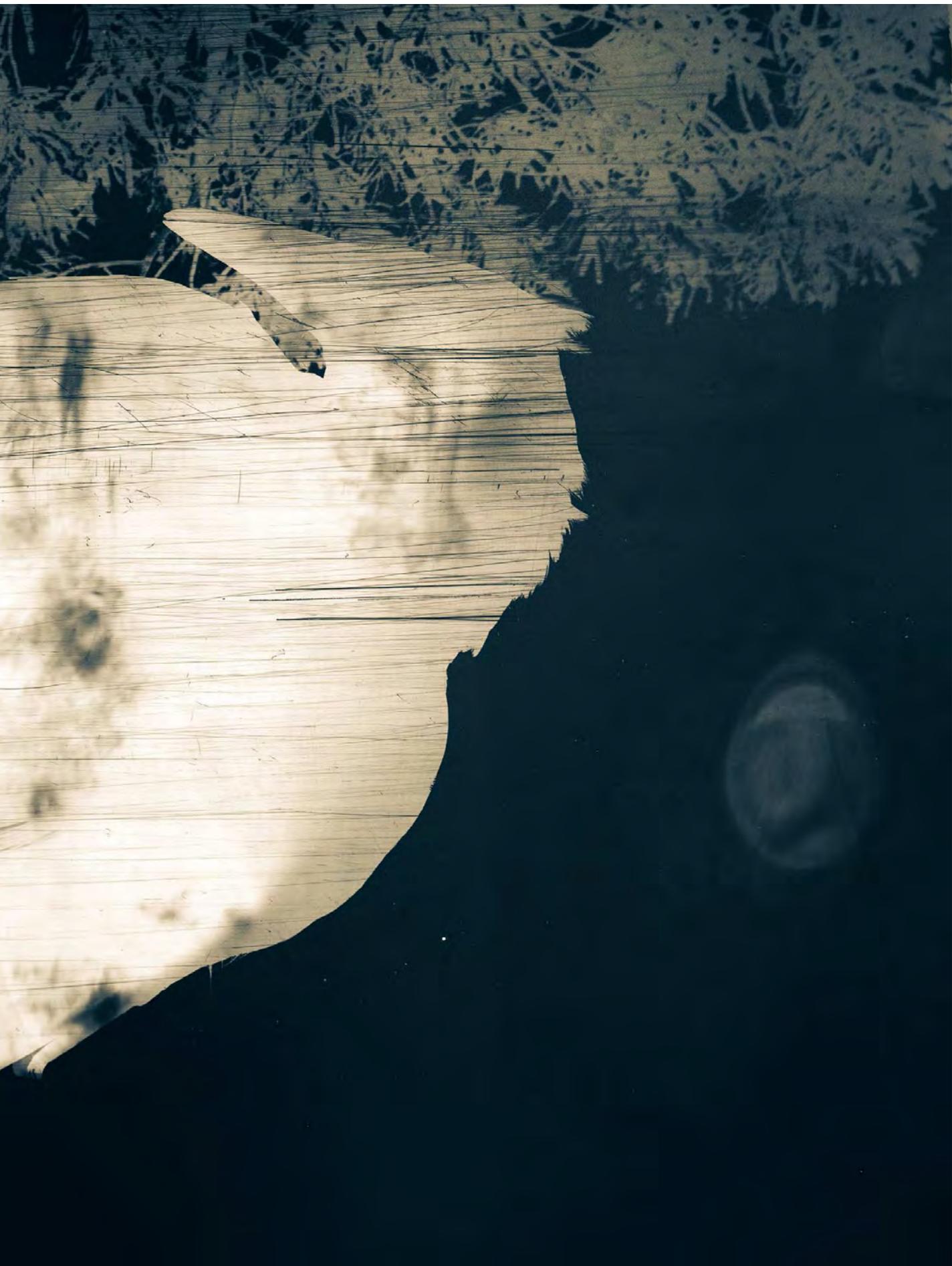


Nest
Pinhole photogram
2012



Magpie on the road to York
Pinhole photogram
2012





Hemisphere
Pinhole photogram
2012



Roadside memorial, Tonkin Highway Perth
Pinhole photogram
2012







[Previous page](#)

Flame tree

[Pinhole photogram](#)

2010

phosphorescent portraits

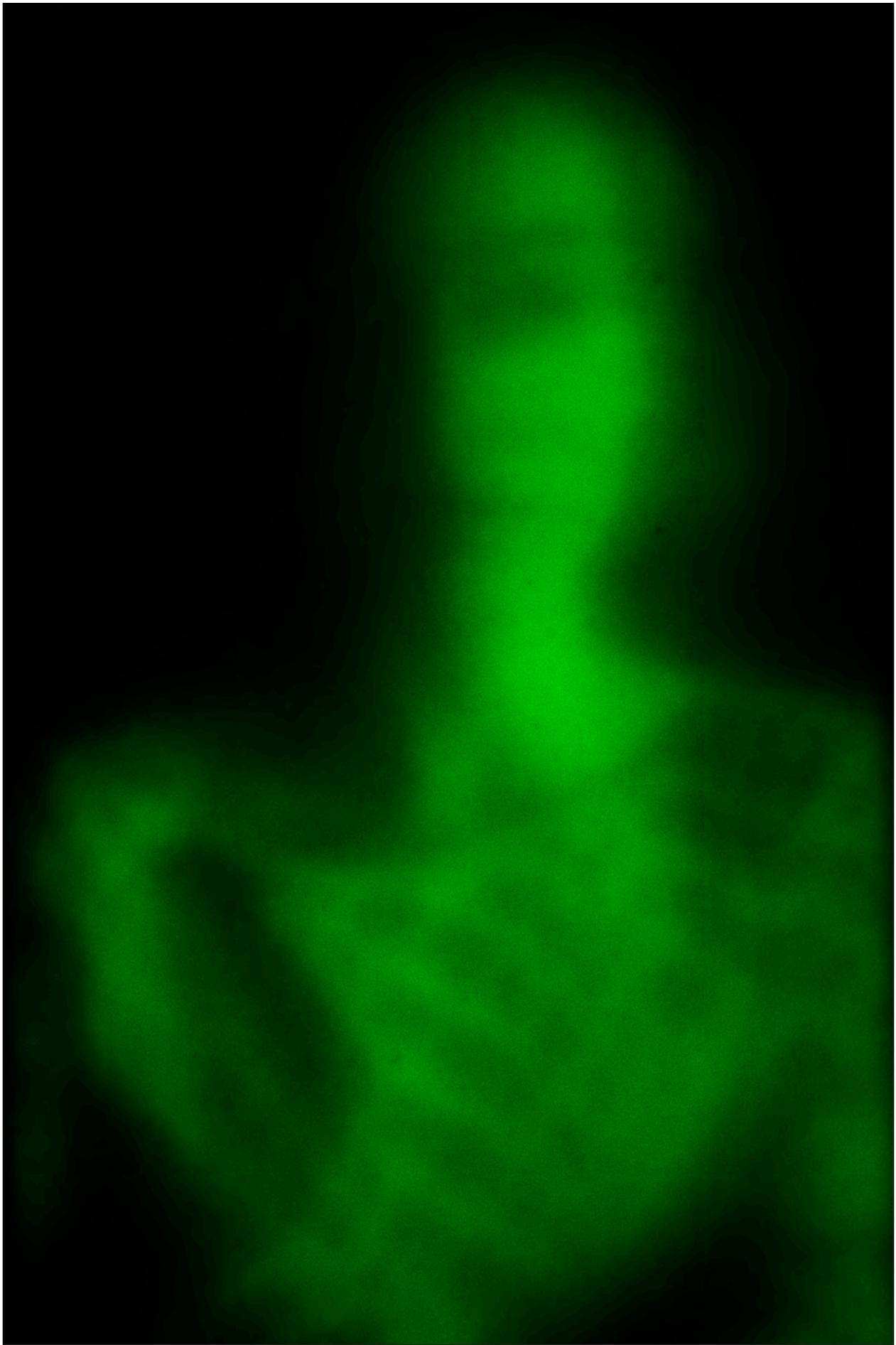
Self portrait, 5 minutes
Digital photograph of phosphorescent print
2012



Tahly, 45 seconds

Digital photograph of phosphorescent print

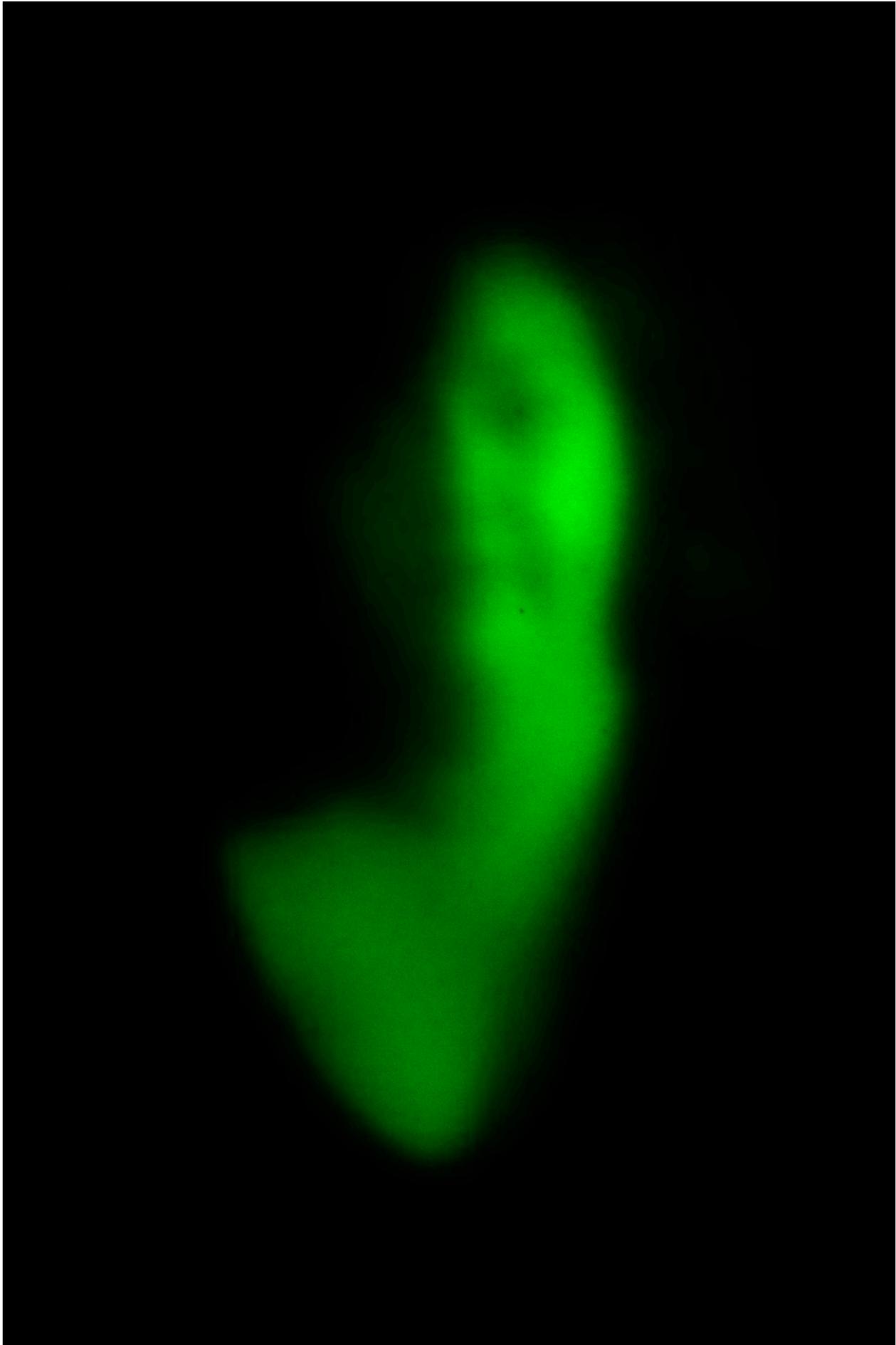
2012



Von, 4 minutes

Digital photograph of phosphorescent print

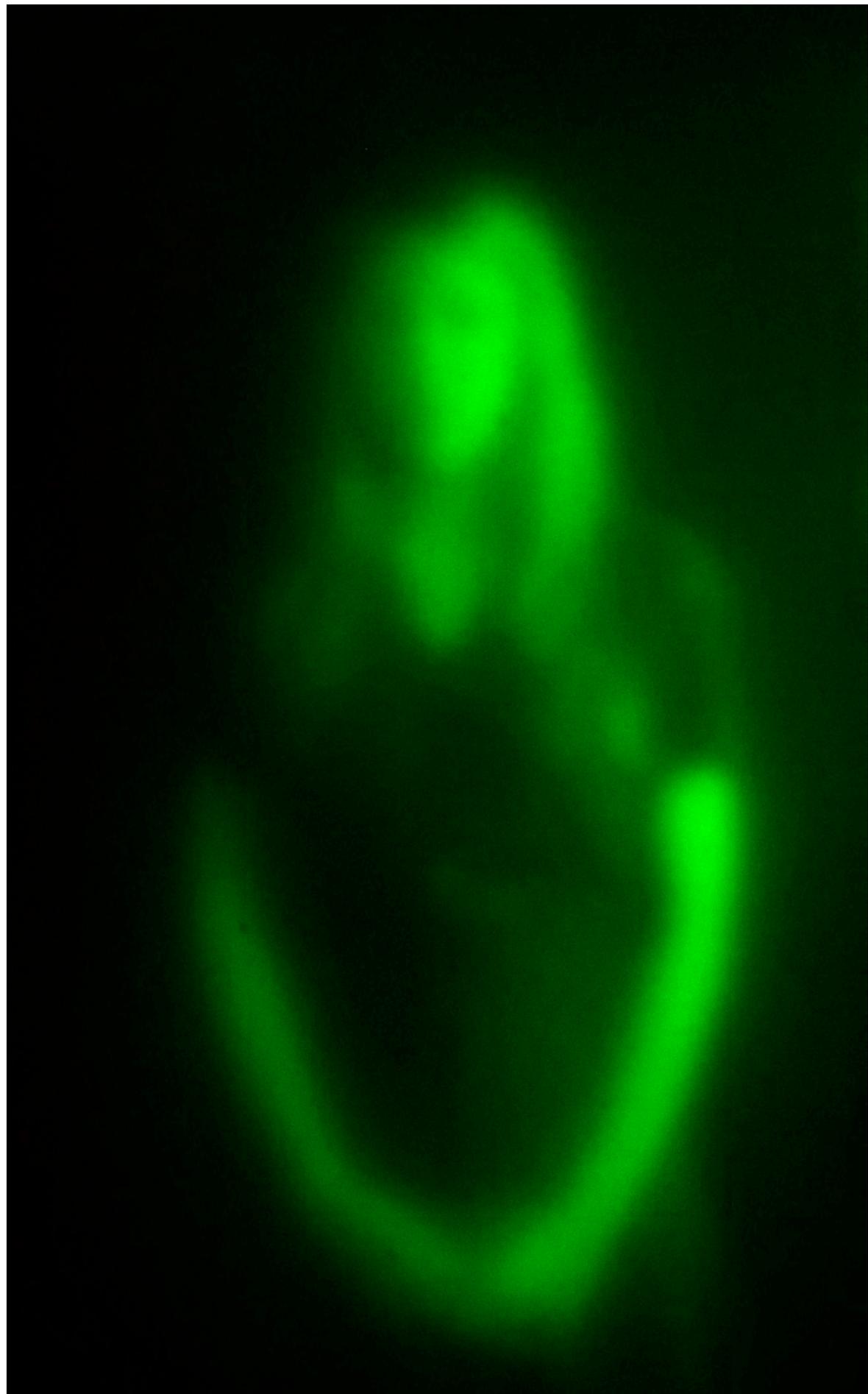
2012



Mike, 5 minutes and 3 seconds
Digital photograph of phosphorescent print
2012



Bec, 3 minutes and 40 seconds
Digital photograph of phosphorescent print
2012



Sasha, 3 minutes

Digital photograph of phosphorescent print

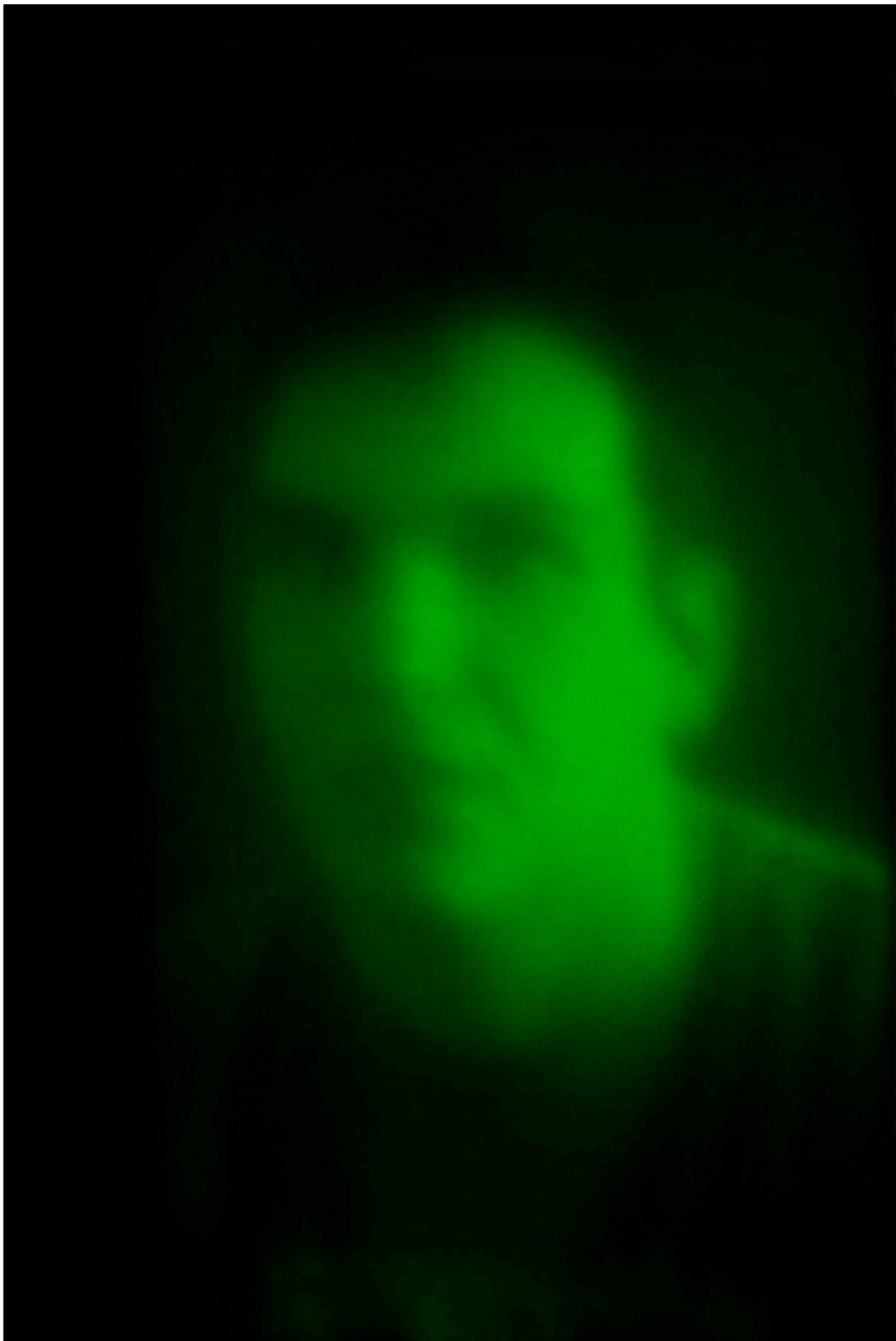
2012



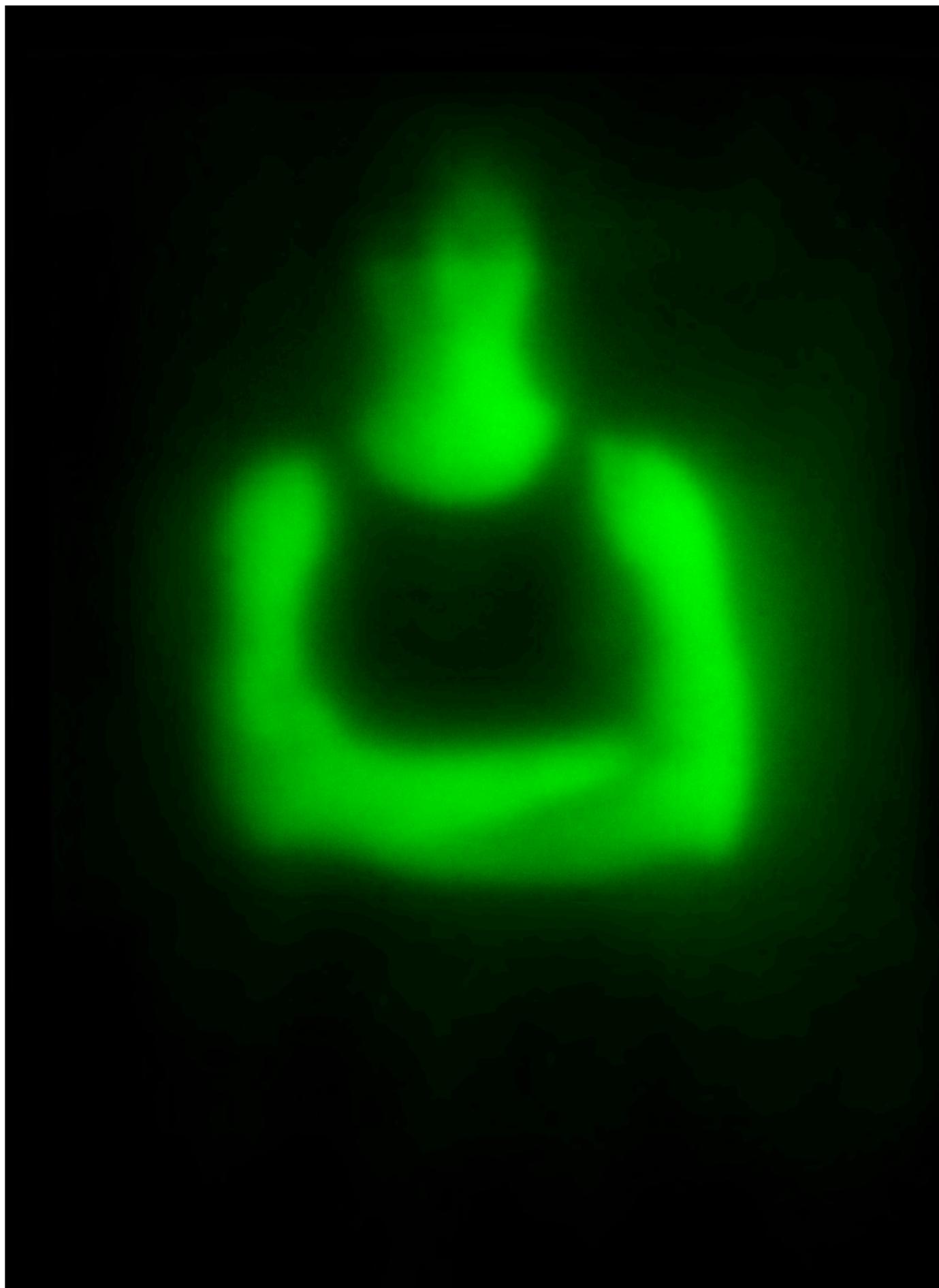
Richard, 5 minutes

Digital photograph of phosphorescent print

2012



Anetta, 3 minutes and 4 seconds
Digital photograph of phosphorescent print
2012







Sharon, 30 seconds
Digital photograph of phosphorescent print
2011

Self portrait with my daughter, 5 minutes
Digital photograph of phosphorescent print
2012

For Sharon, Anetta and Elodie.

