A REASSESSMENT OF THE VERACITY OF PHOTOGRAPHS

Michael Shapter MCA (JCU)

A thesis submitted in fulfilment of the requirements for the award of the degree of

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Faculty of Arts and Social Sciences

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Michael J Shapter February 2010
Acknowledgments

The completion of a project of this size may, academically, be the work of one person, but it is not achieved without the help, support and cooperation of many others.

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Dedication

I lost two beloved friends to cancer while working on this study, so it is dedicated to Rita Williams & Ken Wellard.

Note

I do not eschew digital imaging, nor do I consider it inferior to photography. Digital imaging has an equal place amongst all visual media. However, I do believe that every effort should be made to distinguish digital imaging from photography so that the two are never confused in the mind of the practitioner or viewer.
Abstract

Because computer generated images—along with those captured by digital cameras and other digital processes—can be easily manipulated and used as evidence of the real world, they challenge the trustworthiness of all photography. Thus challenged, the high degree of veracity long ascribed to conventional photographs is brought directly into question and now needs to be thoroughly re-examined in the light of history. Some genres of photography, such as advertising photography, had probably lost any high levels of veracity they once held many decades ago, but a few types of photography—such as photojournalism, medical, scientific and forensic photography—still maintain levels of high veracity (truth-value) in the public understanding of photography. Such photographs are regarded as being truthful renditions of the external world—indeed, of reality itself—and much often depends on our acceptance of that notion. Once, almost all photographs were regarded as possessing high veracity and, in this regard, photography has maintained a unique position amongst visual media since its introduction over a hundred and seventy years ago. However, it is a false impression, an inaccurate perception, which allows this notion of high veracity to persist. It will be argued that this misperception lies in the nature of the seemingly ‘hands-off’ or detached production techniques of a photograph compared to other visual media—and in the way humans actually view their world.

In this study, the fundamental characteristics of photographs, along with historical notions about the source of photography’s veracity and the continuing belief in photography’s inherent veracity are investigated. An analysis of recent research across the multiplicity of disciplines that constitute the human neurosciences reveals that the combination of physiological and psychological functions allows for such a diversity of personal interpretation that no two people can ever experience exactly the same scene from the external world. Thus, the study seeks to place conventional photography in a more plausible position amongst other two-dimensional visual media, by showing that many of the characteristics of photographs—and the many photograph-viewing methods in common use—preclude traditional photography from depicting reality in the way it has long been perceived to do. However, in so doing, it is not the intention of this study to demolish all belief in photographic veracity—for it is this aspect of our relationship with photography that allows us to use (and benefit from) this awe-inspiring technology as a vital tool in exploring and understanding the physical world that surrounds us—however imperfectly it may do so.

The study investigates its hypothesis by developing and testing a Veracity Spectrum, a tool intended to assist in measuring the degrees of veracity that are attributed to certain types of photographs by a viewing audience and how the knowledge and experiences of that audience may influence perceptions. It is shown that any degree of veracity pertaining to a photograph must rest with the direct connectivity of the stream of light reflected off the real world object and which affects the light sensitive surface of the film, but that the connectivity itself need not necessarily yield excessive veracity. The action of a photograph as signifier (or, however we choose to describe what a photograph does) is primarily determined by the viewer, and their pre-knowledge of the external world, and is the ultimate determinant of veracity in conventional photography.
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INTRODUCTION: WHY VERACITY?

1.1 Seeds of doubt

If a child is found to have stolen something of value for the first time, a good reputation is lost and a seed of doubt—that it may happen again—is planted. In the same way, seeds of doubt can be planted elsewhere. For example, when a scientist with an article published in Nature is discovered to have enhanced photographic evidence used to support the research, a breach of trust is revealed and a seed of doubt is planted. Nature is a prestigious journal with a long-standing reputation for accuracy, and scientific fraud is not tolerated in the research arena. BBC News reported that a scientist came under pressure to admit an error when the co-author of his paper, [...] said that some of the pictures illustrating it, apparently showing the 11 patient-specific stem cell lines, had been faked. [The co-author] said photographs of nine of the lines were doctored from the other two. Last week, [the scientist] admitted the photographs did contain “mistakes”, but insisted the research was accurate and that he had cloned 11 stem cell lines. (BBC 2005)

The scientific community involved in stem-cell research will, no doubt, argue the accuracy of the claims. I note the incident here as an example of how photographs and truth seem to be linked. Years earlier, in an unrelated but similar incident, National Geographic was discovered to have altered the content of cover photographs for aesthetic reasons (February and April 1982). When this happened, the seeds of doubt were planted in the mind of the reader that it might happen again; in fact, that it could have happened in the past and gone undetected. Like Nature, National Geographic has long-held a good reputation for accuracy and high standards of honesty, a reputation built in part on the veracity of its photographs. Lester (1988) reported that National Geographic had used the Scitex computer digitizer on two recent occasions. On a cover story of Egypt, pyramids were squeezed together to fit the cover’s vertical format. A picture story on Poland contained a cover photograph that combined an expression on a man’s face in one frame with a complete view of his hat from another picture. Both cover images were altered without a hint of possible detection and without a note to readers that such manipulation was performed. (Lester 1988:unpaginated)

A breach of trust was revealed in these publishing incidents in journals that have developed reputations for integrity. In the case of National Geographic the perception now is that the publication has lost face, while for Nature the perception is that the individual scientist has lost face (and perhaps that of the publication because it is...
peer reviewed). In both of these cases, that which is lost is trust, honesty, integrity, veracity, and a reputation for having such characteristics. It is unlikely that *National Geographic* would alter a photograph in such a manner inside the magazine where the need for aesthetic layouts in pictures is not so crucial. *Nature* would definitely not publish photographs if they were known to be falsified, and neither publication would have printed the images in the manner they did if they had predicted the public outcry over the action. Neither would want a seed of doubt planted to expose a loss of trust amongst their readers.

In June 2009 when Eastman Kodak announced the discontinuation of *Kodachrome* film, there were published in the mainstream media several testimonials, obituaries and commentaries (typically, Clayfield 2009) regarding, amongst other things, the nature of photography and truth. The perception that photographs have an imbued high level of veracity is a matter I have pondered for many years. Surely, with each sowing of seeds of doubt surrounding falsified photographs—and it has been happening since the very beginning of photography—there would be a louder outcry that photography does not deserve the perceived high level of veracity that it enjoys. Yet, I have noticed that unmanipulated, traditional photographs retain their veracity despite the existence of manipulated images, or, perhaps, because of them. Consequently, this study investigates the differing levels of veracity, as viewers apply them to photographs, and in doing so compares terms such as ‘verisimilitude’ and ‘verity’ with the notion of ‘veracity’ in order to gain a clearer understanding of what is being discussed here (for clarification of these terms, see the definitions in Section 3.3.8).

It should be noted here that over twenty years lapsed between the *National Geographic* incidents and the *Nature* case. In that time the critical discussion on the veracity of photographs in both the popular press and specialist journals, usually assumes, when veracity is mentioned at all, it to be present and high. Recently, Miles (2008) noted, “Analyses of digital technologies and their power to manipulate or construct an image which in every way appears to be ‘real’ have generated an enormous body of theory” (Miles 2008:9) and using this enormous body of theory, and more, I will argue that our understanding of the veracity of photographs is confused, misguided and has internally inconsistent logic applied. I aim to draw the cases for and against a high level of veracity pertaining to photographs into clear focus where they can be assessed with academic rigour. Although much has been said and written about veracity and photographs, in the guise of truth and reality, even taught at undergraduate level visual literacy, much of it is merely opinion, or implied from earlier discussion that lacked scientific analysis, so that in amongst Miles’ enormous body of theory there is little true grist for the veracity discussion. Due to a paucity of critical theoretical material
on doubts about veracity related to photography I have turned to other disciplines to seek answers.

In contrast to the publishing incident mentioned earlier, Rubinstein and Sluis (2008) put the case for another viewpoint. They argue that because of the widespread use of amateur mobile-phone and low-end digital-images in newspapers and news broadcasts the digital image may be gaining more veracity than it was first given despite the common occurrence of manipulated digital images. In this regard it is noted that digital images showing the torture of prisoners in Abu Ghraib never had the level of their veracity questioned when they were made public in 2004 (Gunthert 2008). This suggests that veracity is a given; a belief common amongst many commentators throughout the history of photography. As Gunthert points out, “No discussion of the photographs’ veracity was ever formulated” at the time of the first publication of the images in the USA (Gunthert 2008:103-112). It may be the perception of speedy delivery that makes this notion feasible; pictures are taken and immediately sent electronically to a news outlet with no time for Photoshopping. On the other hand, pictures showing British soldiers’ allegedly torturing prisoners in Iraq, published in a black-and-white photojournalistic style a month later in the UK press, did draw debate over their authenticity which led to the disclosure that they were fakes, and forced the editor’s resignation. Gunthert calls this a remarkable inversion of our usual understanding of the role of photographs and truth—that the digital images were regarded as truthful while the ones passed as traditional photographs were not similarly regarded. Such understanding might also come down to the attitudes of the British public to its press and the US public to its news media, and the context in which the photographs were presented to the viewers, as well as the credibility of the publications.

I find such a paradox an invitation for investigation. The reportage described above occurred since the introduction and widespread acceptance of digital imaging technology, where producing and passing-off fakes or manipulations is done more frequently because it can be done so easily. It is far more difficult to alter the contents of a photograph made using traditional silver-halide technology than with digital technology; more difficult, but certainly not impossible, because there exist many examples of manipulated photographs dating from the earliest days of the invention. What the scenarios described show is that something is lost when misrepresentation, however minor, is detected. That ‘something’ is tied in with a veracity that conventional silver-halide photographs are believed to possess; a veracity that is often relied upon extensively to support facts.

Yet, in this early digital age, can it be assumed that there is any veracity left for
photographs, digital or traditional, to argue the case in the positive? Clearly there must be. As in the past, the issues are still discussed, usually in the affirmative, in the popular and specialist press (Durrer 2008a, b, c). While university-level photography courses hold lectures in the truth-value of photographs, border security systems around the world still recognise passport photographs as a valid means of identification, so it must be assumed that different people hold differing views. This study seeks to understand how and why this is the case. Another example will illustrate the point. Laxton (2008) claims on behalf of photographer Thomas Demand that “[his] work directly address the question of veracity that remains at the heart of photography’s role in shaping history” (Laxton 2008:89). Demand’s work consists of him using historical photographs of rooms and making approximate lifelike, life-size replicas and then photographing the models. In this way he challenges the viewer to consider veracity and photography. How successful his aim is outside a visually literate audience would be interesting to measure, since the photographs require a certain amount of pre-knowledge about the subject (i.e., that the model is of a serial killer’s corridor) before their full meaning can emerge. This idea, that there might be separate levels of veracity for visually literate viewers and less visually literate viewers, will be investigated using the survey that tests the Visual Spectrum discussed later in the study.

Given these issues, the question inevitably arises as to whether or not all photographs are naturally possessed of high veracity. The situation where some photographs attain a higher level of veracity than others may be easier to understand when they are considered in the context of their end use; ID photographs, for example, are often regarded as not accurately representing the person shown yet in many cases security officers ignore the foibles of ID photographs. Therefore, it must be acknowledged that people have a sliding scale for accuracy and truth. Similarly, historians, as another group that uses photographs extensively, claim degrees of truth into which they fit historical facts because they know historical facts are the property of the victor and will be biased. Rosler (1991:54) speaks of photographs possessing a truer truth when the image is manipulated to present a picture more accurate to the original scene than an unmanipulated photograph can provide. Le Grey must have shared the same view as Rosler because he added clouds to his seascapes in the 1850s to render them more like the scenes he observed when he made the exposures rather than un-doctored prints that might have been made in his darkroom. Along the same lines, as well as actually fabricating scenes, Antarctic (Shackleton’s expedition) and Australian official war photographer, Frank Hurley, also used combination-printing techniques (Figure 1.1) to enhance the aesthetic quality of his historical photographs (Lewis n.d., Girvan 2004, Thorpe 2004). Mathew Brady did the same thing during the US Civil War (Farid 2009). More recently (in 2003), a Los Angeles Times war photographer,
Brian Walski, took photographs of British troops near Basra, Iraq and the picture he submitted was combined from two images (Figure 1.2) to form a ‘better’ picture, but when it was discovered to be thus manipulated he was consequently fired from his post. To cover these types of incidents, Thompson (2003) posits a subjective truth which the photograph brings to itself; whilst Barthes and others claim that truth in a photograph can depend entirely on likeness (Barthes 1984:103, Scott 1999:236). People often speak of an underlying truth, which implies an overlying untruth or near-truth. Truth, it seems, is a fluid notion, and one important form of truth is that bestowed on photographs. It is this perception of inherent truth, often conferred on photographs, which will be referred to in this study as veracity.

Figure 1.1 “Enhanced” official war photograph by Frank Hurley, 1917

Figure 1.2 Two images (top left and right) combined to form new image (below) by Brian Walski, 2003.
I have observed the fluidity of truth in photography first-hand in professional practice. Of the photographic genres I undertake—medical and forensic, landscape, portraiture, and fine art—the degrees of veracity are applied inconsistently. Even discussing the idea of “varying levels of veracity” presupposes that a range of veracities exist and they can be applied via an array of criteria. The question naturally arises as to why such a range of possibilities should exist at all—I sometimes ponder why veracity isn’t an unalterable, quantitative, standardised fixed value. To add to the confusion, Thompson (2003) suggests there may be more than one form of truth attached to a photograph. He describes photographs as having a level of verisimilitude, as well as another degree of subjective truth, which is applied by the photographer in the choice of subject matter and the way the subject matter is presented in the picture. This notion extends the definition of truth beyond common understanding, and demonstrates the practice of some writers, perhaps, of using words like ‘verisimilitude’ and ‘veracity’ synonymously when those words, in fact, refer to different concepts. While such usage might be valid in trying to interpret works of fine art photography in order to come to terms with meaning and innuendo, it has little to do with what is commonly perceived and referred to as verity. Therefore within the meanings of such terms, this study will explore the consequences of a belief in photograph’s inherent veracity and examine the strengths and weakness of that belief in the everyday use of photographs.

During my years of professional practice I have observed many differing perceptions, (and variable levels) of what constitutes veracity as it applies to various types of photographs. The degree of veracity accorded to the diverse genres of medical and fine art photography seem to vary according to some unwritten rules. For instance, it is a legal prerequisite that there should exist for all medical and forensic photographs a clear and verifiable audit trail (though many practitioners do not comply with this need) that demonstrates proof of provenance and authenticity. This audit trail adds to the veracity of the pictures. Auditable documentation should include: why and how the image was made and by whom; under what conditions the image was made and the persons present; where and how the image is stored; who has access to the stored image; and several other criteria. Without this audit trail the contents of the image cannot be guaranteed, say, in a court of law, to be a faithful rendition of the original scene.

Conversely, there is no need of such an audit trail in the creation of a fine-art photograph because such provenance is irrelevant in the legal context described here, and because fine-art photographs are not required to faithfully render the external world. Also, different criteria are applied when consideration is given to selling or collecting fine-art photographs, because provenance as to authorship (over veracity) might be considered
more important. Thus, there lies within photography a dichotomy where veracity is important on one hand and less important on another, and so the level of veracity varies by degrees depending on context. If context is so influential on the perceived level of veracity, or on where and how the veracity should be considered (i.e. subject matter or author), then the general public when viewing a photograph may require knowledge of how the degrees of veracity should be applied to certain photographs. This study will attempt to clarify the matter.

Amongst two-dimensional graphical representations of scenes from the external world, conventional photography is still regarded as having a high level of veracity, something that the author of the Nature article may have been exploiting. The questions that arise from realising that photography’s veracity is variable, stimulate a debate that encompasses ideas from many fields of investigation. One intention of this study is to bring together findings from disparate disciplines to explain why photography has come to possess such a perceived high level of veracity in the face of substantive evidence against it. Although the introduction of digital imaging has had a profound effect on how photography’s veracity is perceived by the viewing public, much of what has been written on the subject largely leaves the level of veracity ascribed to analogue photography unchallenged—perhaps enhanced—except in specific fields like advertising. Yet, even when advertising is considered, the critique usually applies to the finished image, which may be a poster or magazine page, and not necessarily to the original photograph. While the emphasis for this study is on the veracity of traditional analogue photography, comparisons with digital imaging are inevitable when the two converge as pictures used to illustrate their subject. The end use of either of these imaging technologies can be identical and today, most people cannot tell the difference between traditional capture and digital capture in the end product. The high levels of perceived veracity ascribed to traditional photographs partly relies on this fact.

1.2 Seeking explanations

An early impetus for this research arose from previous work I undertook (Shapter 1998, unpublished thesis) in which the focus was an analysis of the ways in which viewers derive a sense of depth when looking at photographs. The work found that most of the cues used by viewers to perceive depth in photographs are the same as those cues used by the brain to distinguish depth when viewing the physical, external world. However, some of the depth cues described in that study are specific to photographs, including a cue not previously described in the literature which the study named ‘reflected coaxial illumination intensity’, but which is now referred to as ‘tonal perspective’ (Shapter 1999a, 1999b). Tonal perspective describes the appearance, in photographs taken with on-camera flash, of paler objects in the foreground against darker objects as distance
increases from the camera and light intensity diminishes. It also points to their being distinct characteristics of photographs that offer up a particular photographic manner of seeing the world. Those findings fuelled the hypothesis that all visual cues used by humans may trigger visual responses in the same way, whether they derive from the external world or from a photographic source. Furthermore, many of the characteristics of a photograph (when not unique to photography) may be commonly found in two-dimensional representations of the external world, such as paintings and drawings. Indeed, some photographic cues—such as monocular focus effects, where the depth of field characteristic of photography is copied—have been borrowed directly from photography and have been applied to other two-dimensional art-forms such as painting. Examples of paintings borrowing effects from the photographic process include Betty by Gerhard Richter (Figure 1.3), Interior with a Girl at the Clavier by Wilhelm Hammershoi, and The Open Window by Pierre Bonnard (Butler, Van Cleave and Stirling 1994:53, 207, 387).

Figure 1.3 Betty (1988), an oil painting by Gerhard Richter that demonstrates the photographic effect of focus. The model’s left shoulder and hair clip appear in ‘sharp focus’ while the rest of her body fades into ‘unsharp focus’.

My earlier research into depth cues, and the high level of subjectivity surrounding the ways in which viewers interpret photographic images, made it clear that further study into the nature of perception in general, and photograph-viewing in particular, would be necessary. I wanted to see if any degree of understanding could be achieved
as to why conventional photographic images have been uncritically ascribed the level of veracity they have been given, for so long. Of course, when we begin to discuss perception and the connection between the mind and the physical, external world, we move into a complex dialogue that takes in numerous fields of academic endeavour and debate including anatomy, psychology, semiotics, philosophy, anthropology, sociology, physics, and even theology, as well as photography. Thus, when it comes to discussing the nature of ordinary perception and how we interpret the photographic image, we have to ask what exactly it is that we refer to when we speak of the external world—and, by extension, reality. More to the point, we need to determine whether or not the real world can be photographed at all. As we can see, perception and the nature of perception will, of necessity, be a central theme that recurs throughout this study. Determining the veracity of photographs hangs on an understanding of what reality is and what it should look like in a photograph.

1.2.1 Bringing diverse views to a common point
An initial investigation of the available literature about photographs (for example, Lyons 1966; Hill and Cooper 1979, Trachtenberg 1980; Watzlawick 1984; Mitchell 1992, and Barrett 1996) found that there exists a confusing array of ideas that try to define what a photograph is and what it does. For this reason, an extensive investigation into what might happen when a photograph is taken will occur in this study. In the visual arts field, several commentators and critics (Berger 1972, Barthes 1981; Burgin 1982; Tagg 1988, Kosslyn 1994) have recognised the implications of the changing views of perception in the sciences. By extension, they have since begun to question existing ideas concerning the role of images and photographs and the ways in which they are created, used and interpreted. This, in turn, will also be discussed and findings applied to the study. Whilst much of the recent literature about visual art (Shore 1998, Gombrich 2000, Thompson 2003) focuses predominantly on painting and other hand-generated illustrational methods (including computer graphics and digital images), conventionally-produced photographs are often left out of the discussion on post-digital two-dimensional representation. This neglect needs to be rectified, and hopefully will be in this study. More broadly, recent work (such as that of Pinker 1997; Gregory 1998b; Carter 1998; and Greenfield 2000), covering a number of scientific fields including vision science, psychology and brain function, argues for the need to rethink the mechanisms and processes that determine how humans perceive the physical world. I will apply these arguments to the discussion on veracity as it relates to photographs, as a key point in this analysis.

Overarching all of these considerations, there is a need to reassess the role of conventional photographs as pictures representing objects from the external world.
This should be investigated so that the valuable work being presently undertaken on visual perception and picture-viewing does not exclude traditional photographs. Over thirty-five years ago Mandelbaum (1972) noted the lack of convergence of ideas from diverse fields of research when he stated that

…the path of art historians, psychologists, and philosophers do not normally converge, even when they are dealing with common problems, since their aims and their methods are in most cases radically different. (Mandelbaum 1972:vii)

Since 1972 more work has been undertaken (Gregory 1980, Cavanagh 1999, Gombrich 2000) on the commonalities between these disciplines, though the lack of convergence is still evident in the literature concerning photography, psychology and philosophy. In this study I will bring together research from several disciplines to form new alliances in combinations that were once thought incompatible, or at least unrelated, in order to demonstrate that many of the issues covered by these disciplines cannot be discussed in isolation from each other.

The first part of these investigations shows that a substantial portion of the photographic literature has long sought to address the issue of how reality may be depicted and how viewers of photographs react to photographic images (Lyons 1966; Trachtenberg 1980; Carothers and Roberts 1989). One common theme that becomes apparent is that there are two diametrically opposed views regarding the depiction of the external world in photographs—one says that photographs do depict the external world accurately, the other says they do not depict the external world. On closer examination, however, these two viewpoints became four. The four stances viewers choose to regard photography’s ability to depict the external world and reality are, that:

• photographs depict reality and the external world;
• photographs do not depict reality and the external world;
• some photographs do depict reality and the external world while others do not;
• or that, photographs depict the external world but not reality.

These stances demonstrate the divergent views that most humans hold on how they perceive and understand the external world and reality. The four stances cannot be true simultaneously, so determining a clear understanding of which the case is, is one of the central strands in this investigation of photography’s perceived levels of veracity and deserves considerable deliberation. To what extent, for example, are the external world and reality perceived and conceived as identical? In this thesis, I will argue the case that they should not be regarded thus.

The over-riding question, which arises from the consideration of all these issues, concerns that of determining a photograph’s level of veracity. If truth is such a fluid notion can photography actually depict the external world and its attendant reality,
and if so to what extent can it do so accurately? This naturally leads us to ask whether or not photographs deserve their perceived high level of veracity and do they, in fact, have any veracity at all? Very few participants in the debate have argued against photography having a high veracity so the belief has largely remained unchallenged.

1.2.2 In the beginning…

A high level of veracity for photographs was implied since the earliest days of the invention. When one of the inventors of photography, Daguerre (1787-1851), called his version of the fixed image an “imprint of nature” (Daguerre 1839:12) he was in no doubt that the daguerreotype

…is not merely an instrument which serves to draw Nature; on the contrary it is

a chemical and physical process which gives her the power to reproduce herself.

(Daguerre 1839:12)

Daguerre’s statement is significant in that it first conveys the idea of a photograph recording nature accurately. In a report to the Commission of the French Chamber of Deputies of July 1839 praising and recommending Daguerre’s invention, French mathematician and physicist Francois Arago wrote that this imaging process creates “…images drawn by nature’s most subtle pencil, the light ray…” (Arago 1839a:18). Arago had spoken with Daguerre before writing his report so it is reasonable to hypothesise that he borrowed his terminology from the latter. Scientists now refer to an identical reproduction of something in nature as a clone and yet there is no confusion between a clone and a photograph in the way each relates to its original. However, both Daguerre and Arago saw the creation of images by this newly-invented photographic method as connecting with nature in a ‘hands-off’ (detached, objective) way since there is little room for human creative, or manipulative, intervention in the process. This early communication indicates from where the concept of photographs having greater veracity than painting may first have arisen.

Another instance pre-dates photography. The camera obscura had long been used by painters and illustrators as a tool to aid in the accurate drawing of a scene from the external world. What the daguerreotype, heliograph and other photographic methods offered was a means by which an image formed in a camera obscura could be fixed permanently. Therefore the verisimilitude inherent in the camera obscura’s image had already developed some basis for establishing the veracity of the photographic process. The notion of image-based image veracity pre-dated photography itself, and pre-empted it. This is a clear indicator that veracity was bestowed on photography, and not, perhaps, something photography possesses as a distinct characteristic of its own. Another early exponent of photography, Lady Elizabeth Eastlake, stated her belief that photography had high veracity when she “…granted the photograph the position of the
most truthful pictorial report of fact…” (Eastlake 1857:39) although she did qualify the statement with greater detail about her beliefs and understanding of photography. Likewise, Talbot titled his first book on photography: The Pencil of Nature, and he was in no doubt about photography’s high veracity. Baudelaire, on the other hand, “…considered men fools to believe in photographs as mirrors of physical fact…” (Baudelaire 1862:83) and he remains one of the few commentators to question the high veracity of traditional photography. More than one hundred and fifty years later the debate on veracity continues (see Batchen 1997, Maynard 1997, Scott 1999, Lister 2000, Thompson 2003, Durrer 2008) but the belief in photography having a high level of veracity has not differed much over that time and has hardly been challenged. Even when traditional photography is directly compared with digital images the assumption is still that traditional photographs retain a perceived high level of veracity. The process itself is imbued with this notion; a notion which may be incorrectly understood. For photography, the response originating in the eye does not pass down the arm to the hand then pause above the paper before a mark is made. The camera is a direct means of expressing what happens between the brain and the finger. The decision to capture an image can be made on impulse (Marx 1994:8-10).

1.2.3 From the other side

I will argue that photographs should not possess the perceived high level of veracity that many viewers imbue them with. The five interwoven strands I will use to support the case that photographs might not deserve the levels of veracity applied to them can be summarised as:

- factors involving human perception of the external world;
- what that world might be and how humans conceive reality;
- what photography does to the external world when it is recorded on film;
- what viewers believe about photographs;
- the characteristics of photographs that might determine veracity.

There is a plethora of facts and ideas to sift through to build a clear picture of human visual-interaction—the way we see the world and the way we see photographs—and the interaction of other influences. One of the answers might be found in the interpretive nature of photography, another in the way photographs are used and a third in the manner in which other images, including digital, have been compared with traditional photography, possibly incorrectly. Answers might be found in the different ways in which images have been manipulated through the ages. Consequently, I will tie in the findings from these investigation as I follow those early impetuses and seek barriers to veracity in photographs.
1.3 Barriers to veracity in photography

Perceptions of lifelikeness is an early barrier to photographs holding high veracity. Right from the beginning of photography viewers believed that photographs showed the world accurately. Yet, as Vogel (1875) describes the process, early portraits of people (as one example) were by necessity made in full sunlight, often reflected by mirrors. Usually, this created images where the “torture” was clearly visible on the sitter’s face “with their distorted muscles and half-closed eyes” (Vogel 1875:18-19). Clearly, the understanding of ‘lifelike’ needs to be investigated, especially if we ask: compared with what? In the early days of photography, the high veracity was believed to be noticed when the image was compared to the external world and we have already seen what the inventors thought. Talbot’s photograph of a broom in an open doorway looked very much like it would in the real world, but not exactly: there was no colour, for instance. Later, veracity in photographs came to be compared with other two-dimensional representation of the external world, particularly painting.

There exists a vast body of writing on the theories and histories of photography and indeed, photographies. Much of this material pertains to the photograph and its relationship to reality and truth. However, in most of it the authors assume a high level of veracity for photographs due to its production methods and leave the matter there. Even in the first decade of the twenty-first-century, authors are still making claims such as “…photography must be seen as a privileged medium…due to its […] potentiality of acting as a quasi-legal document…” (Widrich 2008:59). Absent is the critical assessment of the possibilities of an opposite view; low veracity. Yet the widespread use of image manipulation should be another obvious barrier to perceptions of high veracity. Another important consideration regarding photographs and veracity is that the question of the veracity of a photograph encompasses two concepts. The first is whether photographs accurately depict the external world, and the second is whether photographs tell the truth if they do accurately depict the external world. Indeed, what does ‘tell the truth’ mean? This paradoxical and difficult situation was alluded to earlier. The answers to these questions are difficult to obtain given the subtlety of the concepts, but this study will seek to clarify these issues.

If the first proposition is incorrect and photographs do not accurately depict the external world, then the second cannot be the case—photographs cannot tell the truth. Definitions of words like ‘depict’ will be addressed in Chapter Three where the definitions pertinent to this study will be set out. In general terms, if photographs do depict the external world, then whether they are accurate in doing so is still open to question because even “…a photograph of great depth and beauty can belie the poverty and pain of the subject…” (Shapter 1993:131) particularly through cropping and
selective focus. The aesthetics and messages derived from the photograph influence the viewer in their assessment of veracity. Aesthetics can encompass ugliness in the pictorial content as well as beauty, as Shepard points out: “…pictures do not have to be pretty to grab our attention; some images fascinate us just because they represent things that are threatening” (Shepard 1990:199). Photographs of the human condition can embody a “…sheer beauty of each picture and awful truth about which their subject speaks” (Ephraums 1998:25). Herein lies the difference between the aesthetics of the photograph as an image and as a structure, and the message the viewer takes away from the viewing which will influence their perceptions of the photograph’s veracity. Ephraums (1998) is careful to point out that it is the subject which speaks to the viewer rather than suggesting that the viewer is looking at the external world. Photographic images such as those of Sebastiao Salgado (1944-) as shown on the CD cover (Figure 1.4) and poster (Figure 1.5) below, show an horrific human condition yet are considered works of art because of the sheer aesthetic power of the imagery. If subject matter alone isn’t a barrier to veracity, even though it must be influential, there must be something in human knowledge of the external world that tips the balance between high and low veracity. The study will seek to determine what that might be.

1.4 Questions arising

The questions raised in the course of this introduction are complex, inter-related, and possibly not easy to answer, yet they will drive the study. Most people do not use the words “external world” when they refer to what is in front of them. This study, for accuracy and consistency must, and therefore a key question to arise is: What exactly are humans referring to when they speak of the external world and reality? In order to clarify this question a thorough investigation of the available literature is presented in Chapter Two. This chapter also addresses several subsequent questions which derive from the former: how do humans perceive and understand the external
world and reality?, can this be photographed?, and what does ‘to be photographed’ mean? The literature review will investigate these and several related issues and, in answering these questions it will, in turn, make it easier to answer the important questions of this study, firstly: do photographs deserve their perceived level of high veracity? and, secondly: from where does this veracity derive? The arguments relating to these questions are detailed in Chapter Four and inform the methodology used to produce and test the Veracity Spectrum, which is later used to illustrate some of the findings and conclusions of this study.

Another question the study will pivot on is: what are the characteristics of photography which preclude veracity? As they are identified, these characteristics will be analysed against their role in the photographic process. Along the way answers will be found to questions such as: how does the average person’s everyday concept of photography’s veracity differ from that of more informed commentators and how do viewers come to conceive of one photograph as being true and another as fake? While many of these ideas appear self-evident to the visually literate reader, they seem to be largely ignored by a vast number of the population generally—does the average newspaper reader care that Walski’s photograph was altered to look better. Barrett (1996) labours the point (especially pp37-38) quoting those few critics who have been at pains over recent years to inform their readership that photographs do not have the veracity the general public believe they possess. That the critics’ case needs to be constantly re-stated means that either the message is not seen (read) or heard, or is not being heeded, or both.

Digital imaging has opened up an extensive dialogue about veracity in computer-generated imaging, although the contemporary discourse still presumes a level of veracity for traditional photography which may not be appropriate. Perhaps the reassessment undertaken in this study would have been better carried out over twenty-five years ago—before digital imaging came into being—so that the fall-back position now so implicit in the comparison of the two media could no longer be made: that traditional photography has a level of veracity to which digital can never aspire. Unfortunately, such comparisons muddy the issues instead of clarifying them. If the reassessment does not occur, there will continue to remain an assumption that traditional photography always had a deserved high level of veracity that survives despite, or because of, digital imaging. If the reader comes to the conclusion that the results of this study continue to indicate a deserved high level of veracity for photographs then the status quo will prevail. If, however, the results demonstrate an undeserved belief in the high veracity for photographs, then a rethink of many aspects of the photographic discourse will need to occur to remedy a number of previous misconceptions.
1.5 Aims of the study

As already discussed, the central hypothesis of this study is that traditional photographs do not deserve the perceived high levels of veracity that they are deemed to possess. Although the veracity of photography has always been open to question, very few have questioned the perceived high level of veracity that photography has maintained for almost 170 years. However, with new research into human brain function, and the widespread acceptance of digital imaging in the marketplace, a reassessment of the veracity of photographs is both timely and necessary.

Apart from the specific questions outlined in Section 1.4 which will be addressed in the study, this introductory chapter has also brought to light several other important issues. In particular, several key points can be identified which will further inform the direction of the thesis. They are in brief:

1. There is an impetus to explore the consequences of a widespread belief in the veracity of traditional photographs, and to distinguish that term from other values, in particular those of verisimilitude and verity.
2. There is a need to bring together as many findings from diverse sources as possible to explain why photography has such a perceived high level of veracity in the face of strong evidence against it.
3. Whilst the emphasis, in this study, is on the veracity of traditional analogue photography, comparisons with digital imaging are inevitable when the two converge as images used to illustrate their subject.
4. There is a need to determine whether or not the real world can be photographed at all. As we will see, perception and the nature of perception are, of necessity, a centrally recurring theme.
5. The issue of how humans perceive and understand the external world and reality is one of the central strands in this investigation and, as such, must receive adequate deliberation.
6. The study will seek to determine whether or not veracity is in the mind of the viewer or is contained in the image.
7. The study will investigate if some of the answers lie within the paradox that unmanipulated photographs gain a higher level of veracity from manipulated photographs because of the existence of manipulated photographs.

All of these factors are encompassed by the aims of the study, as described below. This research, therefore, seeks to clarify issues of veracity in photography, including those of technique and purpose. To do so, the study aims to:

- Challenge the long established belief that conventional silver-halide
photographs naturally possess an inherent, high level of veracity.

- Explore and investigate the extant level of understanding amongst photographic practitioners and viewers of photographs through their perceptions of the veracity of photographs as records of the external world.
- Describe and illustrate the characteristics of human anatomy, physiology and perception, and the characteristics of photographs which aid or preclude a perception of high levels of veracity in photographs, and
- Develop a tool to measure veracity in photographs in their role as records of the external world.

1.6 Organisation of the study

The first chapter of this study, which takes the form of a dissertation, introduces the impetus for the research and the parameters informing the topics. It outlines the stated aims and organisation of the research.

The second chapter presents the literature review. The primary areas of interest are:
- how humans see and perceive the external world,
- what the external world and reality might be,
- what photographs are and what they do with the external when it is recorded using this medium,
- what photographers and viewers believe photographs do with reality and the external world,
- what characteristics of photography might preclude veracity.

These issues are discussed from a scientific, philosophical and theoretical viewpoint and are then subjected to an artistic, critical and academic analysis centred on contemporary photographic discourse.

Chapter Three describes the methods to be used in the study and includes definitions of some of the more complex terminologies that may prove unfamiliar to some readers in the context of the study. The issue of how language is used to describe what is being discussed, frequently complicates matters. How photographers and viewers write about the issues under investigation; for example, the different words being used to describe a photograph’s action (e.g. transform, transcribe, mirror, trace, depict) can be confusing and are often used synonymously by many writers. By necessity, some of the terms used are clarified in Chapter Two as they arise, though most definitions as they are applied to this study will be laid down in Chapter Three. Also addressed in this chapter is the issue of what a photograph actually does with the external world as it records it. For instance, does a photograph: depict, represent, reflect, illustrate, show, encode…? Each of these words has a different connotation and does not necessarily mean the
same thing as the others; there are subtleties in their implication. It may be that some authors ignore the subtle implications in meaning and use the words synonymously to make their writing more colourful. For this reason, it is intended that the clarification of these terms will facilitate a better understanding of the functions taking place within the photographic process. Once the definitions are established, the process of defining the role photography plays in describing the external world and what level of truth can be applied to that function are examined. The methodology for developing the Veracity Spectrum and the means to test it are also included in this chapter.

The core discussion on the veracity of photographs is investigated in Chapter Four wherein the origins and the reasons for the historically sustained levels of veracity are detailed, analysed and clarified. This is argued within the context of the photographic process itself, then through the concept of photography generally and,thirdly, from the standpoint of viewer-perceptions. Issues such as the interpretive nature of photographs, what viewers see in photographs, and how photographs present the external world are also discussed as part of the wider issues being addressed.

The characteristics of photographs and how they support, or not, levels of veracity are outlined and analysed in Chapter Five. This preliminary detailing leads to the development and design of a Veracity Spectrum where the intent is to simplify the calculation of veracity in a standardised manner. There are several steps outlined in the process as the spectra are designed and tested. The final Veracity Spectrum is tested using selected viewers in a survey developed to establish quantifiable criteria to measure and evaluate levels of veracity.

Chapter Six analyses the findings from the survey against the data collected from the literature review and summarises and draws conclusions relating to veracity and photographs. This chapter also points to possibilities for further study, particularly related to the refinement of a measuring tool (such as the spectrum) for veracity, and the impact the study could have on photograph-viewing. It also outlines the implications arising from the study in areas such as the fine art photography market, and the history of photography.

1.7 **Fields to plough**

Earlier in this chapter I referred to the planting of seeds of doubt in a viewer’s mind whenever photographs, or reproductions of photographs, are found to misrepresent their subject. This notion, that doubts arise, presupposes that a high level of veracity in photographs, or some uses of photographs, already exists. Yet, if the conclusions of this study are correct and the veracity of photographs is low then a barren field exists where
seeds of doubt, if planted, should never germinate.

While this study is primarily focussed on an analysis of veracity applied to traditional analogue photographs, digital imaging needs to be considered where appropriate and will be with limitations. In the concluding chapter I will bring digital imaging into the discussion more fully to give context to how the future might look when traditional photographic practice has all but ceased, having been completely replaced by digital imaging. I will also discuss how veracity might relate in this situation—to both extant traditional photographs and to digital images.

There are many photographic histories and theories, and, indeed, photographies (Nickel 2001, Batchen 2002:194, Miles 2008:54), and they all converge and diverge and sometimes contradict each other. There may never be a definitive discourse on photography, and my voice is just one of many. The post-modern criticism of photography carries the burden of photography’s link with reality “and ultimately fails to come to grips with photography’s peculiar relationship to its referent” (Miles 2008:246). I argue that this is because most of that criticism relies upon a belief that photographs possess high levels of veracity. I hope this contribution to the body of photographic writing helps to enlighten the reader and place the veracity of traditional, ‘old-fashioned’, conventional, photography in a proper context; whether that supports or denies a high level of veracity.
Chapter Two

FROM THE PAST, PARTIALLY

2.1 Looking and seeing

In the previous chapter, the reasons and motivation for this study were outlined. This chapter reviews the research literature in the relevant areas of interest that inform the hypothesis presented here. Five key issues are considered within this study to formulate a position on photography’s veracity. These are:

- the anatomical, physiological and psychological aspects of seeing;
- how these factors influence our understanding of the external world and reality;
- the fundamental function of a photograph when it records the external world;
- the viewer’s understanding of reality and veracity applied to photographs; and
- the characteristics of a photograph that may aid or preclude veracity.

The first two issues cover the extent to which humans see and perceive the external world. The “eye of the beholder” metaphorically provides the answers, in that the way the human eyes see things and the way the brain sees things is different, yet connected. The brain responds to signals from the eyes and produces sensations, which are commonly called images, of a phenomenon that humans know as the external world, and which they refer to as—and on to which they infer a—reality. How well the eyes see and the brain responds to those visual messages is the focus of the first part of this literature review. Section 2.2 describe how the human eye works, starting at the front and working backwards with particular reference to faults and errors which are inherent in the various structures and functions. Section 2.3 describes how the brain uses the signals from the eyes to produce what is seen. Section 2.4 deals with the philosophical and psychological factors that influence our understanding of reality and the external world, and how they inter-link. Then, starting at Section 2.5, the functions of photographs, what exactly they are and what they do as they record the external world, will be examined.

The functions of the eye are well documented and there is fundamental agreement in this field, but the functions of the brain remain contentious. Modern scanning methods (fMRI and PET) are confirming much of what was speculative information about the brain until only recently, and for this reason research done since the early 1990s will dominate this review as the subjects of vision and brain function are synthesised.
2.2 Human vision

According to Koenderink (2001) seeing happens when animals open their eyes and automatically become visually aware of the scene in front of them. Changizi (2001) describes a delay in the order of 100ms between the time of first stimulus and the resulting visual percept. That means the scene the observer perceives “…is the probable scene present at the time of the percept” (Changizi 2001:195), not the actual scene at the time the percept is interpreted. The viewer is seeing the past and interpreting or predicting the present from that observation. In day-to-day behaviour this latency is not noticed and seeing seems to be spontaneous, or immediate. More over, seeing comes in two forms: the signals that arrive in the brain via the eyes, and the signals that originate in the brain. Memory, as will be discussed later, is part of, takes part in, and is intrinsic to, both forms of seeing. These characteristics are crucial to the understanding of the viewing process. The following sections provide an overview of the functions of the various parts of the eye and tracks the visual characteristics that arise from light passing through the eye and will be expanded upon in later parts of the thesis.

2.2.1 Functions and characteristics of human vision

The visual array

There are two phases of action in the primary stages of human vision. The first is a rapid pre-attentive detection of objects that appear in the visual array that the brain understands as the external world. The second is an attentive stage in which focal attention is drawn to a particular object detected in the pre-attentive stage (Kingdom 1997:5, Gregory 1998a:787). Both these actions are achieved without the eye changing focal length; in photographic terms they can be compared to cropping the image by zooming in to the subject, but in physiological terms the result is achieved by directing attention to a specific area or object. In physical and mechanical terms, the optical quality of the eye is comparatively poor, thus the actual quality of vision is poor, and yet “human vision is so intricate because of the sophisticated neural machinery that processes the image from the retina” (Wade 1990:12). This is a key point, which will be expanded upon later, because it indicates that a large amount of seeing is done in the brain. The quality of vision is also partly lowered by saccades—the rapid movement of the eyes as they scan a scene every 200-300 milliseconds (Churchland and Ramachandran 1993:28)—because saccadic movement alters the position of the observed object on the retina. Ross, Morrone, Goldberg and Burr (2001) describe two reasons why this action affects vision: firstly “it suppresses visual sensitivity… that dampens the sensation of motion” and secondly because “it grossly distorts the perception of visual space in anticipating the repositioning of gaze” (Ross, Morrone, Goldberg & Burr 2001:113-121). Seeing, therefore, is a complex activity that is not
as passive as might be assumed when we are actually involved in the process in our
daily lives.

**The visual field**
The visual field is oval shaped and extends approximately one hundred and eighty
degrees horizontally and one hundred and fifty degrees vertically (Bloomer 1976:80).
Normal human vision is binocular because it comes from two sources. For most
individuals, the eyes are separated approximately 63mm laterally (Weale 1982:153)—
the range is about 60-65mm—and the image received by the brain from each eye
overlaps the other by about 50% centrally. These two distinct vantage-points allow
objects to be viewed from two angles, and the images are believed to be combined in
the optical pathway. However, recent work suggests certain information received by
the brain may never be combined (Buss 2005). The separate images are interpreted as
being combined and this interpretation consequently affects the impression contained
in each individual image, as is further detailed below. However, the quality of the
source image is largely determined by the physical structure and health of the eye. To
better understand this aspect of vision, we must examine each structure individually
beginning at the front of the eye.

**The corneal and pupil**
The cornea (see Figure 2.1a and b) is the clear outer surface of the front of the eye with
a convexity to the radius of about 8mm. It is lubricated by tears, and serves as the first
and most powerful lens in the optical system. The cornea can detract from good vision
due to disease or physical damage, the most common of which is corneal abrasions,
the symptoms of which can be photophobia (increased sensitivity to light) and blurry
vision. Any swelling of the eye can cause a change in the shape of the cornea and thus
affect the performance of the eye.

![Figure 2.1 (a) Schematic lateral cross-section of the human eye, and (b) human eyeball.](image)
The iris is a circular muscle lying in front of the lens and in the centre of the iris is an opening called the pupil. Small muscles in the iris change the size of the pupil so that the correct amount of light enters the eye, and Hahn (1995) proposes that pupil size might be controlled by messages from the rods and cones. Light reflected from objects in the external world passes through the pupil which acts much like the aperture blades of a camera lens, opening and closing to let in more or less light in response to the brightness of the scene. The pupil can range in size from about 2mm in bright light to 10mm in low light (Gregory 1998a; 2 to 8mm according to Hahn 1995). This represents a change in size of about 25 times, although as Rushton (1998:793) points out, since the change in illumination over which the eye can operate well exceeds a factor of 10,000 times, the pupil actually contributes little towards the control of illumination intensity. This is significant because, as discussed later, the brain controls more of the image than the eye can.

**The lens**
The lens is a crystalline, clear, membrane-like structure and is normally quite elastic, a quality that keeps it under constant tension, with the more curved surface towards the back of the eye. The lens naturally tends towards a rounder or more globular configuration, a shape it must assume for the eye to focus at a near distance. Ligaments hold the lens in place and aid focus (accommodation) wherein the curvature of each lens changes to bring objects into apparent sharp focus where the central area of vision (fovea) is located on the retina (Gregory 1998a:3). The lens can produce poor vision due to cataract growth. Cataracts filter the blue and ultra-violet (UV) wavelengths of light in the 295nm – 400nm range (Bova, Sweeney, Jamie & Truscott 2001:200) as the lenses become increasingly yellow with age (Cates & Moore 1998, Hood, Garner & Truscott 1999, Fristrom & Lundh 2000, Bova et al 2001). Cataracts cut down the amount of light entering the eye as well as causing blurry vision and altering the colours seen. If untreated they lead to blindness which, in many cases, is reversible.

Two other media located within the eye are deemed not to affect the passage of light. The aqueous humour is a colourless watery fluid filling the space between the lens and the cornea to maintain the shape of the front of the eye. The vitreous humor is a gelatinous transparent substance filling the inside of the eye behind the lens. It pushes against the sclera to maintain the shape of the eyeball.

**The retina**
The retina is a light sensitive skin covering the rear two-thirds of the inside surface of the eye. The area of highest sensitivity on the retina is called the fovea. Churchland and Ramachandran (1993) note that the foveal region encompasses a mere 2° of visual
angle which equates to seeing an area about the size of a thumbnail at arms length.
Beyond this foveal region the peripheral vision has low-acuity and poor resolution, lower than the cheapest film camera (Williams 1990). Anstis (1998) describes the characteristic of the retina that degrades the optical image thus:

The grain of the retina becomes progressively coarser from the fovea to the periphery. This is caused by the decreasing number of retinal receptive fields and decreasing amount of cortex devoted to each degree of visual field… (Anstis 1998:817)

The retinal receptors are called cones and rods. Cones are used for daylight and colour vision, “and are essential for acute vision” (Rushton 1998:793), whilst rods are used primarily for low light vision. Cones are further subdivided into three types that respond best to light from different wavelengths of the visual spectrum “…called, not very descriptively, Type 1, Type 2, and Type 3…” (Livingston 2002:61). There are about a million cones and a hundred million rods in each retina which in turn converge upon about one million fibres of the optic nerve, so only the more dramatic features of the visual array are encoded and sent on to the brain (Gregory 1998a:793). There are no rods in the fovea (the sensitive central area of vision), which means that in low light the fovea is not responding to visual stimuli nor sending signals to the brain (thus becoming a second partial blind spot). Churchland and Ramachandran (1993) say of the principle blind spot, created where the optic nerve leaves the eye, that it is “about 6° in length and about 4.5° in width” (Churchland & Ramachandran 1993:28) compared with the fovea’s coverage of an area of 2° of visual angle. Images falling on the area of the blind spot are invisible to the viewer using monocular viewing but because the blind spot regions of each eye do not overlap there is no perceivable loss of visual information in binocular vision. As will be explained in Section 2.3.1, the brain can fill in what the blind spot leaves out of vision.

The binocular visual pathway is segregated at the retina, all the way to the brain, and probably remains so throughout the entire visual process. Two main types of ganglion cells (large for peripheral and small for foveal areas) receive input from the retinal photoreceptors and send information via the optic nerve to the thalamus (Livingston 2002:48-49). In the primary visual cortex there are many hundreds of times more visual neurons than there are optic nerve fibres (Robson 1991).

**Colour vision**

Colour is an important aspect of vision and is detected by the cones. The colour range that humans detect was determined during the evolution process and covers as much as is needed to survive in the external world. Some animals and birds detect a far greater range of the electromagnetic spectrum than can humans. It is believed that colour is not a physical attribute of objects in the external world and that it is in fact a sensory
phenomenon. Human awareness of colour is a subjective visual experience to which we have ascribed descriptive names (Hart 1992:708). In other words, colour is not a property of the things we see; it is a property of the way we see.

**Depth perception**

The detection of depth and placement of objects in the visual field are essential operations in order for humans to move around in the world. Both are perceived by combining retinal signals and oculomotor signals in the brain. The brain has “(by low estimates) $10^{12}$ neurons with an estimated $10^{15}$ connections running between them” (Atkins 1993:124) that respond to cues such as focus, which varies with distance, or the angle of gaze, which shifts inwards towards the nose as an object gets nearer. Siegel (1999) confirms this, saying that processed optic signals are combined with eye position information in the parietal cortex. Until recently the understanding was that the signals from the two eyes were pooled prior to becoming available for perception of depth and direction. However based on experiments in monocular vision, researchers found that:

…objects are indicated by their retinal locus in combination with the angular position of the viewing eye only [and that] in binocular vision the integration of left and right eye signals first occurs after retinal and oculomotor signals have been integrated of each eye separately. (Erkelens 2000:2411)

This aligns closely with the model Pinker (1997:286) provides of the visual process, which suggests that information on points in space are lost in the brain after the retinal signal is sent, and that a “2½D” sketch—the term coined by Marr (1982)—is constructed to compensate for the lost data and from which elements are added to the visual pattern. The concept of mental images being partially composed from memory (also supported by Zakia 1997), as suggested here, will be expanded in Section 2.3, though the filling in described by Pinker is different from the filling in the brain does with the blind spot as is detailed in Section 2.3.1. It is noted here because the concept of mental images being partly composed from memory has an important bearing on this study.

**Beyond the retina**

The visual signals passing through the lens are first detected when light from the external world stimulates the retina of the eye. The visual signals are subsequently sent to the brain although this is not a simple process. Specifically, Carter (1998) describes the complexities of the visual process thus:

Light from visual stimuli is inverted as it passes through the lens. It then hits the retina at the back of the eye, where light-sensitive cells turn it into a message of electrical impulses. These are carried along the optic nerve from each eye and cross over at the optic chiasma. The optic track then carries the information to the lateral geniculate body, which is part of the thalamus. This shunts it on to the visual cortex, at the back of the brain, specifically an area called V1. The visual
cortex is split into many areas, each processing an aspect of sight, such as colour, shape, size and so on. (Carter 1998:112)

The physical anatomy is shown in Figure 2.2 and schematised in Figure 2.3. A large body of research is available (Gross 1984, Zeki 1990, Kosslyn 1994, Dennett 1995, Sillito 1998, Zeman 1998, Sceniak, Ringach, Hawken & Shapley 1999, Fitzpatrick 2000, van de Grind 2000, Shimojo, Paradiso & Fujita 2001, Livingston 2002, Grezes & Decety 2002, Buss 2005, and others) to explain the functions and areas of the brain—especially the areas known as V4 and V5—that deal with individual visual tasks.

Figure 2.2 Human brain showing visual pathway

Figure 2.3 Illustration of visual pathways

Given the eye is such a poor conductor of visual information, O’Regan (1992) questions why it is that people can see so well with what is apparently such a badly constructed visual apparatus. He describes several defects of vision and suggests an alternative viewpoint in which the:

…outside world is considered as a kind of external memory store which can be accessed instantaneously by casting one’s eyes (or one’s attention) to some location. The feeling of the presence and extreme richness of the visual world is, under this view, a kind of illusion, created by the immediate availability of the information in this external store. (O’Regan 1992:461-488)
Conventional photographs fit well into this viewpoint, since they sometimes act as a similar sources of external memory in relation to the outside world. Kosslyn (1994) and Carter (1998) further expand this theme on how the mind works, as will be discussed in Section 2.3. In support of this memory-based approach to visual perception, Roland and Gulyas (1994) observe that the areas of the brain serving visual imagery are a subset of the areas serving visual perception, a process which Zeman (1998) calls subspecialisation. To this end, Gregory (1998c) notes that about “80% of fibres to the geniculate nucleus relay station come downwards from the cortex, and only about 20% from the retinas” (Gregory 1998c:1694). It is suggested by Anstis (1998) that the reason for this fall off is to reduce the amount of data sent to the brain—an estimated reduction of about 97%.

Our visual impression of the external world does not seem to have the decreasing peripheral acuity described above because the brain compensates for the reduction in edge resolution, just as it compensates for the low resolution of the eye generally. In addition, the decrease in peripheral vision is not detectable because the attention of the viewer is primarily directed to the central area of the visual field. Anstis also notes that the lower visual field of the retina (superior retina) has more ganglion cells (those which the cones and rods connect to) and uses more visual cortex, and that the temporal visual field (nasal retina) has more ganglion cells than the nasal visual field (temporal retina) and in the foveal area two ganglion cells connect to each cone. This non-uniformity of the distribution of retinal receptors can be explained by the need to, firstly, see more detail on the ground in front of the viewer than in the sky above; and secondly, that less detail is needed in the area where binocular images overlap compared to the areas which do not overlap. Anstis also points out that the brain produces a “cortical magnification” effect, a barrel distortion, on the central visual array which corresponds to the fovea (Anstis 1998:819-821).

Cortical magnification manifests itself in a manner familiar to photographers when they use a wide-angle lens close to a subject—an example being the distorted nose on a face photographed with a wide-angle lens a metre way from the subject. The facility for cortical magnification results in clarification of the image, and the distortion is corrected by the brain and, so, is not seen.

Unlike a photograph, the visual signal on the retina is not static. Rushton (1998) says the retinal image is more like a motion picture image than a photograph, with each new image replacing the previous image in a continuous override. Becker, Pashler and Anstis (2000) tested subjects’ attempts to detect a change of a single item in a visual array, and the experimenters found that although “people may have a fairly rich visual
representation of a scene while the scene is present” as soon as the scene is changed the memory of the previous version becomes vague because “the second frame overwrites the representation of the first frame” (Becker, Pashler and Anstis 2000:273). In this way, each new scene is viewed afresh, which is why motion pictures work to give the illusion of movement. Gombrich (2000) expands on this idea saying:

Not only do we see such sights on the cinema screen, but we cannot help seeing them, unless we close our eyes. The film exploits the weakness, or sluggishness, of our vision to make us see movement where there is only a succession of stills. We do not have to mobilise our imaginations; we are passive, though willing, victims of an inescapable illusion. (Gombrich 2000:xxvii)

As we have seen, the light passing through the eye triggers a response on the retina which conveys electrical signals to the brain via the optic nerve bundle. For many reasons, the original visual image is of low quality while it exists as a retinal image but when the retinal image is transmitted to the brain, the brain then decodes the message and produces an image in the mind which appears clear and well detailed. The following section examines what happens in the brain to process and enhance the visual image.

2.3 How the mind works

After centuries of debate, the issue of what exactly the mind is has not yet been resolved. At the extremes, some authors (Marr 1982, Edelman 1992, Pinker 1997, Willats 1997), see the brain as a computer operating through electrical signals, while others (Bergland 1985, and to a lesser extent, Greenfield 2000) see it as a gland whose activities are controlled by hormones. Pinker (1997) after Gregory and Kossler argues that the mind is simply what the brain does. Dahlbom (1993) believes the “Mind needs a brain to run on, but not just a brain. Some of the matter in which it is realized is inside the skull, some is outside” (Dalhbom 1993b:167). Greenfield suggests “that the mind might well be the personalization of the physical brain…” (Greenfield 2000:14) and Koenderink argues the mind is not in the head. He says “[t]he mind is far from being a product of the brain. It derives from the interaction of the embodied brain and the world” (Koenderink 1999:1). Bergland agrees with Koenderink (but for different reasons) and places the mind in all of the body (Bergland 1985:113, 117). Dahlbom, following Dennett, suggests that because “we, our minds, are very much part of […] society […] mind is a social phenomenon rather than a brain process” (Dalhbom 1993b:166), perhaps where one is embedded in the other. Atkins says that the tenet should be granted “that the mind is the brain” (Atkins 1993:125) whereas Greenfield says the mind is the accumulated personal experiences of the brain; “built up in extensive neuronal networking” (Greenfield 2000:143). With all these perspectives in mind, what follows should be taken subjectively, even though most people feel their mind is beyond their brain. Because there are so many interpretations of how the mind works which must
be addressed here, presenting a logical and conclusive distribution of ideas is difficult, simply because so many issues and ideas overlap or are contradictory. It is hoped that what follows offers a reasonably fluid and concise arrangement of the many different ideas.

2.3.1 Determining reality

Discussing the function of the brain, Pinker (1997) explains that although visual images and other perceptions may share brain area they are entirely different phenomena and the price of confusing them is a cost that frequently arises—for instance, imagination is easily mistaken for reality. As early as the eighteenth-century, David Hartley a pioneer in studying the relationship between touch and sight, noted that humans “always depend on Touch” if there is conflict between sight and feel (Hartley 1749:138). Gregory (1997:13) cites studies with blind patients whose learning from touch is crucial and concludes that humans would effectively be blind if brought up in a world of sight without touch. Atkins, Fiser and Jacobs (2001:449-61) have also noted the connection between haptic, textural and visual cues. These findings indicate that humans learn through their visual sense but learn better when they can touch a viewed object as well, which includes walking around a scene. That humans can learn about the world from photographs (and other visual media such as television) means, if Gregory (1997) is correct, that they can correlate previously learned facts arising from touch and vision to newly encountered facts arrived at by sight alone and extrapolate from existing touch-based pre-knowledge. Naturally, there are shortfalls because:

Visual perception is an active process, making effective use of limited and not always strictly relevant information from the eyes and the other senses. Perception calls upon knowledge and assumptions which are not always appropriate or correct. Thus there are rich sources here for phantasms of vision. (Gregory 1997:69)

This is why visual illusions, photographs and motion pictures work so well. However, the main thrust of Gregory’s theory of visual perception (Gregory 1980, 1997, also supported by Gombrich 2000:210) is summed up in his statement:

Vision and other senses project visual reality as hypotheses of what may be out there. …so perceptions fill in gaps, and create what might or ‘ought’ to be out there. (Gregory 1997:67)

If Gregory is correct then what humans “see” is almost entirely guesswork about the objects encountered in the external world. This paradox arises because as Shepard (1990:121) points out, two-dimensional visual illusions work by utilising fundamental perceptual principles adapted by natural selection in a three-dimensional world, but to try to fool the viewer with full binocular vision who is freely mobile in that three-dimensional world is almost impossible. A picture of a three-dimensional scene differs from the three-dimensional scene itself in a crucial way, “A picture not only represents that scene, it represents it as viewed from a particular position in space” (Shepard
1990:122); it is unmoving. If the scene, or the viewer within the scene, were moving the illusion would be destroyed. This is a key point in terms of this study.

Gregory (1998b:10, 1999) later expands this theory of “perceptions as hypotheses” describing how, once established, the visual hypothesis is experimented with in the mind. In this phase, perception is either reinforced; or the hypothesis is rejected for a better one—with the process continually repeating as we build up our individual version of the external world. Koenderink expands on this idea, calling it a “multiple visual worlds” hypothesis—arguing that, in most cases, perceptions of this type are better than a “single guess” when interpreting what the visual array is giving the viewer (Koenderink 2001:3). This is why every individual has a different and unique view of the external world, and it is one of the thrusts of the argument supporting this study—every person has their own reality; their own version of the external world. To know one’s own mind “is a private and subjective thing” (Shepard 1990:33), but to know another’s mind (to the extent that one can) can only be based on the behaviour of that person over time. Koenderink explains that “In living your life… you continually make decisions-in-action that are final… and collapse the multiple visual worlds” (Koenderink 2001:4). This compares with Schrodinger’s theory of many-worlds (Gribbin 1995:161) in which all possible universes collapse to one actual universe once a solution is found to a question (as in Schrodinger’s famous thought experiment: *Is the cat dead?*). On seeing the cat, the percept is made correct even if the original interpretation was wrong, or wrongly perceived, or another percept took the viewer on another route. Unfortunately, the original percept, even if wrong, may become embedded in memory, and thus continue to influence all future decisions on similar looking objects or scenes.

If we accept that what humans see as the external world is based on individual experience and their own interpretation, it is clear that each version of the real world must be unique. Parfit (1984), Blakemore and Greenfield (1989) and Greenfield (2000) suggest that at any moment the brain “gives [only] a snapshot of awareness, an illusion of perpetuity” (Greenfield 2000: 27) in which there may not be any continuity. It is possible that continuity, for a single individual, “…is merely a trick of the neurons, a particular property of the state of consciousness…” (Greenfield 2000:28)

Greenfield (2000:148) says that dreams enforce memory. Dreams occur in the mind when it is in a relaxed state (Hobson 1994), and might allow the necessary connections in the brain to remain viable so that memories are not lost (like the battery in the camera or computer that maintains data about time and dates). This hypothesis gives dreams a significant role in the human condition, and a vital role in visual perception
and building knowledge of the external world (Morrison 1990:133-148). Because memory drives perception, Gregory argues that a “stereo photograph of a face will refuse to appear hollow in a pseudoscope” because stereopsis as a depth cue “may be rejected. It may be rejected by the power of knowledge…” (Gregory 1998b:66, see also 1998c:1694, and Dawkins 2006). Gregory cites experiments which demonstrate that the same brain space is used for vision and imagination, an idea supported by Kosslyn (1994). Hence, in picture viewing, reality is relative (Gregory 1998b:85). Freeman’s work supports this theory, noting that a “visual system makes assumptions in order to interpret visual data” (Freeman 1994:542). Atkins (1993) also addresses the same question:

...why [it is] that some neural events, such as visual perception, are present to consciousness while others, such as the neural mechanisms of stereopsis or depth perception, are not. (Atkins 1993:154)

As outlined in Section 2.2, the precision of vision has recently been challenged and Gregory points out that: “…vision needs tolerance, to cope with all manner of inadequacies” (Gregory 1998b:118). Gregory highlights the brain’s role in visual perception in three important senses:

i. perspective representations of three-dimensions are wrong as they depict an idealized image of the world on the retina.

ii. humans do not see the retinal image and,

iii. do not see the world according to the sizes or shapes of the retinal images as these are modified by constancy scaling

(Gregory 1998b:185)

When we add to this list other perceptual phenomena such as colour constancy (Figure 2.4), then the connection between the external world (reality) and our vision of that world becomes quite tenuous—unless the latter is the former (i.e. vision is accurate) and our understanding of the former (the external world, or reality) is fluid.

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1 A pseudoscope is an optical device in which an arrangement of four mirrors effectively interchanges the left and right viewpoints of the two eyes... By reversing binocular parallax, the pseudoscope yields apparent inversions in depth in which (unfamiliar) convex objects look concave, concave objects look convex, and in which any movement of the viewer's head induces, in such perceptually inverted objects, the illusion of an astonishing twisting motion. (Shepard 1990:27)
Figure 2.4 Colour constancy: the light grey squares (B) in the shadow of the cylinder are the same density (tone of grey) as the dark squares (A) on the rest of the checkerboard. Your brain is compensating if they appear different!
Half closing the eyes may help make the illusion apparent.

**Filling in**

As previously discussed, objects falling on the area of the blind spot—where the optic nerve exits the eye—are invisible to the viewer on monocular viewing, but because the blind spot regions of each eye do not overlap there is no perceivable loss of visual information in binocular vision. This is usually attributed to the brain filling in the missing data, though Dennett believes “The fundamental flaw in the idea of ‘filling in’ is that it suggests that the brain is providing something when in fact it is ignoring something” (Dennett 1991:356). Conversely, Churchland and Ramachandran describe experiments in which “the data strongly imply that at least some instances of filling in do indeed involve the brain ‘providing’ something” (Churchland & Ramachandran 1993:30). The relevance of the experiments cited in Churchland & Ramachandran (1993) is that they indicate it is cortical activity rather than any retinal effect which does the filling in of the blind spot. Dennett does not concede this point, insisting that the information is inferred (Dennett 1995:206). The significance of this issue to the current study is that although there is no agreement on how it is happening, there is something happening to change our vision from what is seen (or not seen) to something else.

### 2.3.2 Computers in mind

There are many theories as to what the mind is. Pinker (1997:524) defines the mind as “a neural computer, fitted by natural selection with combinatorial algorithms for causal and probabilistic reasoning...” based on needs arising at the time of our foraging ancestors, whilst Greenfield (2000:13) defines the mind as the configuration of personal experiences from childhood and beyond which are constantly updated with each new
Dennett (1991) says there may be early draft versions of experiences innate in the brain, suggesting that these become altered “final reports” at some later stage. These definitions fit closely with recent research in relation to the understanding of how the brain functions.

In his extensive synthesis of the way humans perceive, conceive and think, Pinker (1997) defined his computational theory of the mind, describing how it offers explanations for key mysteries which surpass alternative theories, quoting psychologist George Miller’s 1981 observation: “The crowning intellectual accomplishment of the brain is the real world…” (Pinker 1997: 333). Pinker points out that it is the focussing of attention that is integral to visual perception. Of all the incoming information from the visual field, only part of it is attended to by the mind, said to be the “…spotlight of attention” (Pinker 1997: 140). In Pinker’s model, the visual receptors are compared to thousands of little processors, each of which detects a colour or a simple shape like a curve, an angle, or a line whenever something appears at the processor’s location. Each sensor only detects one characteristic—colour or shape, never colour and shape. Chalmers (1997) goes further, and takes the view that particular neurons have a one-to-one correspondence with particular states of consciousness, such as the colour red, however Greenfield (2000) disagrees with this direct correlation, arguing that: “… an isolated circuit [of the brain will not be]… autocratically responsible for a sensation of the colour red, for example;… [because] the brain functions holistically, with different circuits and brain regions all making contributions to net function” (Greenfield 2000: 36-37).

To test how attention is focussed, one team of researchers tested subjects to see what capacity humans had to attend a fixed number of objects. They found that there is no evidence of a finite limit to attention but that “within-object and between-object feature-binding mechanisms in human vision affect how efficiently humans attend” (Davis, Welch, Holmes & Shepherd 2001: 1227). Blakemore, Fonlupt, Pachot-Clouard, Darmon, Boyer, Meltzoff, Segebarth and Decety (2001) used function Magnetic Resonance Imaging (fMRI) to test human response to events and found that more attention is paid to causal events (where something happens) than non-causal events and that the processing is done automatically by the visual system. It appears that there are two states which the visual system prefers, described by van der Helm (2000: 770) as the “…‘likelihood principle state’ and the ‘simplicity principle state’…” where, in the former, the visual system seeks a likely interpretation of visual stimuli and, in the latter, the simplest interpretation is sought. Experiments showed that the two principles are very close, particularly with respect to the viewpoint-dependent aspect that seems decisive in everyday perception.
Stereoscopic vision and colour

Along with the machinery (hardware), there developed in the brains of early primates two functional aspects of vision (software) which, as a by-product, aid humans in viewing photographs successfully. Evolution didn’t cater for the invention of photography, it merely provided tools to assist in the viewing and interpretation of two-dimensional images. The first, stereoscopic vision, allows depth perception in a three-dimensional space, and the second, colour vision, allows objects to stand out against each other or their backgrounds (Pinker 1997:191); camouflage attempts to counter this situation. While stereopsis is not necessary to perceive depth in a photograph, it is necessary to have access to the triggers used in the external world for the same responses to occur while viewing photographs. These two characteristics of vision are what motivate the human mind to grasp the external world as a space filled with movable things and stuff, as Pinker refers to it.

Held (1993) found that babies do not have stereopsis until about 3 months of age when each neuron settles on a favoured eye. The neurons lying one connection downstream then know when a mark falls on one spot in one eye and on the same spot, or a slightly shifted-over spot, in the other eye. Thus the perception of depth is developed in the brain not the eye. Wexler, Lamouret and Droulez (2001) supports this view and Doi (1991) suggests that head position (tilting) also plays a part in the retinal perception of an image in the external world.

Visual roulette

Marr (1982) described vision as a process of solving ill-posed problems by adding assumptions about the world, whereby the human eye takes information from the external world but “[o]ur shape analyzer [neural activity in the brain] plays the odds and makes us see the most probable state of the world, given the retinal image” (Pinker 1997:243). The resulting perception is based on a probability theory that relies on previous knowledge and experience of the visual world. If the first answer the brain comes up with is inconsistent with the information already stored in memory, it reassesses the signals and produces a different answer until it gets to the (supposedly) correct answer—a process which occurs in split-second time. This does not necessarily contradict van der Helm’s (2000) more recent work, typically because the first message the brain receives under Pinker’s description might, in fact, be the simplest. Although this seems to be an extremely inaccurate system, humans do not conceive it as such.

Appearance analysis

The external world, as humans perceive it, consists of surfaces and edges. Light must fall on objects and illuminate them for humans to see them unaided. Light also
changes the appearance of the objects in terms of shading, colour, texture, and so on. Analysers (different neural activities) in the brain determine the characteristics of the light reflected from surfaces—for example the shading “analyser” detects uneven pigmentation when we view paintings or photographs. Humans see the external world very differently from the way they see two-dimensional representations of that world and yet they use the same cues to see both structures. There is clearly a lot of overriding and fooling going on in the visual perception system.

Each analyser makes assumptions, but those assumptions are often contradicted by other analysers. Angle, shape, material, lighting—they’re all scrambled together, but somehow we unscramble them and see one shape, with one color, at one angle, in one kind of light. (Pinker 1997:248)

As was noted at the beginning of this chapter, vision comes from within the brain as well as from outside. Greenfield suggests that several areas of the brain may operate in conjunction; for example, the frontal cortex contains the working memory and this may operate in conjunction with the visual cortex when viewing takes place (Greenfield 2000:40). Pinker (1997) takes this connectivity further: “The fiber pathways to the visual areas of the brain are two-way [so] when people see shapes and imagine others, later they sometimes have trouble remembering which was which” (Pinker 1997:287-288). This is why dreams and hallucinations can seem so real, and often cannot be differentiated from external world experiences, as Shepard (1990) observes: What our experience gives us is, in a sense, the ‘illusion’ of direct, unmediated access to the external world. Our perceptual experience of stable, continuous, and enduring three-dimensional surroundings retains no trace of the prodigiously complex neuronal machinery that so swiftly constructs that experience. (Shepard 1990:4)

Thus, we do not notice the shifting, intermittent, pointillistic, up-side down, curved, two-dimensional pattern of the external world that the eyes send to the brain because various parts of the brain interpret the messages to produce what we regard as correct viewing or “reality” (Figure 2.5). Based on the above models of visual perception and the mind-eye process, the next section explores two further aspects of the visual phenomenon, concluding with a direct reference to photography. However, to maintain balance, following that, an alternative view of how the mind works is described.
2.3.3 Reason and language

It could be argued that logic should in part determine the interpretation between message received and messages dispatched in regard to vision, but if we are to take this point of view, it must be remembered that logic is a human construct. Nevertheless, logic clearly has a role in “inferring true things about the world from piecemeal facts acquired from other people via language or from one’s own generalizations” (Pinker 1997:335). However, logic can only be a small part of the visual process. Logic is primarily formulated within criteria based on language and the manner in which humans understand “the structure and principles or reasoning” (Flew 1979:192), including deductive inference and demonstration of proof. Language is an agreed set of symbols that represent objects, events, ideas, etc. and because of their arbitrary nature these symbols are susceptible to change. With reason, as with language;

We come to agree with one another on which truths are necessary. And we teach each other not by force of authority but socratically, by causing the [students] to recognize truths by their own standards. (Pinker 1997:334)

Unlike scientific researchers, the general public is often “irrational, unscientific, prone to confirming [their] prejudices rather than seeking evidence that could falsify them” (Pinker 1997:336), an observation which implies that concepts of reality can never be more than popular ideas perpetuated by influential forces. A mind wont to play with information of one sort is also likely to play with information of all sorts; and it certainly does with visual information. Given these failings, Pinker still concludes that even though “…people sometimes reason fallaciously, … they can be remarkably accurate” (Pinker 1997:351). So it is in the way information is received that allows humans to make accurate decisions about their world. In humans, “the mind charitably fills in missing premises or shifts to a new frame of reference in which they [photographs, for one] make sense” (Pinker 1997:552).
Mindful of infection
Prominent evolutionary biologist, Richard Dawkins (1993) notes that “the mind is a plausible candidate for infection by something like a computer virus…” pointing to the dedication to fashion by young people, and offspring who follow their parent’s religion “if not slavishly, at least with some reasonably high statistical probability” as just a few examples of this “infection” of the mind. Dawkins argues that the mind is highly susceptible to learning misinformation given “the programmed-in gullibility of a child” (Dawkins 1993:18-20, 2006) since a child’s mind is designed to uncritically absorb information, good and bad. Sorting the worth from the dross is the job of the thinker, and perhaps there is not enough thinking amongst the general population, or there would not be so much effort by hard-headed businessmen to fill the airwaves with advertising jingles, or pollute the visual senses with advertising images. Ideas that mutually support one another flourish in the company of others until they constitute a package stable enough to deserve a collective name. Using religious fanaticism as a specific example (the 1978 ‘Jonestown’ mass suicide in the Guyanan jungle) Dawkins asks: “…can anyone doubt that human minds are ripe for malignant infection?” (Dawkins 1993:20-24). A perceived high veracity for photography complies with this notion.

Although a misconception about photography’s veracity is not exactly a malignant infection, the idea that humans take the good with the bad, often indiscriminately, will provide part of the answer as to why the acceptance of photography’s perceived high veracity is widespread. The message that photography had a greater veracity than painting was from the start mutually supported by the viewer’s astonishment at the images (their lifelikeness) produced by the first cameras—and I will argue that the idea flourished amongst viewers in each other’s presence. Up until recent times, and the advent of digital imaging, the message that photographs replicate reality and the external world accurately has been the outspoken and consistent message (if spoken at all, for it might widely be assumed that the message need not be stated, due to the general belief that high veracity is a given in photographs), while the advocates of the opposing belief (from Baudelaire onwards) have not had their voices heard proportionately.

2.3.4 Alternatively
For a different interpretation of how the brain works we can go to Hacker (1987) who takes the stance that it is ill-conceived for contemporary psychologists and neurophysiologists to “endeavour to explain the mechanisms of perception by attributing cognitive capacities and their exercise to the brain” (Hacker 1987:19). It is the mind which produces the perceptions, as was elucidated in 1690 by the
English philosopher, John Locke. On this theme, several authors use Plato’s simile of the shadows on the wall of a cave and relate the idea directly to photography and its relation with reality, notably: Sontag (1977:3), Krauss (1984:62-63), and Miles (2008:3-7). The idea that perceptions are personal experiences, and not necessarily shared exactly by all individuals goes back to Plato (c.400 BCE), then Galileo (c1623), Descartes (c1647), Boyle (c1660) and Newton (c1704). Later, the concept was further developed by Thomas Young (c1802) and von Helmholtz (c1868) in their work on colour vision (Hacker 1987:8-43). These notions are reinforced contemporaneously by Eccles (c1984), Gregory (c1984) and Rock (c1984) (Hacker 1987:48-49) and by Greenfield (2000:151). However, Hacker (1987) is highly critical of this approach and makes the point that:

This received picture, propounded by scientists and widely adopted in good faith by the gullible, is a well-entrenched piece of mythology based not upon scientific experiment and theory but upon conceptual confusion. (Hacker 1987:50)

Hacker takes the view that if the perception of objects is entirely in the mind, “[we] can, on this conception, never perceive the world as it really is” (Hacker 1987:53). Hacker uses the difference between feeling heat and feeling hot as an example and goes to length to explain that perceptions are not transmitted from the source along nerve fibres to the brain, that only electrical discharges are transmitted. The brain interprets the discharges when “an appropriate set of electrical impulses in the cortex [allows] a causal condition for a person to have a certain sensation...” (Hacker 1987:46). Based on reasoning employed by Wittgenstein (c.1967), Hacker concludes there “is no such thing as vindicating a form of representation by reference to reality” (Hacker 1987:40) and he gives the reason, based on a philosophical argument involving appeals to logic, that circular reasoning is involved: “…any description of the facts… must already employ a given form of representation” (Hacker 1987:40). His premise is that there is a difference between sensible appearances (i.e. what appear via the senses, in this case the eyes) and perceptual experience, presumably what the viewer makes of what they see in the external world. Several aspects of opinions on visual perception will be explored in this thesis to test Hacker’s claims.

**Colour constancy**

Russell (1967) takes the Galilean stance that an object has a particular colour under certain lighting conditions, and some variation on that colour under different lighting conditions and that both “have just as good a right to be considered real” (Russell 1967:2). Hacker (1987) on the contrary, thinks this argument is weak, and says that “…how a thing appears under abnormal lighting conditions does not have any right to be considered the real colour of the object” (Hacker 1987:111). Russell uses the terms “normal spectator” and “normal [viewing] conditions” as does Hacker, but
neither specify what is normal. A brown table will appear one way under the tungsten or fluorescent light of the dining room and a variation of that colour when carried outdoors into sunlight yet both the indoor and outdoor lighting can be regarded as normal. The colour appearance of objects under different lighting conditions is more easily demonstrated using colour film than with the human eye, but it is humans who do the perceiving so it is with humans that the differences should be judged. And this is a salient point for this study: the fact that human visual perception adjusts so well for different lighting conditions so that colours look similar, if not the same, under different light sources, reinforces the notion that humans do not see the external world as it really is. They make involuntary adjustments according to viewing conditions.

While it seems an excessive exaggeration, McGinn points out that it is “entirely proper to speak of objects as red to perceiver x and green to perceiver y” (McGinn 1983:10); arguing that it is a matter of linguistics not a matter of perception. Perceiver x has learnt to call the colour he sees “red” while perceiver y has learnt to call that colour “green”. This is more obvious when colour-blindness is considered: perceiver x, with normal vision, sees the upper-most traffic light as red whereas perceiver y who is colour-blind sees the same light as grey but has learnt to call it “a red light”. Similarly, if perceiver w calls red the wavelengths of light reflected off a red balloon at 750nm and perceiver z sees the same balloon at 700nm yet has learnt to call that colour red, both perceivers are talking about the same thing using the correct terms, yet their retinas are registering different information, unbeknownst to both of them. Something similar happens to people with cataracts on their eyes because cataracts absorb certain wavelengths of light, changing the colour of objects for individual viewers.

Conversely, Hacker (1987) (following Wittgenstein) says:

That white surfaces systematically look pink under red light, bluish when blue shadows are cast upon them, greenish when viewed through green glass (all thoroughly systematic) does not make them anything other than white.’ (Hacker 1987:164)

Later, he maintains that there is a “temptation to equate ‘is red’ with ‘looks red to normal human beings’. But that temptation should be resisted…” (Hacker 1987:183).
He says that a uniform red surface may have highlights which look white or pink, and a shadow cast across one edge which looks maroon, yet in actuality it is still uniform red. Others (Ruskin 1857; Walton 1984:270-271, Gombrich 2000:53-57, 296-297), have suggested that this proposition is absurd and that if the surface appears to range from pink to maroon, then it cannot be said to be uniformly red. If, on the other hand, the uniformly red surface is lit evenly and appears red all over then, of course, it can be said to be uniformly red all over. What can be said of the uniform red surface is that it has a coating of coloured pigment (or other material) which reflects light at a
certain wavelength and that the surface of coloured pigment is even in distribution. In day-to-day usage of coloured materials, these distinctions are not made. It is not necessary to know exactly what shade of red a car is if you are looking for your vehicle in the carpark, nor which shade of green a hat is when you are meeting a stranger at the station who will be wearing a green hat. Most people will identify coal as black even if it looks dark grey against a blacker background, or a white dress even when illuminated under multi-coloured neon light (Gombrich 2000:52). Livingston gives the reason for humans having a “centre/surround organization of color-selective cells” as being so that “our perception of the color of an object would not vary depending on the color of the illuminant” (Livingston 2002:95). During most of the period of human evolution the only light source available was sunlight; variations consisted of bright sunlight, reflected sunlight (moonlight), overcast sky and shadow. It would not suit the survival of the primitive human species to see objects as different colours under these variants.

**Percepts generally**

Given the range of variables involved, Hacker (1987:189) maintains that all things are consequently interpreted “relative to the standard viewpoint.” An observer knows this standard through various encounters with the same objects under differing viewing conditions most of which produce similar and repeatable effects to the extent that the observer can predict a likely outcome. Whenever the predicted outcome occurs it thereby reinforces to the observer the likelihood of the same thing happening again. In this way the observer builds up a notion of reality. The basis of Hacker’s view is the difference between describing something seen and describing the visual experience of seeing something. It is more than mere playing with words, but it is a distraction from the main theme of this study: whether photographs depict the external world accurately, based on how a viewer sees the external world. Ultimately, it could be said that if Hacker sees the red surface as uniformly red and someone else (artist or not) sees it ranging from pink to maroon then it stands that individuals do perceive the external world in different ways. Photographs, made with different colour-sensitive emulsions, show this effect best.

### 2.3.5 Grand gland

The discussion so far has illustrated the ways in which the brain is conceived as a computer-like instrument. However, some researchers and authors take a very different view. Bergland’s (1985) hypothesises that the brain is a complex gland controlled by hormones that move in and out of the brain from other hormonal sources throughout the body. He links this with left-brainness and right-brainness where the left brain does the communicating (including verbal communication between people) and the right
brain does the model- or paradigm-building, including pattern recognition (Bergland 1985:10-14). He plays down the role of electricity in the brain by arguing that it is the invention and use of electrical measuring devices used in medicine and research (such as oscilloscopes, which provide electrical amplification of weak signals) that drives the belief in the importance of electricity in the brain (Bergland 1985:71). However, Bergland’s theory has not been taken up by other researchers and now remains largely in a scientific cul-de-sac.

Even so, the two opposing theories—the electro-mechanistic approach of Pinker and others (including the many variations such as Hacker’s) and the more chemo-biocentric approach of Bergland, are not mutually exclusive. The signalling devices might be electrical while the functional devices might be hormonal. The analogy which the photographer might use is to compare this aspect of brain function with the function of portable flash units used in photography; it is the electricity which carries the charge but the xenon gas which burns to provide the light. As Hosubuchi, Rossier, Bloom and Guilemin (1979) demonstrated, when current was passed through electrodes implanted in the mid-brain of patients, endorphin levels rose in ventricular fluid. In the same way, it is now well understood that certain mental states are due almost entirely to chemical imbalances and that some mental illnesses can be stabilised (if not entirely cured) by medication—the link between lithium and mood disorders, is perhaps one of the more familiar examples.

Bergland’s work dates from the mid-1980s and is not cited by Pinker (1997), Carter (1998), or Greenfield (2000). It seems his ideas were not followed up by further research, and have been left unchallenged and unsupported by more recent research. It is for others to judge whether the notions of brain and mind function espoused by Bergland have any validity. The question which Bergland does not address is: do the hormones cause the function of the mind, or merely, feed the organism so that the organism can function effectively using electricity? Whether the brain functions with hormones or electricity does not change the outcomes of the brain’s activity and those activities can still be measured and studied. Greenfield (2000) acknowledges the role of hormonal activity on the brain and the links these hormones produce elsewhere in the body. She says

…the hormones and transmitter agents traveling back and forth between the brain and the immune system must have an effect somewhere in the brain to mediate the apparent state of mind. (Greenfield 2000:177)

Implicit in this observation is the notion that the hormones are not controlling the brain as per Berland’s hypotheses, but are, instead, by-products of the brain activity.
2.3.6 Brain mechanics and the role of memory

As was mentioned earlier, it has been established that memory plays an important role in seeing. This section examines the role of memory in greater depth. Carter says it is possible, using brain-scanning instruments, to observe the mechanics of misperception (Carter 1998:6). She postulates that, when the study of brain mapping is completed (Carter obviously believes it will be completed one day), it may be possible, using:

…psychoactive treatments so finely … to alter individual perception to the extent that we could, if we chose, live in a state of virtual reality, almost entirely unaffected by the external environment. (Carter 1998:7)

Some might argue that that is what the external world already is. Antal, Nitsche and Paulus (2001) show that stimulation of the brain by weak electrical current can cause the sensation of visual perception. Of virtual reality, Gombrich (2000) says there is “undeniable evidence that images can be approximated to the experience of reality” (Gombrich 2000:xxvi). That aside, Carter places visual processing at the occipital lobe at the rear of the brain where it is made up almost entirely of visual processing areas (Carter 1998:15) (see Figure 2.2 and 2.3). Her summary pre-empts more recent work in brain function science (Greenfield 2000) in that:

New neural connections are made with every incoming sensation and old ones disappear as memories fade. Each fleeting impression is recorded for a while in some new configuration, but if it is not laid down in memory the pattern degenerates and the impression disappears… We never experience exactly the same thing twice. (Carter 1998:19)

Becker, Pashler and Anstis (2000) reinforce this idea and Freeman (1998) says:

Our brains don’t take in information from the environment and store it like a camera or a tape recorder, for later retrieval. What we remember is continually being changed by new learning, when the connections between nerve cells in brains are modified. (Freeman 1998:146)

That this process of continual renewal and modification is an intrinsic part of brain function is supported by Carter (1998), who points out that “Part of the brain’s internal environment is a ceaseless pressure to seek out new stimuli” (Carter 1998:20), noting that this explains why the eyes of patients who have no brain function still track moving objects, and why hallucinations are frequent in sense-deprived people (prisoners in solitary confinement, for example).

Aldous Huxley (1954) described the effect of drugs and hallucinations on himself and others and noted that one person can only know anything of another person by communication (written or spoken—second-hand knowledge, and symbols such as two- and three-dimensional representations. Huxley 1954:12-13). Huxley found that when his visual perception was heightened by the drug mescalin, time was of no consequence; and that any will to do anything other than to observe what presented itself to his field of view was gone. He found that two-dimensional painting took on a third
dimension and appeared to come to life. The drug, he claimed, gave him heightened clarity of vision. Huxley’s observations of his drug-induced visual experiences allude strongly to the role played by the brain in visual perception, rather than the role played by the eye.

Carter (1998) describes differences in human brain function across age groups. For example, a baby’s brain has connections that an adult’s brain does not; “connections … between the retina and the part of the thalamus that takes in sound” (Carter 1998:22). She speculates that these connections probably allow the experience of seeing sound and hearing colours. This condition can continue into adulthood and is called synaesthesia; of which Carter says:

…Synaesthesia is of more than idle interest because it undermines some of our most basic assumptions, both about sensory perception and about the nature of the external world. (Carter 1998:107)

That a small percentage of the population should be synaesthetic again reinforces the argument that individuals have different concepts of the external world because “[by] the time we are adults our mental landscapes are so individual that no two of us will see anything in quite the same way” (Carter 1998:24). As Morton (1998) says (and as Blakemore et al 2001 agree):

The process of encoding and representing the world around us and the world inside us is largely automatic. What we end up with is a mental record corresponding to any event, which will not be complete, nor will it be literal. It will be fragmentary and interpretive. (Morton 1998:170)

Shimojo, Paradiso and Fujita (2001), and Grezes and Decety (2002), reinforce this notion of fragmentary and interpretive memory. Further compounding the complexity of this recording process, is the matter in which the brain stores information. Yovel, Levy and Yovel (2001) found that brain hemispheres processed visual responses from retinal signals asymmetrically, and that the asymmetries were not influenced by the complexity of the task. Earlier, Kosslyn (1994:76) found that visual processing relies on previously stored information about the properties of objects to aid perception and this is because the same regions of the brain are used for vision of the external world and vision from imagination. Kosslyn pointed out that some people in certain circumstances have difficulty discriminating between what they imagine and what they have seen. Ventura (1993) suggests that the viewer can put anything they want into a picture and take whatever they like out and he compares this to the tourist ritual of disembarking from the vehicle just long enough to take a photograph of the view to reinforce the idea—the photograph of the scene then becomes the memory of the scene and the memory of the trip itself (Sontag 1977:3-24, Ventura 1993:113, Scott 1999:235). The vehicle does not stay at the scene long enough for the photo-taker to become infuse with the view or appreciate the actual experience first-hand. Ventura’s
scenario provides a good example of memory being served by either a photograph (in this case) or the external world, as is described by Kosslyn (1994), Freeman (1994) and Gregory (1998b). Carter (1998) describes the resulting outcomes derived from the processing of external stimuli in several ways:

What we now have in mind was triggered by stimuli from the outside world, but it is not a faithful reflection of that world - rather it is a unique construction. (Carter 1998:108)

…there is no definitive picture of ‘out there’, only a construction in our heads triggered by the external elements we are best equipped to register. (Carter 1998:109)

The brain does not ‘see’, ‘hear’ or ‘feel’ the outside world. It constructs it in response to stimuli. (Carter 1998:125)

…Hallucinations, imagination, and ‘real’ seeing are essentially the same thing as far as the brain is concerned. (Carter 1998:125)

From all of these descriptions of the human visual perception process it may be extrapolated that, when humans look at photographs they are seeing only their own version of the external world as depicted in photographs. For this reason, it is at this point the discussion crosses over from physiology and anatomy to a more philosophical analysis. There is no clear leap between one domain and the other, more a blurring at the confluence until the two eventually become separate subjects. At this juncture, however, a brief reflection on the philosophical nature of seeing is relevant.

2.3.7 I think, therefore I see

How similar one person’s concept of the external world is to another viewer’s cannot be known because, as Huxley observed, we only have verbal description and illustrations with which to make comparisons. Furthermore, it is entirely possible that every time a viewer sees an object they see it differently. Or, as Damasio (1995) puts it:

Images are not stored as facsimile pictures of things, events, words or sentences. … Whenever we recall a given object, face or scene, we do not get an exact reproduction but rather an interpretation, a newly reconstructed version of the original, which evolves with our changing age and experience. … Although they may appear to be good replicas, they are often inaccurate or incomplete. (Damasio 1995:135)

Damasio points out that the brains of other creatures can have intervening steps in the circuits mediating between stimulus and response (in particular unthinking and instinctive decision making), and still have no mind, especially if they do not meet an essential condition: the ability to display images internally and to order those images in a process called thought (Damasio 1995:89-99). He expands this idea to suggest that there is a level where the mind’s images are also referenced during interaction with the rest of the body. According to Damasio, *Descartes’ Error* (the title of Damasio’s work) was to separate the functions of the mind and the body. Dennett (1995) also supports
this view, arguing that a major failing in Descartes’ philosophy of mind and body originates from his suggestion that there is one point in the brain where all knowledge comes together.

Kosslyn (1994) suggests that if different parts of the stored visual information are called up from the different sections of the brain whose role it is to process visual messages, then a different “picture” will be presented each time. Any confusion which may result is sorted by signal properties which humans use to distinguish one object from a similar object; a process aided by mental images of objects called pattern codes (Kosslyn 1994:114-117). These processes are also used to clarify degraded images seen in the external world, such as objects in the distance through fog, and to identify objects from parts or distinctive characteristics; a snake shape or pattern in the long grass, for example. Dennett (1995) speculates that for each thing a human sees, the pre-existing stimuli is over-ridden by the new stimuli (see also Becker et al 2000:273) and as a consequence:

Your perceptual judgements evolve gradually, but since they continually replace their predecessors, your brain normally keeps no record of before and after, and hence you are unable to detect this revision process. (Dennett 1995:59)

However, if humans are asked to guess what it was they saw, their guesses will be substantially better than chance, which shows that some residual effects remain in the brain (Dennett 1995:59). If the stimulus is not entirely over-ridden by a new one and the brain has time to recapitulate and ponder that stimulus, the visual message has a significantly better chance of being consolidated and embedded in memory. Motion pictures use this phi-phenomenon for its effect by sending individual still images quickly, at a precise frame-per-second speed, to the eyes such that the second over-rides the first, the third over-rides the second, and so on to produce the effect of a moving array. Gilbert (1996:269) supports the arguments for the brain influencing vision, noting “What we see is not strictly a reflection of the physical characteristics of a scene…” but is dependent on the processes which the brain uses to interpret the external world, including previous visual experiences (operating over a wide time scale). Indeed, this process may be so deeply “wired” into the brain as to produce a near automatic response. Zeman reports patients, with a damaged visual cortex, which “…impairs or extinguishes visual awareness, without necessarily abolishing visually guided behaviour” who could reach out accurately and touch objects they apparently could not see (Zeman 1998:1697). This phenomenon is sometimes referred to in the literature as ‘blindsight’.

In a variation on this theme, Lennie (1998) believes that the visual cortex is not composed of parallel pathways and specialised areas providing information which can
be recombined into unified perceptions of the external world. Rather, Lennie contends that each area of the brain retains its topographical arrangement of the visual field and makes nearly autonomous decisions—thus, what is perceived consists of several of these decisions experienced in parallel. He further argues that the cortical neurons should not be regarded as having specialised selectivities for particular image qualities like colour, movement, depth of texture; instead they should be regarded as vectors pointing to regions in a space whose many dimensions are these image qualities. Either way, the perception which humans arrive at is consistent with all individual assessments happening in concert.

**Seeing differently**

There are two filters in the human visual perception system. One is the eyes, the other is the brain. The first filter has the characteristics that taint the input signals such as cataracts, colour blindness, and so on. The second filter has the characteristics that influence the understanding of experience, such as knowledge, analysis and interpretation, and a concept of the external world. Just as filters in photography affect the appearance of the visual image so do these other filters affect the appearance of the external world to each viewer. The human brain is a complex structure and indeed, so are the eyes. In effect our eyes are external extensions of the brain, yet they are also the products of evolution—far removed from the simple, light-sensitive cells still found in amoeba-like creatures.

Nevertheless, the major part of the work of visual perception is done by the brain and not the eyes and the clearest indicators of this are:

- the image from the external world is inverted by the lens in the eye so that the retinal image is upside down but does not appear so to the viewer,
- the image of the retina is falling on a concave surface yet appears distortion-free to the viewer,
- the light received by the retina triggers electrochemical responses which transforms the data from photons to neural signals,
- that part of the signal from each eye goes to the opposite hemisphere of the brain so that a total ‘picture’ is not presented to the brain,
- different aspects of a ‘scene’—depth, colour, shape, etc.—are processed by different areas of the brain, so again a complete picture is not available,
- data from more than a hundred million receptors is reduced into a million optic nerve fibres before being sent to the brain,
- perhaps only 3% of data gathered by the retina is sent to the brain,
- the brain fills in detail that is not really true, and
- the brain operates over a wider brightness range than the pupil can control.
Many commentators agree about the purpose of vision, yet there remains considerable
debate as to actual process. Marr (1982) says that “…the quintessential fact of
human vision [is] that it tells about shape and space and spatial arrangements” (Marr
1982:36) whilst Georgeson notes “…that the purpose of vision is to support cognition
(recognition, comparison, thought, memory, language…) and action” (Georgeson
1997:3), while Livingston says “…vision is information processing, not image
transmission” (Livingston 2002:53). Crary (1993) explains that if how a viewer or
observer sees determines what they see, then everyone must be seeing what they view
differently. All agree that the mind is crucial to seeing and, it seems, does most of the
work of visual perception. Yet what actually happens beyond a certain level is not
known. Hubel (2002) points out:

> Our knowledge of visual science is rudimentary; it goes as far as three or four
> stages of visual cortex, whereas we know that there are at least several dozen
> further stages in the occipital lobe alone, none of which is yet explored. (Hubel
> 2002:9)

As already discussed, the brain is easily confused by visual signals and a complex
process of testing potential results is used to determine what the signals might represent.
Because the resultant visual message is reliant on an individual’s interpretation of the
incoming signals each viewer has a unique experience of the external world. Memory
plays some role in visual perception and memory itself is subject to self-modification
and censorship. Yet there is no point at which all knowledge comes together in the
brain, and separate areas of the brain are aware of stimuli at different times, and Dennett
(1995) suggests that this difference may be up to a fifth of a second. Churchland
and Ramachandran (1993) draw three conclusions about the way in which the brain
processes visual information from their own and others’ experiments, that:

i. the brain has mechanisms for interpolation, some which may operate early in
visual processing
ii. brains sometimes visually represent completions, including quite complex
completions
iii. such representation probably involves those interpolation mechanisms.

(Churchland & Ramachandran 1993:48)

Whether the “mind either does not exist at all, … or it is considered a reality…” or
if it is something else yet to be determined (including a combination of the above)
is mostly “academic dispute” according to Riedl (1984:89-91). Even so, the debate
over the processes—and even the existence—of the mind, although contributing to
our understanding, should not be allowed to divert the task of questioning the value
attached to photography’s veracity that is the purpose of this study. The eyes look and
the brain sees but what is seen may bear small resemblance to what is actually in front
of them.

2.4 Reality and the external world

The predominant themes of the previous section were anatomy and physiology, which
leads inexorably to the theme of this section of the literature review; that of philosophy.
Sections 2.2 and 2.3 have outlined how poor the human visual perception system (the eye and the brain) actually is at determining the nature of the external world. In this section, the nature of reality and the external world is examined in detail, via the language of philosophy, so that it might be determined exactly what it is that is being photographed. Here, key philosophical ideas and principles will be examined and compared in order to add to the strength of the arguments used in pursuit of the aims and objectives of this study.

2.4.1 Concepts from percepts

What is reality? What is the external world? Is there a difference between the two?

These are questions that have probably been asked since the dawn of consciousness. Even today, the general public typically confuse the concept of reality with that of the external world. In its commonly used context, ‘reality’ is perhaps not the best word to use for this study because in practice it is actually the ‘external world’ that is photographed. For the purposes of this study, reality will be defined as an interpretation of the external world allied with other considerations, the sum of which is more than the external world as viewed.

As Section 2.2 showed, the mind constructs an internal world from information received from the external world along with individual interpretations from experience and knowledge, and this is generally called ‘reality’. For this reason, the question: do photographs depict the external world? is a difficult question to answer (the word depict being used broadly at this point in the discussion). Furthermore, a conundrum arises when it is understood that many commentators on photography have continually confused the questions: do photographs depict the external world? and do photographs depict reality? throughout the more than 170 years that researchers and theorists have been thinking and writing about photography.

Hacker (1987) warns against using the term ‘external world’ in contrast to the ‘internal world’ of the mind because, he argues, it is “a Cartesian dichotomy”.

There is only one world, for the world is simply the totality of everything that exists, happens, obtains or goes on…and ‘physical’ is not outside the mind, since the mind is not a space. (Hacker 1987:47)

However, for the sake of clarity of expression, and noting that others disagree with Hacker’s view (Cavell 1988, 1998 and Friedman 1999 develop the Cartesian stance) this work will continue to use the term external world and will accept that there is a distinguish between what humans may see as objects in space from what they perceive of those objects. This stance implies an acceptance that there might be a difference
between what makes up the external world and what the viewer perceives the external world to be.

Whether or not people interpret the external world in different ways is a question that philosophers have asked for thousands of years, and are still asking. Perhaps a more accurate use of the word ‘reality’ comes about when it is used to describe an interpretation of the external world that is gained by experiencing, perceiving and analysing the external world—that is, reality as an individualised concept. In his quest to trace the development of the ways in which we come to understand reality, LaMothe describes an infant’s journey from undifferentiated bodily and global experiences through to the recognition of “not-me objects” (LaMothe 2000:355) which form the basis of feeling both real and alive. As it develops, the child acquires the capacity for self-reflexivity, symbolisation and language, all of which add to its understanding of the external world, and its interpretation of reality.

Realists such as Hacker (1987), Papineau (1987), Shobris (1994), and even MonoRealists like Craig (1996), believe that everybody experiences, perceives and interprets the external world in the same way—and therefore everyone shares the same reality. In contrast, others (the Idealists) including McGinn (1983), Gregory (1998b), Greenfield (2000) and Livingston (2002), believe that everybody has unique experiences and perceptions and therefore interpret the external world in unique, strictly personal ways and therefore have different realities (or at least, variations on a theme). Witt (1995) provides useful definitions for the two alternative views of reality as it is argued in recent times: realism and idealism:

The realist position maintains that the world of perceptions has existence independent of the perceiver

The idealist position holds that each observer perceives the world idiosyncratically, and is limited by his or her historical and social environment. (Witt 1995: unpaginated).

Although these two positions are mutually exclusive, they are not necessarily in disagreement. External objects may be independent of the viewer and the perceptions, though independent of each observer, be identical and leave the same percepts on each observer’s mind—yet they may still be conceived in different ways. These key ideological divisions will be reviewed in greater detail in the following paragraphs.

2.4.2 Realism

Most people, particularly in the general public—but also many of those who have considered the subject in depth—maintain that reality is the world around them. Kracauer (1960a) postulates that reality is as it is seen—a position arrived at due in part
to the role played by photography during the past 170 years. To the realist, *what humans see is what they get* for reality. This train of thinking is epitomised by Craig (1996):

Reality exists ‘out there’… ‘MonoRealism’ is named in recognition of the fact that there is **one reality**: not different realities for each person… (Craig 1996:unpaginated)

In essence, Craig is merely rebranding one aspect of Realism (a philosophical belief arising about 1300, so predating Descartes and others). Even if it is conceded that there is only one reality that is the external world, it need not be accepted that everyone sees it in the same way and therefore perceives it identically—as was outlined in Sections 2.2. Ermarth calls this single state interpretation of reality “**unity**” defining it as a state which “assures us that we all inhabit the same world and that the same meanings are available to everyone” (Ermarth (1983:65). Likewise, Shobris (1994) also holds a realist view described “as monism or the idea that mind and body reflect an identical reality” (Shobris 1994:375).

Papineau’s (1987) realist philosophy takes the view that “reality is independent of thought” and he believes that the Cartesian picture should not “be on the philosophical agenda thirty years after Wittgenstein’s private language argument...” (Papineau 1987:x-xii). Papineau argues for the existence of “an independent reality which is as it is independent of human judgement.” What he calls the anti-realist view is “that at some point ‘reality’ simply is the picture presented by human judgement, not some unreachable abstraction we are perpetually striving to grasp.” He further argues that anti-realists “need to deny the possibility that different people can end up with different views of the world” (Papineau 1987:2-10). In regard to mental representation of reality, Papineau favours “an explicitly biological approach to the problem… [where] representation is best understood as a matter of biological functions of our beliefs and desires” (Papineau 1987:63). In Papineau’s model, if an observer sees a convincing replica tree (food source), they will assume that it is a real tree because there is a biological advantage in it being a real tree, and the observer’s desire is for the object to be a real tree. Thus the state of perceiving a real tree arises from correct previous observation, but false current ones (Papineau 1987:63-70, 89). This idea ignores the potential situation in which one person’s understanding of the external world may be different from another person’s understanding, neither one being aware of the difference, because one person has experienced being fooled by a replica tree in the past and the other not.

Colour blindness is another example of individuals experiencing different perceptions of reality, but it is fairly easy to discover perceptual variations in this context (otherwise colour-blindness would not be known to exist). For instance, if one person sees the colour someone else calls blue as violet and they both use the same word (‘blue’) in a
‘correct’ manner to identify a blue balloon (that one of them sees as violet), for instance, then the difference in colour vision will never be discovered. Papineau puts this down to “the apparently uncontentious matter of people using words with different meanings” (Papineau 1987:116) or, as Dahlbom puts it: “surely our experience is really real and not a figment of our theoretical imaginations” (Dahlbom 1993:7). Dennett believes that “the detail is in the world [the viewer sees,] not in your head” (Dennett 1991:354-5)—a situation exemplified by the phenomenon of colour constancy. However, whilst most readers will consider the concept of realism to be merely common-sense (because that is the way the world seems to work); and when we talk about a tree or food or cars we all have a similar understanding of what these objects are and what they do—it is entirely possible that there are variations on themes at work that might not be obvious to the observer.

### 2.4.3 Idealism

The idea of a reality different from a supposedly common-sense one is not new. In pre-Christian Ireland before the time of Patrick (5th Century CE) …the Irish believed that gods, druids, poets and others in touch with the magical world could be literal shape-shifters … that [the world is] like the rest of reality, essentially fluid – essentially inessential. (Cahill 1995:129)

This view is in stark contrast with current modes of thinking wherein the observer looks “out into the world with confidence that this thing out there will be more likely to change its place than its shape” (Gombrich 2000:271)—even if it appears to be getting smaller or larger. Our modern-day “confidence in the stability of things in a changeable world is deeply ingrained in the structure of our language” (Gombrich 2000:271) and is the basis of several contemporary philosophies. It would seem, however, that this worldly stability might be a learned concept. The role painting, drawing and, later, photography played in causing the observer to come to view the world as stable is at present speculative—but must be considered for this study. Gombrich, for example, questions why it is that humankind took “so long to arrive at a plausible rendering of visual effects that create the illusion of life-likeness” when it came to producing pictorial representations of the external world—and why it is that developing such systems of representation has had such a long history (Gombrich 2000:291).

The astrophysicist John Gribbin (1995), among others, describes various realities based on studies in quantum physics. He advises that even unusual theories should be considered—such as John Wheeler’s that the Universe only exists because we are looking at it, an idea which dates from the time of Berkeley (1685-1753) and Locke (1632-1704), and which is put forward again by respected (but un-named) scientists recently. Einstein (1879-1955) introduced the concept of spacetime in the early part of
the twentieth-century, about which Gribbin (1995) says that: “The three-dimensional world around us is essentially a shadow from four-dimensional spacetime” (Gribbin 1995:78), and suggests that humans accept that photography is as good as seeing with your own eyes and that it is “only through photography that we know what many of the distant galaxies and other objects in the Universe look like” (Gribbin 1995:138). Yet Paul Davies (1992) and colleagues have called into question exactly what scientists know about distant galaxies and other objects in the Universe mainly because they now believe the speed of light may have changed over time since the Big Bang. As reported in an Australian newspaper online: “The speed of light, the great cosmological constant and foundation for some of our most treasured scientific laws, has changed…” (The Age 8 Aug. 2002). The implication of Davies’ hypothesis is that most of the measurements made from the photographs of distant objects in the universe are based on the speed of light (c) being a constant. However, if it is not constant, it means all those measurement need to be reassessed, and the role of photography (which basically only measures light) for such scientific work is brought into question (as is Einstein’s formula E=mc²). Some scientists have suggested a slowing of the speed of light while others have placed it at over four times its normal speed (Zanjonc 1993, Clegg 2001), so the barriers of scientific understanding change frequently and our understanding of the universe and how humans perceive reality constantly change with them.

Another interesting proposition put by Gribbin (1995:149), with regard to there being individual realities for each viewer, is that “[n]o two people ever see the same rainbow (indeed, each of your two eyes ‘sees’ a slightly different rainbow)”. Rainbows can be photographed, however only one of the two, or the infinite number of, rainbows is photographed. If photography equals non-intelligent observation then it could alter the stability of reality (i.e. it could stabilise it). But if photographs merely dupe the visual perception system in the same way the external world does, then photographs alone cannot be used to confidently gain knowledge of rainbows or distant features of the Universe—even if the speed of light had not been brought into question.

Gribbin says that John Bell (Speakable and Unspeakable in Quantum Mechanics p191) sums up the difference between the quantum world and the everyday world as being not a matter of size but a difference between matter and mind, where “beyond the brain … is mind” (Gribbin 1995:151). Likewise, Fieser explains that “Skeptics argue that our knowledge is limited to our perceptions, thus there is no knowledge of this external world itself” (Fieser 2001:unpaginated). But even if human perceptions are individual interpretations of the external world, each individual has knowledge of the external world (a working knowledge) which, in very many ways, coincides with other individuals’ knowledge of the external world. Witt (1995) follows the ideas of
Kuhn (1970) and Gregory (1980):
Something like paradigm is prerequisite to perception itself. What a man sees depends upon what he looks at and also upon what his previous visual-conceptual experience has taught him to see. (Witt 1995: unpaginated)

Humans know to avoid walking into hard objects, avoid predators, and to avoid trying to walk on water. Knowing about such things does not preclude humans from perceiving the objects in different ways (colour changes due to colour blindness or different lighting conditions being two examples of different perceptive responses), as Idealism suggests.

2.4.4 Other ‘isms’
Beside the two philosophical stances looked at already, there are several variations on these which bear reviewing.

Constructivism
In broad terms Constructivism describes a state where entities exist only if they can be constructed and proof given. The philosophy usually refers to mathematics but some philosophers have widened the discussion beyond that and say that objects and truths exist independently (Flew 1979:70). If it is taken that the real world is invented, as constructivists say it is, and call that reality fictitious, then literature, for instance, is doubly fictitious because it is the fiction of a fictitious world (Breuer 1984). This position also raises questions in relation to photography—since it to, is a created medium, is photography also a double fiction, a construct of a constructed reality? If not, it is still the created image of an external world, as distinct from the external world or a ready likeness of the external world.

Literature which makes the “fact of its having been constructed explicit” (Breuer 1984:146) is called self-reflective literature. Breuer says self-reflexive literature is that which:

…is concerned with itself,… reflects the condition which makes possible its own composition,… questions the basis of the … contract between the work and the [viewer]. (Breuer 1984:146)

Therefore, following the same definition, should photographs—indeed all visual images—that make their having been constructed explicit (and isn’t that all visual images?) be called self-reflective images? As with literature, if all photographs cannot be considered self-reflective, then some at least can. Photographs which have their constructed nature explicit include: collage/montage, hand coloured, stitched (Lewis 1977, Ganis 2009) and multi-media images, images with their negative’s borders, sprocket holes or surrounds showing, serial photos, photos which have the photographer in them either as self portraiture with camera, or in reflection or by the presence of their shadow; all features that are employed occasionally as artistic devices (Shapter 2008).
Applying these modes as an example, Ondaatje (1977) uses an extant photograph of Jazz pioneer Buddy Bolden and his band (photographer unknown) and works with a known photographer (E J Bellocq) to weave a fictional story (Creekmur 1996:73-82). In doing so, it might be hypothesised that the author is using the perceived high veracity of photographic images to lend credence to his fictional tale.

**Solipsism**

According to Deutsch (1997:58) “Solipsism, the theory that only one mind exists and that what appears to be external reality is only a dream … cannot be logically disproved.” The difference between solipsism and realism, “its common-sense rival” (Deutsch 1997:83) is that the solipsist believes ‘he’ is the only mind in existence (Flew 1979:306) and all other beings are a product of that one mind, whereas realists believe there is only one reality conceived the same way by all minds. Deutsch (1997) says that

![Image](image-url)

The difference is based on no more than a renaming scheme. Solipsism insists on referring to objectively different things (such as external reality and my conscious mind, or introspection and scientific observation) by the same names. (Deutsch 1997:83)

Many realists disagree with this over-simplification and would argue that Solipsism is a contrived notion that no longer has credibility in philosophy.

**Behaviourism**

Behaviourism is a philosophy of psychology; with a theory wherein psychological function is definable in terms of observed behaviour (Flew 1979:37) and not with what happens in the mind (Watson 1924:6-7), a view which some critics believe oversimplifies human behaviour. Deutsch (1997:80) says of Behaviourism, that as a doctrine “it is not meaningful to explain human behaviour in terms of inner mental processes” but, instead, only in terms of what the creature does. Wittgenstein (sometimes considered a behaviourist) argued that the mental processes must be publicly accessible forms of behaviour if they are to be effectively studied and cannot be private, introspective acts (Flew 1979:37), and Skinner says that behaviour can be predicted in another person by observing reactions to certain situations; “…what people have often done, they are likely to do again…” (Skinner 1976:13) an observation that can be extended to human interaction with inanimate objects. If something behaves as if something else exists (e.g. shadows on the moon’s surface indicating uneven terrain), then that is evidence that it does exist (Deutsch 1997:88) but not final proof, as visual illusions demonstrate. As Deutsch (1997) says “…what is genuinely out there is evidence, or, more precisely, a reality that will respond with evidence if we interact appropriately with it” and if the theory is correct then “…reality contains not only evidence, but also the means (such as our minds, and our artefacts) of understanding it” (Deutsch
1997:94-95). Behaviourism says that if a person is taught to notice small differences in sensations these can then be classified and learnt (Skinner 1976:15) and thus become part of a larger “store” of perceptions in the mind.

**Positivism**

Positivism is “characterised by an exclusive concern for empirically verifiable and measurable facts” within a social philosophical framework (Lister 2000:314), and is, in part, a reaction against metaphysical reasoning and the Cartesian tradition. Positivism, in simplified terms, is a “search for certain and objective knowledge through the exercise of scientific reason… untainted by the feelings and subjectivity of the observer” (Lister 2000:313). The seminal works on positivism (such as Comte’s six-volume *Cours de Philosophie Positive*, 1830-42) were published during the era photography came into being and the two drew off each other for inspiration. Positivism argues that the limit to what humans can know of reality is defined by what they observe and can deduce from those observations. Lewes (1817-1878), who was influenced by Comte, believed that nothing exists other than what is perceived (Lewes 1874-79, Marien 1997:151). At one extreme, some believe that “questions [that] cannot be answered by scientific methods we must be content to leave permanently unanswered” (Flew 1979:264), whilst others, such as the British philosophers James Mill (1773-1836), Jeremy Bentham (1748-1832), and John Stuart Mill (1806-1873), took a less extreme view but still shared the hostility to theology and metaphysics. Positivism is still a “matter of unresolved debate” (Flew 1979:264).

Batchen points out that “…photography did become a popular metaphor for the possibility of a positivist view of the world [and positivism] …came to dominate scientific thinking in the mid- and late-nineteenth-century and continues to inflect attitudes to photography to the present day” (Batchen 1997:137-138). Cavell (1971, 1979) explains a belief in photography providing the link with positivism as being because of the perceived objective nature of the photographic process, in its hands-off automatism (Cavel 1979:20) although photography “has never been exclusively contained within positivism’s framework” (Lister 2000:313).

The basics of these philosophies will influence the arguments put forward in this study to build the case around the veracity of photographs. But first the recurring theme of the external world, which has arisen from the philosophy and psychology debate presented thus far, will be examined.
2.4.5 The external world

Fieser says “the external world is the realm of objects outside and independent of an independent self” (Fieser 2001:1), but Rundle asks: “External to what? To the mind?” (Rundle 1995:unpaginated) a theme which will be revisited shortly. Fieser (2001) presumes an external world as a unified system that mirrors unified perceptions but he warns that sceptics hold a belief that the external world itself cannot be known directly because the observer has only knowledge of sense-data (perceptions). To address this problem, Lloyd (1996) argues that, in practice, questions about the external world are answered by checking whether the perceived facts contradict other beliefs that are consensually held to be true about the external world. This may involve getting some fresh empirical data that yield sufficient beliefs to check the observer’s other sensory beliefs (such as touching an object in the external world) to confirm the visual data of the object. If the object is thought to be hollow and hitting it with a hammer results in it ringing as expected, this serves to confirm the sight and feel of the object. Therefore according to Lloyd “a belief is true if it correctly predicts what we would experience if we were to carry out some action” (Lloyd 1996:unpaginated). However, if all that the observer can know is sense-data then touching and hearing an object only adds to the sense-data received from the eyes, and expands the amount of sense-data that is accumulated.

Rundle (1995), as was noted above, has asked what the external world is external to, and questions if it is the mind. In Rundle’s view, the observer’s mind is not external to the observer, rather the observer is an object in the external world and the interaction between the observer as an object in the external world and all other objects in the external world results in perceptions being formed of the external world. It is this interaction which leads most people to believe that the external world is a real entity producing phenomenon (the perception of an object). “Phenomenalism is the view that all we know are phenomena, and we know nothing of the external things causing the phenomena” (Fieser 2001:1). Given this, it could be argued that Phenomenalism is closely related to what is described as Idealism in Section 2.4.3. Fieser says that “Representationalism holds that the external world causes our experiences, and that the object being perceived cannot exist outside of how it is perceived” (Fieser 2001:1), and Ross says: “…it is the representation [perception] which makes the object possible rather than the object that makes the representation [perception] possible” (Ross 2000:unpaginated). It is Realism which argues that the external world is as it is perceived, as was discussed in Section 2.4.2.

The presumption that the external world is a unified system (Fieser 2001:1) is based on the belief that all observers have a unified perception of the external world. This cannot be known because (as was noted by Aldous Huxley) it is only by conversation
and visual representation that one observer can share their experiences with another observer, and this interaction relies on sense-data which are interpreted individually by each observer. As Dawkins (2006) describes it:

The human brain runs first-class simulation software. Our eyes don’t present to our brain a faithful photograph of what is out there, or an accurate movie of what is going on through time. Our brains construct a continuously updated model: updated by coded pulses chattering along the optic nerve, but constructed nevertheless. (Dawkins 2006:88-89)

Since the pursuit of any knowledge about perception using philosophy often appears to take a circular path it is necessary to ask whether or not there are aspects of the perceived world that can act as anchors to a shifting and continuously updated model of the external world. The next section examines this issue.

2.4.6 Time

Allied to the human perception of reality is the perception, perhaps conception, of time. Time is considered, within the context of this study, in order that we can compare and contrast the perception of it in relation to the perception of visual stimuli. Time as a direct component of photography is treated separately in Section 2.6. The way in which time is discussed here is not a precondition of photography because photographs are frozen moments of space wherein time does not exist unless it exists as a continuous ‘now’ or a time passed (past). The time lapse between the moment a photograph is taken and when it is seen (even in so-called instant photography) relates to memory, not time passing. Dowden (2001) gives four possible but incomplete definitions of time:

- time is what keeps everything from happening at once
- time is the dimension of causality
- time is the collection of instants
- time is the flow of events past the stationary I

(Dowden 2001:unpaginated)

To these definitions should be added: time is expanding space. While each one of the above definitions is appropriate to a lesser or greater extent they do not go far enough. Even though events, for the observer, seem to flow continually, receding from the present into the past, this is probably a property of human perception rather than a property of time. External (physical) time is measured by a clock; internal (psychological) time “is best understood as [people] being conscious of physical time” (Dowden 2001). Such perceptions fluctuate in various ways, as in the feeling of time passing slowly when waiting anxiously for a bus, or passing quickly when rushing to get ready to leave the house to catch a bus. None of this even considers, yet, the fact that time is usually measured using clocks and watches that are set by the owners. Any two clocks can differ in what time they have been set to, and time measured thus can only ever be considered as a guide.

That there is perceived to be a difference between external and internal time would have time fall into the idealist category of reality, but that question is far from being clarified by philosophers. Kant’s view is that “time and space are forms that the mind
projects upon the external things” and Einstein defined time as a “one-dimensional sub-space” (Dowden 2001) of the space-time continuum. Internal time seems to have an arrow; that is, events have a happened-before and happened-after relationship for the observer. However, not all scientists are convinced that external time has an arrow; Penrose (1989) and Hawking (1992) take opposing views on the matter. Penrose uses the second law of thermodynamics as an indicator that time must have a direction whilst Hawking argues that symmetries (time as two-directional) should be given up only as a last resort.

Fortunately, it is not for this study to draw conclusion about time or time arrows. Time is discussed briefly here only to compare perception of different properties of the external world. That time is perceived as being different for individual observers reinforces the concept that visual stimuli may also be perceived differently by different observers. The objects of the external world and properties such as time are characteristics of human understanding of reality. The only agreement in relation to reality seems to be that there is no agreement.

2.4.7 The nature of reality
In support of an idealist view of reality the following is offered as additional evidence. In this section, brief examples are given from various research fields of how, in practical terms, much of what has been discussed above in rhetorical terms applies to people and real-life situations.

Cataracts
It is known that cataracts of the eyes filter the blue and UV wavelengths of light (295nm – 400nm range) as the lenses become increasingly yellow with age so at the very least people without cataracts see colour differently to people with cataracts. Also, the vision of people with cataracts is blurry.

Colour blindness
Colour blindness similarly affects the way humans see the external world. Colour blindness is a sex-linked inherited condition where there is an inability to distinguish colours. Very few (<1%) women are colour blind (Livingston 2002:34), but up to 10 per cent of all men have some degree of colour blindness. The most common form is red-green colour blindness, the second most common is blue-yellow. Colour blindness means that many men, particularly, see the external world differently from the other men and most women, not being able to differentiate various colours (see Figure 2.6).
Figure 2.6 Variations in human colour vision

Tone deafness
People who have hearing defects, even those who are tone deaf (congenital amusia) hear the sounds of the world differently to those people without hearing disabilities. So if one individual’s hearing can differ from another’s, this provides a further example of perceptions about the external world being person-specific.

Knowing one another
People who are affected by conditions such as cataracts, congenital amusia or other individual anomalies typically come to know it only through dialogue (conversation) with others who are not affected. On a physical level, then, reality (or the external world) is perceived differently by different people. The only way we know of any reality is by perception (and conception) and it therefore follows, that if people perceive the external world differently, then they know it differently so that it differs
across people. Thus, each person—each living creature—has its own reality, different to (perhaps) all others (although, unlike snowflakes, there may be two or more people with realities identical, it cannot be known).

**Colour knowledge**

Human understanding of colour is a vexed question much debated, but it is crucial to the discussion undertaken here. Hart (1992:610) says that if the centre of a receptor cell is being stimulated by a long wavelength of light and the surround by a middle wavelength, a colour shift to shorter wavelengths can occur. This amounts to a shift in colour being perceived from the colour being seen. Hart says that “Human awareness of colour arises out of subjective visual experiences in which given sensations are ascribed names” (Hart 1992:708). Kingdom credits Isaac Newton with the initial understanding that “…objects had only the capacity to selectively reflect light which alone could elicit a colour sensation” (Kingdom (1997:1), and Gregory (1998c) asks, and partly answers, the questions about how humans perceive things differently:

> Is your sensation of green like my green? For how can we compare sensations – or qualia, as philosophers call them – of colours, tastes, or sounds? Our green qualia may be different (and in cases of colour anomalies must be different), though we all call grass green and assume we all see the same. (Gregory 1998c:1693)

Thus succinctly presented, Gregory’s argument will be embraced for this study and will form the support for one aspect of the work. But a separate consideration comes about when the direction of knowledge comes downward from the brain as opposed to upward from the eyes.

**Imagination**

Imagination consists of messages generated within the brain, or formed by the mind, and constructs a complex part of perception and understanding. Kosslyn, Sukel and Bly (1999) describe experiments in which the subjects used mind-generated imagery to help differentiate high-resolution patterns. Historically, the Judaeo-Christian tradition has distrusted imagination while recognising it “as indispensable to cognition” (Thomas 1999). Thomas dates the introduction of imagination (phantasia) from Aristotle (384-322BCE) but speculates that what Aristotle (De Anima, 428a 1-4) meant may not coincide with contemporary usage in cognitive science and suggests that Aristotle’s use came to be called “common sense” (Thomas 1999). Expanding on the theme of what Kosslyn et al’s (1999) experiments showed, Thomas (1999)—although he may not have known of Kosslyn’s team’s work—says that part of the imagination’s role is the binding together of information from

> …individual sense organs into a coherent and intelligible representation … of the world … that can be known through more than one sense mode without being the characteristic proper object of any of them. (Thomas 1999:unpaginated)
When the information coming to the sense organs is an object in front of the perceiver, the percepts and subsequent perceptions are regarded as emanating from the object, whereas, if there is no object, the source is regarded as imagery and a result of imagination, but that may not necessarily be the case. Consider mirages for example; the shimmering haze is not a lake, just a shimmering. The information (lake) is not coming from the object nor from the observer’s imagination, it is an incorrect interpretation of the perception. But this usage of imagery and imagination should be distinguished from the sort of usage when impossible things are conjured in the mind. What is considered here is a function of the visual processing system which is more or less beyond the control of the individual observer. When unicorns, golden mountains or curved space-time are imagined (even if the latter does exist) there is nothing known in the external world to stimulate such imagery directly. There do exist, however, properties in the external world from which to combine ideas from various sources, for example a horn on the forehead of a horse, a pile of gold of mountainous size, and so on.

**Influencing thinking**

One aspect of the high level of veracity often attributed to photographs that we must consider is the matter of how this belief has been sustained over a long period of time despite the possibility (and numerous instances) of it being proved wrong. In considering this question, Watzlawick (1984) refers to the existence of alternate realities and points to two examples of fields to which photography has inseparable connections:

> Advertising and propaganda are two especially repugnant examples: both used quite deliberately to bring about attitudes, assumptions, prejudices, and the like, whose realisation then seems to follow naturally and logically. Thanks to this brainwashing, the world is then seen as ‘thus’ and therefore is ‘thus’. (Watzlawick 1984:112)

A new reality is subtly and cleverly created—but only for those individuals (or societies) which are influenced by the advertising or propaganda. Other individuals or societies retain the original reality. Thus, more than one reality exists simultaneously. Those who are exposed to the advertising or propaganda are influenced by new ideas while others remain uninfluenced. So another link is placed in the lengthening chain of events that influence the nature of reality; the way the external world is perceived.

**Ambient light**

Mention was made earlier of the way colours are seen by the eyes under different lighting conditions and how the brain compensates for the differences in appearance. Ambient light refers to the light available for viewing the world. Luminosity and colour are determined by the amount of illumination available for the viewer to see. In
dim light only rods are activated so no colour information is being transmitted to the brain (see the lower spectrum in Figure 2.6). The area of the visible (electromagnetic) spectrum from about 575 nanometers to 600 nanometers appears brighter, or lighter, than either of the end regions of the spectrum. Rods carry luminance information only in dim light; under bright-light conditions “luminance is carried by a summed-cone signal” (Livingston 2002:41). The level of ambient light will also determine how well blue or red objects are seen. Blue objects will appear brighter than red objects in dim light. Green and yellow objects will appear brighter in daylight because “Luminance is a perceptual measurement, not a physical constant, and it changes depending on whether … we are using rods or cones” (Livingston 2002:45). So, again, it is shown there is no constancy or consistency in what the viewer perceives of the external world.

Processing speed
The brain, itself, determines how fast data are analysed and made available to the observer. The temporal difference in the two-tiered subdivision of information processing used by the brain may vary from individual to individual. Livingston (2002:199) suggests this may contribute to dyslexia in some people and may be the reason why some individuals have talent in music or art while others do not. The speed of information processing differing from individual to individual probably gives different impressions of the external world.

These nine examples—just a few of many possible—serve to illustrate the range of physical conditions in humans that help contradict any notion that everybody experiences the external world in the same way. This challenge to our understanding of the nature of reality thus raises the questions about the fabric of reality.

2.4.8 The fabric of reality
If it is conceded that reality is a constituent of the human mind, how this happens needs to be elucidated. How do humans know they know what reality is? According to McGinn (1993:85), knowledge requires reliable correlation, causal sensitivity and reasoning correlated with logic, and this raises the distinction between logical belief and logical fact and he says

We can know the logical truth only because we embody it, so if we didn’t we wouldn’t… There is a strong sense in which we have to be logical if we are to know logic…(McGinn 1993:93)

Deutsch (1997) takes the same view as McGinn: in arguing that by understanding the theories which explain it, humans understand the fabric of reality. Deutsch believes that, with increasing knowledge, and new and better theories replacing old ones in a form which allows the structure of understanding to grow in depth (making theories easier to understand) and breadth (making them harder to understand), there is a likelihood of
developing *A Theory of Everything*. However, this is only likely “if the fabric of reality is highly unified” and he qualifies that statement by saying that even “[t]his theory will still not explain every aspect of reality: That is unattainable.” (Deutsch 1997:17). According to Deutsch, *A Theory of Everything* (not just the physicists’ ‘theory of everything’ or the GUT—the *Grand Unifying Theory*; see Hawking 1992, 1994) will comprise four strands: quantum theory, theory of evolution, epistemology (the theory of knowledge), and the theory of computation (Deutsch 1997:23- 28).

Building on physicist Richard Feynman’s demonstration of the existence of multiple histories for subatomic particles (theory of sum over histories), Deutsch describes the likelihood of more than one universe and “[a] new word, multiverse, has been coined to denote physical reality as a whole.” The multiverse encompasses parallel universes, shadow photons, tangible particles, and a raft of other features of the quantum world and “…understanding the multiverse is a precondition for understanding reality as best we can” (Deutsch 1997:46-48). The term multiverse has become *megaverse* for Susskind (2006) but even so the fabric of reality still remains a difficult concept to understand—and it may be that the human mind has not yet evolved sufficiently to fully integrate all that an understanding of the fabric of reality might entail.

### 2.4.9 Veils over reality

Just as humans cannot see what is immediately behind their heads without aid, but have a notion of what is there, they also cannot know reality, but have a notion of what it is—which may or may not be what they believe it to be. Section 2.4.7 establishes that humans do not all perceive the external world in the same way. Whether the differences are physiological (e.g., colour blindness) or psychological (e.g., individual, unique perception) is still open to confirmation by research. Philosophy has added much to these arguments without reaching definitive conclusions; instead it has tended to cloud the issue more than clarify it, but philosophy gives useful insights into the various possibilities that do exist. The possibility of different realities for each viewer, or at least a variation on the theme, has been canvassed.

The veracity of photography does not stand or fall on any of these matters, and at this point it appears difficult to establish any of the aforementioned as providing extensive support for establishing photography’s veracity. However, before proceeding to examine what photographs are as objects and what they do with the external world, (the purpose of Section 2.5 and 2.6) the final part of this section will recap on the literature so far.

*So far…*

Given the nature of the external world and the constraints of the mind and body, it is
clear that we cannot (and do not) really know exactly what reality is. As a consequence, we can only go by what is most plausible. Thus Constructivism aligns well with Gregory’s (1980) hypothesis on perception but whether his work is a logical follow-on from Constructivism or was an inevitable outcome has not been expressed in his subsequent writing. Idealism aligns better, and Gregory, it is supposed from his work, would rather be regarded as an idealist than a constructivist. Varela’s strong contention that “[t]here is no world except that experienced through those processes given to us and which make us what we are” suggests that apart from interpreting the external world, living creatures also participate in the external world, completing the circle (Varela 1984:320).

This researcher’s view is perhaps more sceptical than some Idealists, in that I believe the observer’s knowledge of the external world is limited to perceptions only and the knowledge may differ from observer to observer according to individual perceptions. However, the philosophical argument for Realism is attractive from a common sense perspective but, once it is considered along side the evidence derived from brain and vision studies, it does not withstand scrutiny and collapses—thus Idealism becomes the more likely philosophical description to explain reality and the external world. As much as anything, reality is viewed through a veil of ideology.

While Sontag (1977:4) says, by way of analogy, that although writing and handmade visual statements are interpretations of the external world, photographs are “miniatures of reality”, Green-Lewis (1996) goes further. In rounding off this Section, it might be interesting to consider Green-Lewis’ observation:

> The most urgent philosophical and literary debates of the nineteenth century have traditionally been polarized by the dichotomies of logical positivism and metaphorical idealism… Despite their differences, proponents on either side were drawn to photography as a symbol of the insufficiency of empiricism’s account of reality or, conversely, as proof of the totality of its vision. Photography’s continued shared usefulness in the expression of this conflict, indeed, suggests that it may be possible to view these philosophies not as separate and distinct but as competing versions of a narrative addressing the larger culture of realism. (Green-Lewis 1996:20)

Whether Idealism is chosen as the most likely theory to encompass the external world or not, at least it makes it obvious that photographs cannot depict reality or accurately show the external world in the same way to all viewers because of the interpretive nature of this idiosyncratic perception. Even so, Idealism still allows each viewer the possibility, even probability, that their interpretation is consistent. This is an important point, since the theory allows for a consistency between what is seen in the external world and what is seen in the photograph of the same piece of external world. Whether a second viewer standing beside the photographer at the time the picture is
taken interprets the external world and the photograph in the same way as does the
first viewer has been a critical issue throughout this section, and was highlighted by
Gregory’s comment about perception of the colour of grass. Although any one of the
philosophies (Constructivism, Idealism, Monorealism, or some other) may describe
reality and what photographs record, something else must be used, as well, to support
or reject the veracity of photographs. What this might be is examined in Sections 2.5
and 2.6 as the development of the principles of inherent veracity is traced and the
characteristics of photography are analysed. This brings us neatly to another aspect of
photograph-viewing that remains to be addressed; the question of what is expected of
a photograph when it records the external world.

2.5 Representation and symbols
Photographs are perceived as being different from other two-dimensional pictures
and there are many descriptions of what a photograph is as a visual tool. Lister says
that “traditionally, a main way of understanding images has been to think of them
as referring to, or depending upon, objects in the real world” (Lister 2000:310).
Photographs, by their nature, must rely on objects in the real world for their image
formation. The objects themselves reflect light onto a light sensitive emulsion, via
a lens, to form the image. This section of the literature review investigates several
aspects of what conventional photographs are thought to be as objects.

2.5.1 Representation
Humans have an extensive knowledge of the external world, achieved from a very
early age. However, knowledge of the external world is not always gained first hand,
because

…much of our perceptual experience involves pictures rather than actual things.
These representations play a large role in the way we learn about the visual
characteristics of many objects. (Rosinski 1977:170)

*Representation* is one description of what photography (and painting) does when it
records the external world. The term fits well to painting but not so easily to photographs,
which is why some authors (Mitchell 1992, Savedoff 2000) describe the action of
photography as *transformation*; a term perhaps borrowed from Sontag (1977:112),
while others (Sontag 1977, Snyder 1980) refer to photographs as *tracings*. Millikan
(1993) says there is no reason to suppose that the name representation, or its use:

…in the various things we daily call by that name have an essence in common,
… what is said to be ‘represented’ may in some environments be false. (Millikan
1993:97)

The study of representation in art tries to make sense of two things: spatial systems
and the interpretation of marks (Willats 1997:5-8). In addition to these, Prinz (1993)
suggests three further categories that must be considered in discussing pictorial representation:

1. **Convention**, in which the viewer must be familiar with picture viewing to perceive the content of the image (depictum); and

2. **Resemblance**, in which the viewer recognises objects in pictures from objects seen in the external world; and a third possibility called

3. **Cognitive**, which can be summed up as: the way humans think things are, is the way they are.

In essence, Prinz argues that images are perceived as realistic when the viewer is convinced the picture shows a real world scene. The idea relates closely to the discussion in Section 2.1 and 2.2, on how humans see and perceive the external world. Yet the term representation implies something less than an accurate depiction, so should it be applied to photographs? Alternative ideas are presented for comparison in the following sections.

### 2.5.2 Pictures as surface marks

Maynard (1997), and Sonesson (2000a), say that photographs, like all pictures, are marked surfaces—in this case marked by light (or similar emitted radiation)—and people “make mental (that is, cognitive) use” of these marked surfaces (Maynard 1997:24). When the marks on any surface make some sense to a viewer they are said to form images. The marks on a surface need not be deliberately or purposely made as an image, and so viewers see objects in random marks just as they see objects in cloud shapes. Deliberately enacted marks need not be of specific objects, given that viewers make sense of abstract designs in paintings or photographs. As well, unmarked areas of the surface make up parts of the images so that the surface and the marks resonate together. These marked surfaces then stimulate the viewer’s imagination to drive other purposes, such as entertainment, information, confrontation… Sonesson (2000a) describes a picture or image on a two-dimensional (or nearly two-dimensional) surface as “iconic in nature” but excludes from the category: “the mirror image, the memory image, the afterimage, the camera image (formed inside a box with a pinhole)…” (Sonesson 2000a).

Cavanagh (1999:644) argues that pictorial art attempts to capture the three-dimensional structure of a scene, which is a definition that applies to painting more so than photography, ‘attempt’ being the operative word; photographs are believed to more accurately capture the sense of three-dimensionality. But in painting, he suggests, there are several techniques the painter “gets away with” (Cavanagh 1999:644), to achieve the desired effect: these include “impossible colors, inconsistent shading and shadows, inaccurate perspective, [and] the use of lines to stand for sharp discontinuities.
in depth or brightness” (Cavanagh 1999:644). He goes on to say that humans over-ride these “errors” to perceive “robust three-dimensional forms” (Cavanagh 1999:644) in painting. The suggestion is that these effects do not apply to photographs because photographic images are made almost instantaneously, but, as will be shown, they can (and do) apply to photographs in some instances. Nevertheless, the widespread belief that they do not apply has partially helped strengthen the belief in photography’s veracity.

Gregory (1970:32) says pictures have a double reality—a pattern of marks on a flat surface, and something the viewer sees as the subject matter (a house, a person, and so on). Gibson (1978) called this property duality: wherein a picture is both a surface in its own right, and a display of information about something else that exists within the picture. Willats (1997) fleshes the issue out further by describing pictures as being made up of:

i. marks (dots, lines and areas); where,
ii. marks represent picture primitives; and,
iii. picture primitives denote scene primitives (edges, corners, or face, or whole volumes); and,
iv. combinations of scene primitives represent objects (tables, people).

To the extent to which these give an impression of being realistic (that is: how well or accurately a picture represents its subject) “is defined in terms of agreement with [the] stereotypical properties” of the object in the picture, and the objects in the external world (Prinz 1993). Further clarification of this idea can be found in Shepard’s argument that human perceptual machinery is wholly automatic in its operation and as a result viewers cannot choose to see a drawing, painting or photograph as it is (lines and shapes on a flat two-dimensional surface) but that the “pattern automatically triggers the circuits in the brain that make the three-dimensional interpretation…” (Shepard 1990:126) and that any “consciously adopted intentions to ignore such an interpretation are largely powerless against the swift deliverance of this underlying machinery” (Shepard 1990:126-127). Herskovits (1959), Segall, Campbell and Herskovits (1966) and Deregowski (1972) all report examples where viewers (mostly members of primitive tribes with little exposure to Western influence) at first could not make out the information from photographs; although as soon as the subject matter was pointed out to them they learned quickly what the surface marks were about.

One difficult characteristic of photographs is how they depict the depth of objects in the array. Most pictorial surface marks and shapes represent something, usually objects in space. In pictures there are three main types of representational conventions that can echo objects in space: perspective, oblique projection (parallel, horizontal & vertical),
and orthogonal projection—known as orthographic in the UK (Willats 1997:2-37). Other projection systems include: naïve perspective—in which more than one correct perspective appears in the picture, inverted perspective, and synthetic perspective (onto a curved surface – e.g., retina). Projections influence the appearance of objects in a picture. In unmanipulated conventional photographs, there is only one projection—optical perspective—and this limitation to a single perspective representation is a key aspect of photography that separates it from other forms of two-dimensional representations.

In all pictures, but particularly in photographs, certain angular distortions are ignored by the viewer. Hochberg (1972) believes inconsistencies in picture space can go unnoticed because “the inconsistent regions of the pictures are not normally compared to each other directly”—because different parts of the picture must appear at different times on the central part of the retina (fovea) in order to be seen in clear detail (Hochberg 1972:60). This depends on the size of the picture and the viewing distance; it may occur that the viewer will see the entire picture in the foveal area and see inconsistencies, though the image will be small. Yet “the wide periphery of the retina, which is low in acuity and therefore in the detail that it can pick up, nevertheless provides an intimation…” of what is seen (Hochberg 1972:65). However, not all pictures comprise lines and shapes.

2.5.3 When surface marks are dots
Willats (1997) puts photographs (along with TV pictures and Pointillist paintings—to which should be added: newspaper and other photomechanically printed pictures, and digital images) into an “optical denotation system” wherein the dots (or grains of silver in the emulsion; pixels in digital images) are “point primitives denoting the intercepts of small bundles of light rays” (Willats 1997:100-128). Willats assigns each dot a dimensional value of zero (is zero-dimensional) and it is these point primitives that are fused in the viewer’s eye to form shapes and tones. The retinal image is similarly made up of zero-dimensional dots (light stimulated rods and cones) which give rise to one-dimensional aspects such as edges which, in turn, form the 2½-D sketch in the brain (Marr 1982, Willats 1997). It is this 2½-D sketch and its interpretation by the brain that give the viewer the impression of three-dimensional space in the external world. The constancy factor (colour, size, etc.) cannot be underestimated in relation to the difference in looking at a scene in the external world and looking at a photograph of the same scene. But photographs can differ from paintings as representations because:

1) the surface is usually free of marks (brush strokes, obtrusive paint) which draw attention to the surface,
2) the structures (grains of silver halide, etc) are too small to be resolved. Even the dot pattern in newspaper and magazine pictures is too fine to be resolved by the retina at normal viewing distances. (Willats 1997:222)
If surface markings form part of a representation and photographs do not easily fit this category, what else might they be called?

2.5.4 Photographs: representation or resemblance

Burgin (1982:11) considers painting to be the creation of representation whilst photography is the production of resemblance—a view held by Scruton (1981) for photography, though Benjamin (1934:24) prefers the term transfigure. Burgin argues that there is “…a ‘pre-photographic’ stage in the photographic production of meaning which must be accounted for” because many objects presented to the camera “are already in use in the production of meanings…” (Burgin 1982:47) as representation in the external world. Galassi (1981) supports this distinction, noting that “…the notion that photography adopted (or usurped) the representational function of painting, allowing (or forcing) painting to become abstract” has been discredited. He points out that the argument “seems to have been launched around 1900 by painters, who used it to justify their rejection of nineteenth-century naturalism”. He also notes that the argument “has its roots in the conviction—born in 1839—that photography is the epitome of realism” (Galassi 1981:12). Similarly, Scruton (1981) claims that the reality of a photograph (i.e., its ability to record the external world accurately) is its downfall in aesthetic terms and that it cannot be representational—since the term “representational” is a simile and not a metaphor of reality. This is an important distinction. Scruton derives a system to measure the functions of various characteristics of a photograph to illustrate his argument and in doing so, he claims that paintings are intrinsically more interesting than photographs—a controversial claim that has led to ongoing debate. Specifically he says that photography, like painting, has the property of sharing the appearance of its subject yet, by its nature it cannot be an accurate representation (Scruton 1981:577).

Scruton’s argument has two defining conditions—in painting, the picture is (usually) of a horse but not a specific horse, whilst in photography the picture is (usually) of a specific horse and that “…the subject is, roughly, as it appears in the photograph” (Scruton 1981:577). This aligns with Barthes’ (1981) notion that a photograph is always of something (this is discussed further in Section 2.5.9). Scruton concedes that “looking at a photograph is a substitute for looking at the thing itself” but notes that a “photograph can ‘represent’ only through resemblance” (Scruton 1981:588-590). He says that a photograph can be used as a representation but that, in order to do so, the viewer’s attention must be distracted from the causal relationship of the picture to its subject, which is “…the distinguishing feature of photography” (Scruton 1981:597). The distinction between a photograph not being a representation of its subject while still being a vehicle for representation is a difficult one to grasp. Photography is merely the mode of transport that carries an impression of the original scene, which, at best,
represents one perspective and one description by an individual photographer. Scruton (1981) uses motion pictures to exemplify his argument: “A cinematic record of an occurrence is not a representation of it, any more than a recording of a concert is a representation of its sound” (Scruton 1981:599). He concludes thatPhotography, precisely because it does not represent but at best can only distort, remains inescapably wedded to the creation of illusions, to the creation of lifelike semblances of things in the world. (Scruton 1981:602)

Wicks (1989), in rejecting Scruton’s (1981) view of photography and representation, holds that “an ideal photograph perfectly reproduces an object’s visual appearance and merely duplicates what we see with the naked eye”—noting that Scruton believes this is why a photograph “cannot say anything about its subject”—since presumably the subject cannot say anything about itself. Wicks says that the viewer sees more in photographs because photography “…captures and preserves the appearance of […] the transient images we experience with the naked eye…” (Wicks 1989:2-3). While this may be true, we need to ask whether the viewer sees more in a photograph than in a painting?

Eadweard Muybridge’s 1878 studies of horses galloping (Figure 2.7) demonstrated accurately (for the first time) the way all four hooves lift off the ground at one point in the stride (Newhall 1982:120), and it was the nature of the photographic process which allowed it to be shown—a brief shutter opening freezing the horse’s movements into a still image which could then be examined in close detail. This revelation would be impossible in the external world without a viewing aid (which, in this case, is photography). An artist today can accurately reproduce in a painting, a horse galloping in such a way as a photograph can show the horse, although many eighteen-century paintings of hunting scenes show an entirely different (or lack of) understanding of how horses moved. Again, this raises a question: do Muybridge’s early pictures of the horse galloping have greater veracity than a contemporary photograph of a horse galloping? Muybridge’s photographic sequences established a fact about animal movement—something a trained observer may have been able to see with the naked eye—but which could only be verified by photographs. Prior to 1878, an artist might still have painted the horse’s movement accurately, but they would have been unable to prove the accuracy of their work. A photographic scientist, W. de W. Abney, suggests that the frozen image of an animal in motion could be seen by the naked eye “…if the scene were illuminated by a flash of lightning…” (Newhall 1982:123) but if that happened before Muybridge’s time it is not recorded.
King (1997) characterises Scruton’s (1981) essay as provocative, taking exception to Scruton’s claim that photographs are not interesting in a way paintings are (because, according to Scruton, they are not representational, as are paintings). King says that Scruton’s view “is applicable to photographs made as records [and is] only one way of seeing photographs” (King 1997:258). King argues that there are different ways of looking at photographs depending on whether they are historical or scientific records, or serious photographs [sic]; or, equally, if the viewer is an historian or a scientist, or is a serious photographer. This way of thinking is very much in keeping with the notion that it is the viewer who interprets the photograph in a personal and uniquely different ways. Different viewers will see the contents of a photograph in different ways depending on their own interests, and what they expect from a photograph. King (1992) points out that the viewer can look at a photograph to

- see how the subject appears;
- gain an ‘emotional impact’ which stir memories of a place, person or situation (evocative power);
- see what the photograph looks like technically (is it grainy, colour, contrasty, etc?);
- see what the photograph looks like aesthetically. (King 1997:259-260)

A fifth way of looking at photographs, according to King, is one which, contrary to Scruton’s (1981) view consists of “remarks about the manner of representing the subject”—remarks which must be “about observable features of the photograph which are controlled by the photographer, hence, are caused by the photographer, not by the subject” (King 1997:261).

Berger and Mohr (1982:99) say that “photographs quote from appearances” (emphasis added) in the same way as do other pictures of things and, because of the nature of photographs, these quotes are incomplete; and removed from the original in time...
and space. For example, if a photograph is of an actual subject such as a horse (as distinct from a painting of a horse)—a situation which Gombrich (2000) refers to as representing the particular rather than the universal—then point-to-point comparisons are possible. But if the photograph is “fictive” (Black’s term cited in Gombrich, Hochberg and Black 1972:122) such as in some of the work of Rejlander (1813-1875, Figure 1.5), Bob Carlos Clarke (1950- , Figure 2.8), Jerry Uelsmann (1934- , Figure 1.9 and 2.9) then either no point-to-point comparisons can be made, or point-to-point comparisons can only be made on component parts which make up the final image.

Figure 2.8 Untitled (1983) by Bob Carlos Clarke

Figure 2.9 Small Woods Where I Met Myself (1967) by Jerry Uelsmann
Black (1972) concludes that our understanding of the photographic process, along with knowledge of *provenance*, is much more important than the making of point-to-point comparisons when viewing photographs:

...our mastery of the skills of interpreting or ‘reading’ photographs depends essentially upon our schematic knowledge of how such photographs are *in fact* normally produced. It is through our knowledge of the photograph’s provenance that we understand what the photograph ‘shows’. (Black 1972:126-127)

Indeed it is the “knowledge of photograph’s provenance” that has led to its prominent association with high veracity. However, it is likely that many photograph-viewers have a limited knowledge, a distorted knowledge, or even no knowledge at all of the steps involved in making a photograph. This might explain why photographers and critics are more likely to question a photography’s veracity than members of the general public (Section 2.6 will discuss this point in more detail).

In contrast, Szarkowski (1973a:72) ignores provenance and believes that “photographs describe everything but explain nothing” a view supported by Jenkins (1975) who notes: “The important word is *description* for although photography is thought to do many things to and for its subjects, what it does first and best is describe them” (Jenkins 1975:53, emphasis added). Bright (1985:133) suggests that “the context in which they are produced, distributed, and consumed” can explain much about how the viewer will interpret a photograph, even if the photograph itself explains nothing.

In the end, the debate about whether or not photographs are representative, whether they are representative in the same way as paintings, or whether representation means the same thing to different viewers or, indeed, whether representative means the same as reference, interpretation, or other terms with similar meanings, is peripheral to the debate about photography’s veracity. It is, however, useful in determining a relationship between photography, painting and other forms of picture making which might illuminate the similarities or differences that could contribute to answering the research question. However, other researchers have used different terms in the same context and these need to be considered.

### 2.5.5 Photographs as ‘Traces’

Aligning with Scruton’s definition of photographic representation as metaphorical, Snyder (1980) argues that: “The similarity of a picture to nature is not like the similarity of a facsimile to the original… it is the similarity of the mental image both can arouse…” (Snyder 1980:221). Snyder contends that there are specific generic qualities of a photograph which make it seem equivocally realistic, even though he deems them not to be realistic. This is because the photographic process itself has led viewers to believe that the objects pictured are somehow *traces* of the objects themselves and that “the photographer does not intervene in the process of representation” (Snyder
He identifies certain characteristics of a photograph which differentiate them from the view of the observer:

- that, at most, all photographs can offer in relation to depicted reality is “the possibility of using certain photographs to verify some statements about ‘the’ way things were at the time of exposure.”
- that, for many photographs, “the viewer has a legitimate reason to say that such and such was in front of the camera at some past time.” and
- that “photographs do not owe their significance to the possibility of using them to establish facts about the world.” (Snyder 1980:230)

Snyder thus makes the very important point that photographs are no more self-warranting than paintings or any other visual medium. Similarly, Black (1972) identifies what he calls a “special case of photographs” which, if unretouched, “stand in for some ‘natural’ relation to their displayed or portrayed subject” (Black 1972:100). He also claims that photographs “provide minimal scope for the ‘expressive’ intentions of their producers…” (Black 1972:100). Black uses the term trace to describe the way the photographic process functions, in that it allowing a specific “sheaf of light-rays” reflected from the subject to effect the photographic emulsion in a certain way, the result of which is fixed by chemical and optical treatment (processing and printing).

Twenty years later, at the dawn of the digital era, this debate was moved forward by Mitchell and others.

2.5.6 Photographs as ‘Transformations’

Mitchell (1992) introduced the term transformation to describe how he thought photographs presented their subject. His work is considered seminal in the field and coincided with the advent of digital imaging, reopening the debate about photography’s veracity. While neither he nor Savedoff (2000) went so far as to deeply challenge the accepted level of veracity attributed to conventional photographs, both raise questions about the likelihood of pictorial veracity being maintained as digital imaging proliferates. Savedoff (2000) noted that “[i]f altered or digitally manipulated photographs were to become the norm, our way of reading photographs could change significantly” (Savedoff 2000:126), although

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Our implicit faith in the veracity of the photographic image is deeply ingrained,
so it would take much more than a few digital forgeries to reshape our habit of seeing. (Savedoff 2000:201)
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Savedoff recognised that photographic forgeries have always been plentiful (particularly in supermarket magazines and high school yearbooks) but would no doubt be surprised by the speed which digitally manipulated images have become the norm. In Mitchell’s (1992) view, it is because of digital images, particularly manipulated ones, that “images are no longer guaranteed as visual truth…” (Mitchell 1992:57) though he confirms the views of Bazin (1967), Berger (1974), Sontag (1977), and Barthes (1981) that inherent in photography there is an imprint or trace from the object itself:
since photographs are strongly linked by contiguity to the objects they portray, we have come to regard them not as pictures but as formulae that metonymically evoke fragments of reality. (Mitchell 1992:27)

The sense of contiguity is so strong that people call the object depicted by the name of the object, so instead of saying ‘that is a photograph of Grandma’ they say ‘that is Grandma’. Despite his belief that photographs can successfully depict reality, Mitchell lists four devices which photography uses that belie its depiction of reality; it can

• stop action better than the human eye
• resolve finer detail [than the human eye]
• attend to subtle distinctions of intensity
• register everything in the field of view (unfiltered sampling)

For these reasons, Mitchell speculates that it is folk wisdom which “holds that a photograph mirrors nature [and that] sophisticated commentators on photography have always insisted otherwise” (Mitchell 1992:90) quoting Heinrich Schwarz observation that “photography does not give a lifelike reproduction, but an abstraction, a transformation” (Schwarz 1985:91).

Much of Savedoff’s (2000) work is strongly influenced by Mitchell (1992). For example, Savedoff (2000) says that photographs do not merely record the external world they “transform their subject. They have the power to make the most familiar objects appear strange” (Savedoff 2000:2) an effect achieved by camera angle, lighting, cropping, and other photographic techniques. She says “…photographs are seen as having a special connection with reality…” (Savedoff 2000:7), and like other commentators, she sees photographs as casts, or traces of nature, whilst acknowledging perceptual ambiguities. As an example of this, she refers to the stillness, the flatness and the limitation of monochromatic values in black-and-white photography. One of Savedoff’s aims is to show that viewers experience painting and photographs differently, arguing that viewers perceive photography as more closely related to reality than painting—whether it is warranted or not—and suggests that this power is irresistible because viewers “read photographs as documenting the world” (Savedoff 2000:49-50, 88).

Savedoff (2000) uses Wanda Wulz’s (1903-1984) *Cat and I* (Figure 2.10) as an example of conventional photographic techniques being used to create images of a subject which did not appear in front of a camera. The image has a similar appearance to Figure 2.11, which explores a similar theme but which is computer generated and replaces the cat’s eyes with human eyes. Savedoff distinguishes this type of creative photographic manipulation shown in Figure 2.10 from other photography when she suggests that the heavy exposure to photographs in daily life has conditioned people to perceive the external world photographically, and this especially has impacted on their
She lists nine characteristics of photography which alter the appearance of paintings when they are photographically (then photomechanically) reproduced and most of the nine criteria are easily extrapolated to embrace features of the external world as they appear in photographs. A quick comparison reveals just how readily viewers are deluded about what they perceive of the external world when viewing photographs, as easily as when they see paintings reproduced in print media. The characteristics are:

- Photographs do not [accurately] capture the colours of the original,
- The surface of the photographic reproduction is markedly different from the surface of the original,
- Photographs do not preserve the scale of the original,
- In reproduction the physical presence of the original is lost,
- The reproduction usually doesn’t show the frame of the original [or the total expanse of the external world],
- When the frame is included in the reproduction the material differences between that and the painting is lost,
- The reproduction fails to convey the function of the frame,
- The direction of gaze is changed if the painting is seen hanging on a wall [and the photograph is flat on a table (or reproduced on a page)],
- The ability to move closer to the painted surface to gain more information is lost in the reproduction.  (Savedoff 2000:160-169)

In what could be described as photography shaping reality, Savedoff (2000) gives examples of scholars and critics using photographs, and often reproductions of photographs, to gather information about their subject. She suggests the danger in this practice is that they concentrate on properties which can be transmitted by photographs and neglect those which cannot (see Section 2.5.11). Likewise, when illustrations accompany a text (also discussed below), the reader may be influenced by the author’s choice of illustrations (something Barthes specifically avoids; as discussed in Section 2.5.9).
In respect to how viewers interpret photographs, Savedoff (2000) says that viewing experiences are, at least in part, based on the beliefs and practices of a community—and it is not surprising that they change significantly over time, especially in response to new technologies. Anticipating that digital imaging would eventually erode belief in photography’s veracity (what she refers to as its special power) Savedoff argues that photography’s “special connection with reality has to do with the way photographs are typically made; it does not rest on the exact duplication of appearances” pointing out that, in allowing the belief in this special connection to persist, the viewer accepts “not only that a photograph gives evidence of an object’s existence, but also that it shows us how the object really looks” (Savedoff 2000:185, 193). In contrast, she gives two telling examples of situations where paintings are superior to photographs in depicting their subject. The first is in birding books, which use paintings to show the features of the species more precisely, and the second is when accurate illustrations are needed to show how humans see, because such drawings are not constrained by photographic perspective distortions. In the author’s own experience, many medical illustrations must adopt the look of photographs to appear realistic and faithful to the subject and medical paintings are often more useful than photographs of the same subject since they are not constrained by the limitations of the photographic process, particularly depth of field and focus.

As we can see, there remains considerable debate about exactly what a photograph does when it records the external world, and considerable inconsistency evident in the literature when we attempt to interpret and standardise the diversity of terms used by the principal commentators—so, for this reason, some working definitions are proposed in Chapter Three. At this point though, it is timely to move on to what viewers and users of photographic images might require from the photographs themselves.

2.5.7 Viewer’s needs
The question of why humans need to share their perceptions of the external world and why (in Western society, particularly) they have taken to photography as a means of communication is discussed in Sontag (1977), and is summarised in Coleman (1975a):

> The urge to communicate our perceptions and experiences appears to be inherent in our nature as human beings…We seem also to have a deep need to perpetuate those perceptions and experiences, perhaps in a symbolic search for immortality. (Coleman 1975a:129)

Our passion for making and viewing photographs derives from two sources: the motivation(s) of the photographer to make images and those of the viewer to see them. The need to see photographs seems to have three sources:

i. the need of the photographer to be creative. Photography is often taken up by people who cannot draw or paint well but who can use photography to meet their visual creative needs, and
The needs of the viewer of photographs (outlined as ii and iii above) are complex because there can be so many reasons to take and use photographs. A common reason is to serve memory.

When photography first came into existence with the daguerreotype in 1839, it was referred to as ‘a mirror with a memory’. A person could hold a photograph and recall past events. Photo albums, school yearbooks and the like, serve as visual diaries of past experiences, memories of times past. (Zakia 1997:82)

This use, however, brings about a potentially paradoxical situation, because, while the photograph is serving the memory, the memory is stimulating the viewing process. Humans rely on memory to serve the visual process and the visual process to serve the memory. As noted earlier, Gregory (1998b) and Carter (1998), amongst others, suggest that memory is constantly revised to suit the individual’s needs, and that it is never constant. There is a mounting body of evidence to suggest that what a viewer sees is intensely person-specific and therefore biased in their own favour. Because of the their uniquely interpretative nature photographs need to be considered in the context of the many individuals involved: the photographer’s need to take/make photographs, the viewer’s need to have photographs to use, and those in between whose role it is to buy, sell, admire, study or collect photographs all are working in integrated ways to perpetuate and reinforce each others’ desires, yet might be at cross purposes.

2.5.8 Photo-album or memory bank

Gombrich (1972) uses two images of Franz Listz to demonstrate the objectivity of photographs (Figure 2.12), noting that:

…before the invention of photography – we have very few objective controls about the sitter’s appearance except occasionally a life- or death-mask or a tracing of the shadow as a silhouette.’ (Gombrich 1972:15)

![Figure 2.12 Portraits of Franz Listz. Left: photograph by Nadar. Right: painting by Franz Lenbach](image-url)
What the photograph (left, Figure 2.12) shows that the painting (right, Figure 2.12) omits are the lesions above Listz’s right eye and on the right side of his nose and on his left cheek. Clearly Gombrich believes that photographs offer greater veracity than paintings in their ability to depict a subject from the external world, but this view ignores the painter’s desire to hide the truth—as in the case of Listz’s lesions. Gombrich then asks whether viewers today “even see photographs in the same way in which they were first seen” (Gombrich 1972:16). The sophisticated contemporary viewer has a different mind-set towards images which could not have existed in the nineteenth-century, and many photographic images acceptable to the viewer in this era would be “psychologically unacceptable” to nineteenth-century viewers, since they would appear “both indecorous and totally unrecognisable” (Gombrich 1972:16).

One reason why photographs may appear more realistic than paintings to viewers is given by Gombrich in a quote from Roger de Pries (1635-1709)—author of *Cours de Peinture par Principles*—who noted that painters sometimes have “the mouth smiling, and the eyes sad; at other times, the eyes are chearful [sic], and the cheeks lank…” (Gombrich 1972:21). In a photograph, the image is captured quickly and evenly enough that the expression is truer than the sort of portrait described by de Pries. However, it must be said, in defence of painters, that their aim is not always to produce an exact likeness but to capture the essence of the sitter, as may also be said about the portrait photographer. Yet the painter, if they so choose, can make an image as true to life as any photograph. The portrait photographer must resort to retouching (or perhaps, creative lighting) to hide features such as lesions.

Having considered photographs as representations and found that particular category limiting, and having seen tracings and transformations also fall short as adequate categories, it is necessary for this review to consider the role of photographs as *signs*. The academic study of photographs as signs has become increasingly important in recent years, as Zakia (1997) explains:

> …another way to find meaning(s) in photographs is through the use of semiotics. Semiotics can be described as the study and application of signs, signs being anything and everything that conveys meaning. …Photographs are signs, signs that can convey both information and emotion. (Zakia 1997:237)

For a photograph, the object (the print in the hand) and the subject (that which is depicted) are separate signs. The signs within the image are considered in the following section, whilst the operation of signs within the structure (the print-in-hand) will be examined in Section 2.6. It must be recognised, however, that any proper discussion of photographs and photography within a semiotic framework could be a thesis in itself, and so the following material must remain, at best, an overview of this important field.
of study as it relates to this dissertation.

2.5.9 Photographs as ‘Signifiers’

Words (and images) are signifiers for objects of the external world. The relationship between the signifier (the word) and the signified (the object) is arbitrary because language is only a set of agreed conventions. Hershel made up the word *photograph*², and if everyone had agreed to refer to photographs as *heliogravures* (as they were once briefly known) life would go on as normal with only history to record that a change had been proposed. Nevertheless, language is important in helping us understand what photographs are, and what they do. The study of pictures and images specifically (*pictorial semiotics*) is essentially a recent sub-discipline within the field of Semiotics, and much of the earliest work was undertaken by Roland Barthes.

Burgin says that there is “no single signifying system” but instead, there is “a heterogeneous complex of *codes* upon which photography may draw” (Burgin 1982b:143, emphasis added) and further, that published photographs are rarely viewed without accompanying text—either as a caption, a title, extended surrounding text, or superimposed copy. Other codes from the “language” of photography include such terms as *focus*, *tonality*, and *context*. The viewer brings to the viewing process those codes “which he or she is familiar with in order to make sense” of the photograph, whether they be published, mounted in the family album or hung on a gallery wall (Burgin 1982b:153). Later, Burgin (1989) and others (such as Hall 1993, Ramamurthy 2000) described photography, amongst other things, as “a practice of signification” and that “the primary feature of photography, considered as an omnipresence in everyday social life, is its contribution to the production and dissemination of meaning” (Burgin 1989:2). The prominent semiotician, Umberto Eco (1970) made clear the role of photographs as signs and therefore their interpretation which relies on both arbitrary and conventional rules. For this reason, interpretation has to be learnt. However, Eco does concede that looking at a photograph of an object in the external world is closer (in some respects) to looking at the object in the real world, than is hearing the name of the object spoken—or reading its name. For example the word *horse* means one thing, a painting of a horse means “as a minimum ‘a white horse stands here in profile’” whilst a photograph of a horse means a particular horse stands here in profile (Eco 1970:35). Because of the high level of perceived resemblance between the photographic image and the object it represents, photographs are normally described as being *iconographic* in nature.

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² The name was “devised by Sir John Hershel from a combination of the Greek *photos*—light—and *graphos*—drawing.” (Thomas 1978:7)
**Barthes and his critics**

Barthes (1984) describes two types of written text—*readerly* text and *writerly* text. In the same way, photographs may also be considered to be readerly or writerly. Readerly pictures are ones that meet the expectations of the viewer and don’t challenge the viewer to rethink values. Writerly pictures are those that discomfort the viewer—for example, the famous picture by Ut (Figure 3.1) and Sebastiao Salgado’s photographs (Figures 1.4 and 1.5).

Using terms derived from the semiology of language, Barthes describes the “internal” conversation that occurs within a photograph as it partially communicates to the viewer—identifying three components to this dialogue: the *signifier*, the *sign* and the *signified*. In Barthes’ example: a rose (signifier) can signify passion (signified). The effectiveness of the sign depends on the pre-knowledge that links roses with the expression of passion. To use a photographic example: the photograph of the seascape at sunset (signifier) may signify tranquillity (signified) whilst the sign is the knowledge that one represents the other; the feeling of tranquillity the viewer gets from viewing a photograph of a sunset (presumably from knowledge of the external world where tranquillity is derived from viewing the sunset itself, or learning of it from depictions in a movie or novel). Without an understanding of the rules of signification, however, the viewer may not reach the *referent*—that is, what the sign “stands for” (Mercer 1999:183). If the viewer does not confound the signifier with the referent the representation is clear and the “reality (a denial of the signifier)” is then made present (Metz 1999:218).

In 1980 (prior to the advent of digital imaging) Barthes was adamant that photographs tell a truth. He strongly holds that a photograph always records what is in front of a camera and that “[e]very photograph is a certificate of presence” (Barthes 1981:80, 87). In a certain way this is still correct, but not always; depending on how the contents of the photograph are perceived. For example, in so much as each of the elements of Rejlander’s *Two Ways of Life* (Figure 4.7) and Uelsmann’s *Small Woods Where I Met Myself* (Figures 2.9) were all once in front of a lens to be captured, the final combinations as exhibited were never in front of a lens together to be captured. While the examples cited might seem obviously contrived, many other photographs are not so obviously built from bits and pieces and viewers can readily be deceived. Examples of digital images which fit this description are shown as Figures 2.13 and 2.14, and a conventional silver-based photograph which is also deceptively not of a real event is shown in Figure 2.15 (the aeroplane was added in afterwards). Barthes’ insistence, then, of all photographs being of something is one interpretation amongst several. Barthes gives a framework for this type of manufactured picture: “they are ‘set’ in a
syntagm which is not theirs and which is that of the denotation” (Barthes 1977b:282).

Barthes believed that photographs are a “likeness” (1981:100) and this is a term commonly used by the general population when describing certain kinds of photographs. Photographs of people (formal portraits as well as snapshots) are often classified as either good likenesses of the subject or not good likenesses. Sekula (1982) feels that
Barthes has been mythologised by his followers, and criticises his hypothesis as being tantamount to folklore, arguing that Barthes imbues photographs with “a primitive core of meaning devoid of all cultural determination” and that this “elevates the photograph to the legal status of document and testimonial [that] generates a mythic aura of neutrality around the image” (Sekula 1982:87). Sonesson (2000a) accuses Barthes (1981) of alternating the terms ‘photograph’ and ‘image’ as if to suggest that they are the same, and implies this is wrong. Yet it is conceivably that Barthes was aware of the similarity of all images to such an extent as to use both terms deliberately to make the point that all images should be treated the same way—even to the extent of giving all images equal veracity. In this way Barthes may have used photograph where he specifically means a photographic image and image when he is referring to conditions that apply more universally to all images, and that at no time should the terms be confused by the meaning implied. Unfortunately, Barthes died in 1980 before many of these issues could be resolved, and it would certainly be interesting to know how some of his ideas might have changed in response to the advent of digital imaging technology.

As noted earlier, Snyder and Allen (1975) and Scruton (1981) suggested that a painting of a horse could be the depictions of any horse whereas a photograph is of a specific horse. Sonesson (1989) says the photograph only says specific horse and does not tell the viewer where the horse was (although it might be implied from other information in the photograph) or when the horse was there (wherever it was). The photograph, like a hoof-print, does not give a specific time but implies a sense that there is a before; that is—before the photograph was taken or, more accurately—as the photograph was taken but before the next moment. Peripheral to this is the concept that the hoof-print having vanished from the scene can still be about the horse. In this case, it is the memory of a hoof-print that can be compared to the function of a photograph, and Sonesson suggests the same idea that Zakia (1997), Pinker (1997) Carter (1998), and Gregory (1998a) all propose: that photographs, like the external world, are prompts for memory and that the majority of visual information comes from memory and not from the scene itself. By the early part of this century, some of Barthes notions have been considerably diminished, although this has much to do with developments in technology and our developing understanding of the world. Recently, Mavor (2007) described Barthes as being old-fashioned and out of date, describing Camera Lucida as being partly “semiotic squibbles on the meaning of photographs” (Mavor 2007:33, 134).

Perhaps if photographs do not fully fit any one of these categories (representation, tracing, transformation, depiction, sign, etc.), they might fit all of them in different ways or at different times. This would make photographs unique amongst two-dimensional
pictures (as some commentators claim they already are, but for different reasons).

2.5.10 Photograph as ‘Indices’
As with the hoof print, the interpretation of the sign is not entirely arbitrary, since some form of physical connection exists between the signified and the sign itself. A photograph “expresses an indexical relation to whatever appeared before the lens at the moment of exposure…” (Solomon-Godeau 1991:169), and is therefore a pointer to that moment and that subject—even after the subject is no longer present. Batchen (2002:139) agrees that photographs are indexical; and that they are tokens or indicators of objects. Van Lier postulates that photographs are indices in as much as indices are not signs but physical effects (thus distinct from “signs”, which are “intentional, conventional and systematic”) and so are like arrows (or index fingers) that point out objects (Van Lier 2007: 17-19).

Maynard (1997) suggests that, when the viewer looks at a photograph of a wedding party, they think they are “…directly looking at that actual group of people, whereas it is not. Rather, it is the direct looking at a photographic print…” (Maynard 1997:129). But not only is the viewer supposedly (in their own mind) looking at actual people, they are generating actual emotional responses. Ashford (2000) not only believes photography is a powerful medium, he implies that it is its perceived high veracity which is responsible for that power.

No other visual medium has the power to reach in and touch a viewer’s emotion like a photographic image. Perhaps it’s the perception of a single moment frozen in time forever, true in every detail to the real life from which it was grabbed. (Ashford 2000:65)

Ashford argues that it is very much a matter of opinion and personal taste whether photographs have a greater power than, say paintings, to trigger or direct a viewer’s emotional emotion. Perhaps a certain photograph may possess that power, but to assign all photographs such attributes is unsupportable—imagine, for example, what might happen if we are asked to compare a family holiday snap in another (perhaps unknown) family’s album to a Michelangelo painting. He argues correctly that a photograph is a “moment frozen in time forever” but this is not at all how “real life” or the external world appears to people. Real life is more like a motion picture experience where continuous images of the external world reach the brain. Finally, it should be noted that a photograph is rarely, if ever, “true in every detail” (Ashford 2000:65). Whether correct or not, he is however, voicing a belief widely held amongst the general population of the Western world—as well as amongst a large number of photographers.
2.5.11 What a photograph is not

The question as to what exactly constitutes a photograph’s role in presenting information is vexed, so perhaps identifying what a photograph is not will help clarify the issue. The distinction between an actual photograph and all other sorts of reproductions of photographs is crucial to this study.

A newspaper picture, for instance, is not a photograph. Yet at an initial stage of production a photograph may have been made of a scene which later appeared in print via a photomechanical reproduction process. Similarly, a digital image is not a photograph. At some stage a photograph may have been scanned to form a digital record—but at that moment the process ceased to be photography and became digital imaging. In general usage, much broader definitions of what a photograph actually is are used. For example, one definition of photography used in the Copyright, Design and Patents Act 1988 (UK) says: “‘photograph’ means a recording of light or other radiation on any medium on which an image is produced or from which an image may, by any means, be produced, and which is not part of a film;…” This definition serves the Copyright Act well enough but is only of limited value to the current study, since the definition is too broad and can be read to include x-rays (which are images of shadows of bony structures), and other forms of radiation-induced images (ultrasound images, magnetic resonance images)—as well as including digital images. For this study, a narrower definition is required so that conventional silver halide or similar metal-based photography can be discussed in isolation from other types of image-producing systems. The narrow definition is necessary because this study is about the veracity of conventional photography, and not about the veracity of digital imagery (which probably doesn’t have high veracity anyway) or x-rays, or other image-making processes. Thus the following definition of what constitutes a conventional photograph is proposed.

A photograph is produced when lenses and light sensitive emulsions are used to optically and chemically form a picture. Without a lens and light sensitive emulsion the resulting image is not a photograph. For example, a digital scanner is not a lens; neither is a Charged Coupled Device (CCD) or Complementary Metal Oxide Semiconductor (CMOS) array nor a camera media-card a light sensitive emulsion, and inkjet printing systems use no light sensitive emulsion. Photograms (as produced by Man Ray, Fox Talbot, and others) are excluded by the author because although they are made by laying objects onto a light sensitive emulsion, the image is formed without the need of a lens. However, many including Jenkins (1999) disagrees with this definition:

…it doesn’t matter if the light reflecting off the subject hits a film, a CCD, or something else that may be invented in the future. It’s still a photographic image – an image formed by light. (Jenkins 1999:5)
To maintain the focus of this study, our definition of what constitutes a photograph must be clear. If the image forms on a CCD or similar digital source, it is no longer a photograph and should be called a digital image. Commonly, and erroneously, images appearing in magazines and newspapers are called photographs when they are, in fact, ink prints made with a number of subsequent photomechanical reproduction process, rather than an immediate photographic process. Although photomechanical images and digital images serve a similar purpose to photographs and are perceived in the same way, there is a need for this distinction to be made because veracity is vested in the original photograph and not necessarily in a reproduction (photomechanical or digital) of the original. As with digital imaging, photomechanical reproduction can hide a multitude of manipulation clues, so it is also necessary at this point to consider exactly what a photograph is. One way we can do this is to look at what photographs are used for.

2.5.12 Using photographs

One of the many roles photography has been assigned during its existence is that of being the source of reliable information about times passed. Like a time machine, the photograph is able to preserve a fleeting moment for all to see. Events of the past, captured by the camera, can become part of our collective memories – if only as images. (Davis 2001:24)

At the time he wrote this, Davis was Curator of Photographs at the Mitchell Library in Sydney, and he pinpoints the role of photographs as historical tools—that is, as aids to memory. Although photographs certainly capture fleeting moments of past events, they do so only as images, since they contain no information on sound, odour or feel. However, Davis describes scenes in a suburban Sydney yard which go well beyond what the photograph can actually show and some of the detailed information Davis imparts in relation to these photographs must have been drawn from other sources — written or verbal. For example, he asks:

Who would have believed that L.J.R Jones built a succession of aircraft in his Glebe backyard, including several steam-driven versions, if photographs did not exist to prove it? (Davis 2001:24)

An expert in certain areas of aviation might be able to deduce what types of aircraft and propulsion systems are depicted; the name LJR Jones might appear on a sign or similar display in the pictures; an expert on Sydney’s inner city environs may be able to recognise the suburb, but Davis goes on to add a piece of historic detail which no photograph would depict: “The indefatigable Jones survived several crashes to achieve flight with his seventh machine” (Davis 2001:24). This kind of historical detail can not be achieved from looking at photographs of events—it comes from reports associated with events, sometimes it comes from captions linked to the photographs, but neither of these sources is the photograph itself. To this end, Green-Lewis (1996) notes that “When it is taken out of its original context, a photograph cannot serve as evidence of
history… or … as evidence of anything at all beyond itself” (Green-Lewis 1996:13).

Even so, photographs continue to be seen as powerful evidence of historical fact. The photographer, Sally Soames explained to people acquiring her photographs of Britain’s Prime Minister Tony Blair for his election campaign that “…b&w [black-and-white photography] is more interesting and has greater historical value” (Brown 2001:13). What exactly she meant is not revealed, and it may merely mean that black-and-white photographs have a longer shelf life if archival processing is used, compared to colour photographs, although the remark seems to imply that black-and-white photographs offer more than colour photographs in some other terms—perhaps veracity.

**Pictures with words**
In publications, photographs are usually accompanied by words. Price (1994) believes that these description (captions, titles, text) are necessary for photographs because the viewer has to be told what is needed “both to understand and to see” in the particular photograph, and in text associated with criticism to enable “the act of seeing” by indicating what to look for in a photograph (or collection) (Price 1994:6). Green-Lewis (1996) gives the example of Roger Fenton’s photograph No. 218 *The Valley of the Shadow of Death* (Figure 2.16) which provides emotive, possibly religious, overtones to an otherwise dull photograph. The title could have come from the psalm that provided the valley with its name or from Tennyson’s poem *The Charge of the Light Brigade* written the year before the photograph was taken and exhibited. The photograph itself could be of almost any bleak landscape with a track through it, it is the title which gives the viewer most of the information needed to view the photograph as the photographer and the title-writer intend. Green-Lewis (1996) says none of the other photographs exhibited with this one “bore such a memorable title in the exhibition catalog… [all of the others had] a caption rather than a title…” (Green-Lewis 1996:127)

![Figure 2.16 No. 218 Valley of the Shadow of Death by Roger Fenton](image)
Explaining the use of captions accompanying photographs, Peres (2001:27) says that the words will influence the viewer by providing information which may not be available from the picture—and may lead to misinterpretation by restricting the viewer’s interpretation by being too specific, or by encouraging the viewer to interpret the subject broadly. This implies there is more to the picture than the subject offers. According to Peres: “there is the photographer’s role and there are the viewer’s perspectives when seeing the … picture.” To demonstrate his stance as an idealist he says: “I would offer that there is nothing real about any picture. The choice of film, composition, lens, lighting, processing, and printing are all subjective choices…” (Peres 2001:27). On this theme, Margolis (1988) says captions “force meanings on the picture that are neither explicitly nor implicitly part of the image” and goes on to say that “[t]he words overdetermine and legislate meaning, further limiting critical evaluation” (Margolis 1988:42). The same theme is examined by Berger (1972) and Barthes (1977) and both concur on this point, Barthes (1977) adding that the caption speeds up the gaining of the message for the viewer while Berger (1972) demonstrates that whole new meanings can be attached to an image by adding a different caption.

Burgin (1982c) refers to captions as alien intruders which evacuate the subject from the visual register, and points out that in newspapers the image is usually “subordinate to the text” (Burgin 1982c:191-192) and that even on gallery walls the photograph is seldom exhibited without a label. When photographs relate to text and when text relates to photographs the two engage to play with aspects of knowledge, memory, and visually stored information within each viewer’s range of experience. Conversely, Szarkowski (1973b) points out that newspaper photographs used in a museum exhibition without their attached captions “describe a simple perception out of context” (Szarkowski 1973b:5), whilst Tagg (1988) suggest that the meaning of a photograph may be too imprecise and therefore might need to be anchored by a caption. In the latter case the photographer (or caption writer) may not understand the true nature of a photograph—wherein the meaning is a sign or message in itself. Solomon-Godeau (1991) sees the distinction thus: “…a photograph’s content is a powerful determinant of its perceived meaning…” (Solomon-Godeau 1991:179) as will be the environment in which it is presented: be that a magazine page surrounded by advertisements, a gallery wall, or a coffee table book. Particularly on the printed page, “…the nature of caption and text, the sequencing of images, and the competing mass of other images…” will act to influence the viewer’s interpretation of the individual images as a whole (Solomon-Godeau 1991:180). A good example is an 1840 photograph by Hippolyte Bayard (1801-1887) titled Le Noye (self-portrait as a drowned man (Figure 2.17)—which has text on its reverse side explaining that it is a picture of the author as a drowned man and the reason he drowned himself. Without that additional information the viewer
might see the pictorial content in other ways.

Batchen suggests that using titles undermines “the veracity of the photographic image... deliberately to call into doubt the assumed distinction between the literal and the figurative” (Batchen 1997:171). For all words used in conjunction with a photograph, Price chooses to use the term “description” (Price 1994:1), and she says the description can vary depending on the use of the photograph; for instance the same photograph may appear as a newspaper picture, be hung in an exhibition, or be used as an advertising poster. She also points out that words within a photograph (a sign on a shop, for example, or words included in an advertisement accompanying a photograph, a brand name) are not part of the description. In some instances it may be that a caption indicates that a photograph “has no potential for imaginative interpretation” (Green-Lewis (1996:127). Conversely, photographs used in a legal sense are always accompanied by corroborative evidence consisting of spoken or written words.

Figure 2.17 Le Noye (self-portrait as a drowned man) 1840 by Hippolyte Bayard

Signs and symbols must be seen to be what they are intended to be. To get someone’s attention from a distance it is common to wave an arm in the air. The wave must be made by the attention seeker, it must be seen by the intended recipient of the message, and it must be seen as an attention seeking action (and not an attempt to chase away a fly, for example). If signs and symbols are not seen to be what they are intended to
be then the communication system has not functioned successfully, or to its intended level. Photographs as art (as with other art), may be made without an actual intention other than to provoke thought. However, most photographs are made with an intention: as a record of an event, a person or an occasion. Photographs are thus used as a display medium, but the answer to the question as to the source of their perceived high veracity is still not clear, and the fact that photographs are frequently viewed in conjunction with a “description” may do much to influence perceptions of veracity. It is also unclear how photography’s veracity is judged when photographic images are compared with other two-dimensional representations such as painting, or in direct comparison with the external world. The next section examines these issues in greater depth.

2.6 From whence veracity?

There is scant documentation in the literature as to why early viewers of photographs thought those first photographs were more realistic than accurate paintings or drawings, but it seems it was partly because of the mechanical nature of the production of photographs; a hands-off process—especially when compared with painting or drawing. Or, perhaps more importantly, because it was an “imagination-off” process in which, unlike painting or drawing, the operator of the camera did not have to imagine the entire picture from start to finish but merely to point the camera at an existing scene from the array in front of them and press the shutter button (or bulb, or remove the lens cap).

Since the beginning of photography, people have accepted the notion that photographs recorded the external world more accurately than could paintings. Early photographs adopted styles, poses and themes from painting, so it is a wonder the viewing public did not make a connection then, and realise that photography may have no more veracity than other visual media. Sontag (1977) suggests that “despite the presumption of veracity that gives all photographs authority, [in fact] photographs are as much an interpretation of the world as paintings and drawings are” (Sontag 1977:6-7). However, the viewing public, it seems, was convinced right from the start that photographs depicted the external world more accurately than painting, simply because of its mechanical nature. For this reason, a black-and-white photographic print of a Chinese landscape was considered, by the average nineteenth-century European viewer who had never travelled to China, to be much more accurate than a colour painting (even a painted stereoscopic view) of the same scene. This was despite the existence of highly realistic painting (a style that later became known as Photorealist painting)—early examples of which pre-date photography—and which were often traced from images projected by a camera obscura. Figures 2.18 and 2.19 illustrate two such works, although whether they were created with the aid of a camera obscura is not known.
Even as relatively recently as 1954, Sir Leigh Ashton, Director of London’s Victoria and Albert Museum (V&A) observed: “photography is a purely mechanical process into which the artist does not enter” (Spencer 2000:91-92). Ashton’s attitude was a reflection of the prevailing view in that era and partly accounts for why it was widely believed that photography represented the real world more accurately than did other media. Former curator of photographs at the V&A, Mark Haworth-Booth says that “… it wasn’t until… the 1960s that we realised that photography wasn’t always necessarily the truth….” (Spencer 2000:93), considering television to be a major influence on that realisation. One might speculate that being a visually literate person (due to his professional role) Haworth-Booth might not be reflecting a view held widely in the population but merely expressing a view held amongst his peers.
As this section will show, it is commonly believed there is minimal human intervention in the making of a photograph. This view is still held for some types of photographs, though it is a notion that does not take into account the decision-making processes that go into selecting which view to capture, which direction to face, whether to stand, sit or lay on the ground, then framing a photograph in a viewfinder, and a myriad other considerations that all photographers make, whether consciously or unconsciously. The techniques and mechanics of capturing an image, which supposedly represents reality truthfully, are no different to those used to capture an image which is untruthful or unreal. It is thought that Ut’s photograph of a burnt Vietnamese girl running from a napalm attack (Figure 3.1)—an image that became an icon of the 1960s and 70s—was partly responsible for a change in attitude of United States’ citizens towards their country’s involvement in the war in Vietnam. The public was not informed that the attack was so-called “friendly fire” resulting from the South Vietnamese Air Force (US allies) dropping US-made bombs on civilians (Louth 2000:10-11, Durrer 2008:5-7). Sontag (1977:17) suggests that a photograph “…cannot make a dent in public opinion unless there is as appropriate context of feeling and attitude” but that it can help prompt a nascent moral position. It is also not widely known that Ut’s photograph has been retouched to render the genital area less sexual, and cropped to remove a film-cameraman from the right hand side. Not only does this photograph depict hidden truths of the event, it is also a manipulated photograph—which itself hides some truth.

More recently, live television coverage of planes flying into building towers in New York (USA) in September 2001 may have increased fear and paranoia about terrorists attacks on civilians of that country but would the images themselves have been as powerful without the emotive vocal commentary that accompanied the images? For, as Adams (2002) observed, “…the destruction of the twin towers was deja-viewing—because we’d seen it all before in Hollywood blockbusters. As had the terrorists who perpetrated the attacks”. Similarly, Tarrant (2000a) believes that:

While violent (cinematographic) films may prompt antisocial copycat behaviour, it does not seem possible that a still photographic image could invoke a similar reaction from a viewer. Yet a photograph of a scene of starving children could inspire a sympathetic public response. (Tarrant 2000a:9)

The emotive response of viewers to images is influenced by words accompanying the images (written or spoken)—often much more than the images themselves. Most people only see reproductions of photographs of world events, not the actual photographs; while the actual photographs they do see are usually snapshots.

Jenkins (1999:3) believes that “Photography is the most powerful of all the purely visual arts, and that that power derives mostly from its direct connection to reality.”
He believes this to be the case because light rays reflect off real objects then pass through a lens to form an image on film. This seems to coincide with the view of nineteenth-century viewers who saw the hands-off characteristic of photography as significant enough to allow veracity to be perceived as greater in photographs than other media. Taking a slightly different tack, Hashizume (1999) thinks that, when an image is manipulated, it is the viewer who is being manipulated and that they are hoodwinked or somehow cheated—finding manipulation especially offensive when designed to have an emotional effect on the viewer. His writing also implies that a photograph taken using traditional methods is less likely to have been manipulated than a digital image and therefore has greater veracity. Jenkins (1999) emphasises his point by proposing that the reason the detailed drawings and highly realistic airbrushed illustrations used in advertising in popular American magazines of the 1940s and 1950s were replaced by photographs, was “[b]ecause of the greater perceived veracity of photographs, which helped authenticate the products” (Jenkins 1999:17). He also argues that the widespread practice of “touching up” advertising images would have further consequences, since the “[e]merging public scepticism will weaken the power of other kinds of photography as well, because the power of photography does indeed depend on an implied contract of truthfulness between the photograph and the viewer” (Jenkins 1999:17). Arcuri (1999:19) disagrees with Jenkins’ view saying “There is no ‘truth’ in photography”, listing the change of apparent size of objects, the superimposition of grain on the image, and changes to object perspective as fundamental characteristics of photographs which exclude it from being a truthful representation of the external world. Whereas Greely (1999:21) suggests there might be two different types of honest photography: one type produces a view which a bystander might have experienced (had they been present when the photograph was exposed) and the other is an image made to represent a scene that might exist, one which is physically and optically feasible, but which does not exist in fact, such as Henry Peach Robinson’s classic example of Victorian sentimentality *Fading Away* (Figure 2.20)—a composite image created from five separate negatives.

Whilst the contrived nature of Robinson’s work may have passed unnoticed in Victorian times, modern audiences are equally accepting of the literalistic nature of photographs, as Lucie-Smith (1998) notes:

> From the beginning photographs fascinated by their literalism [but] while we now, in the digital age, have been taught to mistrust the veracity of photographs, we still cling to a simplistic contrast between photographic literalism...[and other forms of images]. (Lucie-Smith 1998:3)
There is a difference between being “taught to mistrust” (which implies brainwashing, or at least some mild form of sinister manipulation) and coming to a logical conclusion about mistrusting. It is hoped that the majority of people who question photography’s veracity came by the latter route, not the former, in establishing mistrust in photography’s veracity.

One of the earliest written records of a view on photography’s role as a recording media comes from an active nineteenth-century female photographer and art historian, Lady Elizabeth Eastlake. Writing in 1857, one year before Robinson composed *Fading Away*, Eastlake said that photography will “give evidence of facts, as minutely and as impartially as… only an unreasoning machine can give” (Eastlake 1857). Whilst she ignored the role the photographer plays in the exercise—such as in composing the picture, selecting the subject matter—she also failed to observe that the ‘facts’ recorded in the photographs she studied were black-and-white renderings of coloured objects. In so far as this single detail is concerned, therefore, the facts were changed in the photographs (Slemmons 1989:1).

Slemmons suggests 1975 was a particularly significant year in photographic history, since it was in this year that the veracity of photographs was first seriously challenged. He argues that it was writers such as Sontag3 (1977) and Barthes (1977, 1981, 1984) who “brought serious philosophical attention to bear on the power of all photography to manipulate our view of reality” (Slemmons 1989:2). Even before Slemmons, Snyder and Allen (1975) suggested a poverty of photographic criticism existed until 1975— which may be no less poor today according to Maynard (1997:ix)—and proposed that

3 Sontag’s essays on photography were first published in 1973 in *The New York Review of Books*. 

![Figure 2.20 Fading Away (1858) by Henry Peach Robinson](image)
“To end this poverty we do not need more philosophizing about photography and reality…” (Snyder and Allen 1975:169). If that is the case, it still took another ten years (perhaps twenty)—plus the widespread uptake of digital imaging—before that message got through to the general public. Even today, the idea that reality is changed in photographs is still not a view that is widely held, even amongst photographers themselves. Slemmons (1989) may be right when he says:

> Because photographs so effectively establish the illusion of pure, unmanipulated representation, we are tempted to accept them absolutely. They cause us to trust our eyes at the expense of our analytical powers… (Slemmons 1989:4)

Unfortunately, the supporting arguments by Slemmons suggest he is not sure exactly why this might be the case, although he does propose that “[b]ecause of its peculiarly direct way of arresting time, photography is an incisive tool for promoting, lamenting or simply recording change” (Slemmons 1989:4) and to some extent that is what historians use photographs for—to measure changes over time. Slemmons also notes that early photography was not free of manipulation and uses the term “directorial mode” (Slemmons 1989:9) to describe the act of changing the “facts” in front of the camera before the picture is taken. This is not dissimilar to what the Cottingly fairies photographers (Frances Griffiths and her cousin Elsie Wright) did in 1917 (Figure 4.8, or Arthur Rothstein when he allegedly move the animal skull onto parched earth in 1936 (Figure 2.21). Slemmons describes how “Early documentarians often altered the impartiality of their evidence by directing their subjects or by doctoring photographic plates or prints afterwards”, as was shown in Chapter One, then seeming to contradict himself, Slemmons also says:

> Given that each exposure is made by a socially conditioned individual who selects a precise time, place, and angle of vision, it is unlikely that any photograph can contain an unbiased version of what was in front of the camera. (Slemmons 1989:9)

![Figure 2.21 Bleached skull of a steer (1936) by Arthur Rothstein](image)
So far, the majority of commentators reviewed have not been practicing photographers of renown, or photographers at all, so it is appropriate to consider what photographers themselves have said about the issues raised. In an attempt to partially answer this question, Carothers and Roberts (1989) asked the photographers they invited to submit work for their book to provide a definition of photography. The following are typical photographers’ responses:

**Les Krims:** “Photography is a process with which one can most easily produce the best two dimensional illusion of reality possible.” (Carothers & Roberts 1989:27)

**Joel Meyerowitz:** “Photography describes what awareness observes.” (Carothers & Roberts 1989:28)

**George Tice:** Photographs are a “way of making pictures that are more realistic than any other medium.” (Carothers & Roberts 1989:29)

As we have seen, there are almost as many ideas about what a photograph is as there are photographers and commentators to express an opinion. The next section analyses how photographers, critics and other commentators of photography—the people Coleman calls the *Gatekeepers*[^4] (Coleman 1988:11)—have interpreted reality and the depiction of reality and unreality in photographs, and attempts to summarise the views put forward by the key practitioners and principal critics of photography itself. The challenge this task presented can be appreciated when we consider two sets of opinions published just eleven years apart. Carothers and Roberts (1989a), for example, say: “One of the reasons why photography is so popular and easily accepted is because it mimics reality” (Carothers & Roberts 1989a: 24), whilst Tarrant (2000b) argues that “…blindly believing that [photographs] can ever be totally accurate is sheer folly” (Tarrant 2000b: 9). The next Section synthesises the views of photographers (and others) in relation to this issue and a detailed analysis, using a chronological organisation based on the working life span of the relevant photographer, is presented as Appendix A.

### 2.6.1 Up until now

Since the advent of the photographic process, the physical and mechanical nature of the technology (along with the inherently high level of resemblance to the subject the resultant image might suggest to the viewer) seems to have produced a widespread belief that a photograph provides a truer rendition of the external world than any rendition created through drawing or painting. However, in studying the literature, it became apparent to the author that there were essentially four “schools of thought”

[^4]: Coleman uses the term “gatekeepers” to apply to historians, critics, curators, gallery owners, editors, publishers, etc., as participants in photography who influence the “popularity” of certain images.
into which the debate about how photographs depict reality could be divided:

- Photographs do indeed depict reality.
- Photographs do not depict reality.
- Some photographs do depict reality—but some don’t.
- There is a distinct version of reality that is created, provided or produced by photographs.

Working from the beginning of photography, Table 2.1 summarises the published comments on the relationship between photographic veracity and reality. If Alasuutari’s (1995) claim is correct (that asking the question can bias the answer), and common sense leads one to believe it is, then taking the published words of photographers, critics, and other commentators on photography seems an ideal method of getting answers to the research question—since the statements of belief predate the questions. Thus, the search of published material used for this retrospective survey allowed no room for bias from the “questioning” process. Full details of these data are provided in Appendix A. The three main rows of Table 2.1 are divisions into photographic “eras”. Interestingly, the centenary and the sesquicentenary of the announcement of photography also coincide (roughly) with key turning points in the understanding of photography’s role in depicting reality. The numbers in the columns indicate the number of “gatekeepers” (photographers, critics, commentators, etc.) counted in each era and a total is given at the bottom along with percentages of the total per category.

<table>
<thead>
<tr>
<th>Table 2.1 Photography’s role according to the gatekeepers</th>
</tr>
</thead>
<tbody>
<tr>
<td>First 100 years 1839 – 1939 n=29</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Next 50 years 1939 – 1989 n=46</td>
</tr>
<tr>
<td>After 1989 (~2002) n=17</td>
</tr>
<tr>
<td>Totals (n=92)</td>
</tr>
<tr>
<td>Percentage</td>
</tr>
</tbody>
</table>

Table 2.1 shows that during the first one hundred years of photography the majority of commentators (21 of 29, 72%) believed photographs accurately depicted reality. In the following fifty years the majority view (20 of 46, 43%) had shifted to there being
a special or distinct photographic reality, yet a significant number (13 of 46, 28%) of commentators continued to believe that photographs accurately depicted reality. After the sesquicentenary period (1989), and coinciding with the advent of digital imaging, there is a significant shift (8 of 17, 47%) towards a belief that photographs do not depict reality. However, when the rows are divided equally into fifty-year periods (Table 2.2) the results are not quite so skewed.

Table 2.2 Photography’s role according to the gatekeepers – 50 year periods

<table>
<thead>
<tr>
<th></th>
<th>Photographs DO depict reality</th>
<th>Photographs DO NOT depict reality</th>
<th>SOME photographs depict reality</th>
<th>DISTINCT photographic reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1839 – 1889 n=13</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1890 – 1940 n=16</td>
<td>9</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>1941 – 1991 n=48</td>
<td>13</td>
<td>6</td>
<td>8</td>
<td>21</td>
</tr>
<tr>
<td>After 1992 n=15</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Totals (n=92)</td>
<td>37</td>
<td>18</td>
<td>13</td>
<td>24</td>
</tr>
</tbody>
</table>

Broken down this way, the data continues to suggest that even amongst practicing photographers—people who would be expected to have considered the connections between their medium and the external world to a greater extent than the general public—the belief in photography’s ability to depict reality has remained widespread and has not significantly diminished (or only slightly so) in recent years. Again this leads to the question: what is truth in photography?

2.6.2 Truth

Implicit in an understanding of the veracity of photographs is the question of truthfulness. Some writers (for example, Berger and Mohr 1982:98) believe that the truthfulness of photographs depends on the context in which they are used, and the way in which they were produced. For example, there arise (from time to time) questions about the ‘truth’ of NASA’s first lunar landing photographs of July 1969 and those of later missions. In relation to this debate, Tarrant (2001b) observes that:

The significance of all this [debate about faked lunar photographs] is the need to establish provenance in a picture before getting too bogged down with its validity. Anything obtained today could have been faked at anytime and for any purpose—a fact that applies to pictures of many more things than just lunar landings alone. (Tarrant 2001b:3)

Some of the lunar conspiracy theories suggest that it is not image manipulation that
occurred but staged events that have been photographed (NASA 2001)—another way of falsely depicting the world in photographs. The use of photographs reinforces for the unsuspecting viewer the likelihood of the truth value of the image; that is, photographs are used instead of some other medium to convince the viewer because there is a high level of veracity associated with photography and this, therefore, serves to complete or enhance the subterfuge. What is shown to the public, and what is withheld, is broadly termed censorship. Censorship is usually associated with the banning of obscene or offensive material by an authority which purports to protect the populace from undesirable influences and can be benign: “driven by honest intentions to preserve national security or morale”, or malicious: “as a means of deception to undermine the rule of democracy” (Buchanan 2000:60). Censorship may take many forms, such as when works of art are removed from gallery walls, when literature is banned or when art books are seized from university libraries (Golden 1998d:3).

In the United Kingdom, the Obscene Publications Act was passed in 1857 just as photography was becoming popular amongst the general public as a leisure pursuit. The act was designed to ‘protect’ the population from exposure to erotic and pornographic pictures—since photographs “of a sexual nature were openly on sale in opticians’ shop windows as early as 1850” (Ashford 2000:66). However, photography (and other visual artforms) provides for other types of censorship, for example:

i) that which is omitted from the scene by the photographer;
ii) selecting one image instead of an almost identical one (Malcolm 1997:134-135) (Figure 2.22) (Batchen 2002:83-106);
iii) emphasis of certain elements over other elements within the same image;
iv) what is shown or left out of an exhibition, a publication or a collection;
v) what is ‘left unaltered’ or changed of perceived reality.

Figure 2.22 Alabama Cotton Tenant Farmer’s Wife, 1936 (left) and Allie Mae Burroughs, Hale County, Alabama, 1936 (right) by Walker Evans
A slight change in the subject, or decisions about what is left out, may not matter much, but sometimes it can be significant. Ian Buchanan (2000) argues that

The very act of photographing is also consciously or unconsciously one of censorship in which the photographer chooses the viewpoint and what to include or exclude, and the choice made can warp the truth, particularly if used in conjunction with an inaccurate or deliberately misleading caption. Similarly, the use of lighting, exposure, development and printing skills can emphasise or repress elements of a picture to create a desired impression or effect, although these effects are generally too subtle to amount to a level of censorship that would restrict the liberty of others. (Buchanan 2000:61)

As we have seen earlier, the manipulation and editing of photographs, which began even before the advent of computers and imaging software applications, has long been used as a form of censorship. Computer manipulation is no more, or no less, than a new technique for photomontage. It is not computers that may have diminished the belief in photograph’s veracity in recent years, it is images produced on them, and they have merely pointed the way for the public to ascertain that photographic-like images may not be truthful. Kac's (1995) ideas are misleading in that he says “computers seem to have demolished photography’s truth ambition” (Kac 1995:2). However, even attributing a role to computers in the diminution of photography’s veracity is to suggest that photography had high veracity before computers appeared.

2.6.3 Subverted veracity

Painter and photographer, David Hockney believes photography no longer has a claim to veracity, pointing out that there is a growing “…knowledge that the lens is losing its documentary veracity. Photography can easily lie with the help of computers” and he goes on to say “…both the photograph and reality itself are being called into question” (Hockney 1998:74). It is not just with the help of computers that photographs can lie—as history shows (Figures 2.10 and 2.20).

Despite “attempts to subvert” (Solomon-Godeau 1991:187) the veracity of photographs by creating photographs that did not confirm the viewer’s experience of the external world (a technique shared by Dada, Surrealist, Constructivist and Productivist photographers in the USSR and elsewhere—and by photomontage practitioners since) these experimental photographic practitioners, in part, actively contributed to the formation of our modern view of the external world and photography’s role in that world. If nothing else, by their mere existence, the works of these and other photographers using similar techniques reinforced the veracity of “straight” photographs. Marien (2002) says that “[b]y the nature of its production techniques, digital imaging seems to have undermined the authority of the traditional photograph as an index of the material world” (Marien 2002:495), although it could equally be said that by experimenting with its own production techniques, conventional photography did it to itself.
It can be deduced from the thoughts of the photographers and authors quoted above (and those detailed in Appendix A) that for those who believe photographs do depict reality, there is still a further subdivision that can be identified—those who also equate reality in photographs with a truth therein—and those who believe that photographs do depict reality but that the truth can be altered, covered up or in some way changed. This does not leave a firm support from which to draw definitive conclusions regarding photography’s veracity.

2.6.4 Grains of salt, grains of truth

There are many ways to describe what a conventional photograph is, much of it metaphorical. Physically, most conventional photographs are pictures made up of grains of silver developed to a range of shades of grey to produce an illusion of continuity. Sometimes the silver is replaced by a different metal during the processing, and other metals, chemicals, and dyes have been used in the past. If the photograph is in colour, dyes substitute for the grey tones (formed in silver) proportionately, as part of the processing. Mitchell (1992:4) defines this photographic image-formation as continuous or analogue imaging. In contrast, newspaper and magazine pictures are made up of solid, clearly identifiable, individual ink dots to form an image and are thus digital in nature; as are pictorial tile mosaics. Vasilescu (2002) points out that:

A mosaic is never a proper picture. It is an illusion: a conglomerate of separate coloured bits, cleverly arranged so that from a distance they may appear as figures drawn with continuous lines. (Vasilescu 2002:232-233)

The similarity between pixels and mosaic tiles is expanded in Wade (2004). The mosaic form of picture-making is discrete or digital and modern digital images are formed by pixels that equate to mosaic tiles. In analogue photography there are continuous gradations between the darkest silver grains and the lightest grains, whereas in non-analogue images there is discrete separation between each picture element (pixel). Mitchell likens an analogue image to a ramp and a digital image to steps (Mitchell 1992:4).

Other metaphors have been used to explain photographs. A marble slab is the analogy used by Burgin (1999) to describe a photograph by Helmet Newton (1920-2004) because it “annihilate[s] colour, movement and sound” (Burgin 1999:52) from the external world. The same description can be applied to almost every photograph, except that marble slabs usually have greater weight than photographs and a coldness to the touch; what Burgin (1999) means is that photographs only record the visible aspect of the external world, eliminating all other aspects. However, that is not the only change to the appearance of the external world that photographs make. As we have already seen, it is in the process and practice of creating photographs that photographers make
subjective judgements with each exposure: “what to focus on, how to compose the picture, when to click the shutter, which image to print from the contact sheet, how to caption the image, and so on” (Golden 1998a:10). Although incomplete, Golden’s list makes clear the interpretative and subjective nature of the photographic process and, to an extent, it suggests that the photographer’s input is also governed by the photographer’s intended outcome. In determining how intended outcome is arrived at, we must take into account two prime movers: the characteristics of the photographic process, and the intent of the photographer.

2.7 Some characteristics of photographs

This section explores several characteristics of photographs to demonstrate how they aid or preclude veracity although, for practical reasons, it cannot be an exhaustive list. It also explores the nature of intent and some aspects of the ways in which human input influences outcomes.

2.7.1 Shutter mechanics

Different cameras have different types of shutters: leaf, between-the-lens, focal plane, electronic, etc. The shutters of some systems are in the lens, some have blind shutters located on the focal plane. Focal plane shutter openings have different effects on an image depending on their speed and direction of travel in relation to the direction of travel of the object photographed (Saxby 2001, Tarrant 2002).

When a focal-plane shutter aperture moves in the same direction as a moving subject, the [subject] is elongated [in the photograph]; when it moves in the opposite direction the [subject] is compressed [in the photograph]. (Tarrant 2002:7)

Figure 2.23 shows the effect of a horizontal-travel shutter blind: the car in the image (left) is shortened when the shutter travels in the same direction as the panning motion of the camera. Turning the camera 180 degrees allows the shutter to be considered as travelling in the opposite direct when all other actions remain unaltered and the car is consequently lengthened (Figure 2.23 right). Similarly, Figure 2.24 shows the effect of a vertical-travel focal plane shutter that moves from top to bottom (of the picture area on correct viewing) while the photographer pans the camera left to right during exposure, as explained by Newhall (1997)

[s]ince the image is inverted, the bottom is exposed before the top. Lartique [the photographer] (1894-1988) panned the camera to keep the car in focus [sic]. This motion caused the people’s feet to be exposed before their heads. (Newhall 1997:216)

The strange distortions evident in the Lartique photograph are caused because the lower sections of the wheels were exposed before the top sections and the left before the right. Compression is evident in the spectators, the car wheel and driver since the picture is exposed upside-down in the camera. These sorts of visual effects are by-
products of photographic technique and equipment, they demonstrate effectively an aspect of photographic seeing which does not occur for humans in the external world.

Figure 2.23 Effects of horizontal-travel shutter

Figure 2.24 Effect of vertical-travel shutter (Lartique)

Shutter mechanics control the exposure of film so that a range of effects can be achieved. A familiar example of the extremes of this range can be seen in the stopped motion or veil-like movement of water as different shutter speeds are selected. Figure 2.25 shows the appearance of water when a faster shutter speed is employed whereas Figure 2.26 demonstrates the appearance of the same scene when a slower shutter speed is used.

Shutters freeze action which the eye cannot see (Lister 2000:319), the milk splash photographs from the 1900s, of Worthington (1852-1916) (Darius 1984:54), and later Egerton (1903-1990) (Figure 2.27a); and the bullet passing through an apple by the latter (Figure 2.27b) are examples of photographs depicting events the human eye cannot detect. But to varying extents all photographs show things the human eye cannot see.
2.7.2 Shutter exposure

Early photographs were made without shutters, the light sensitive plates being exposed at first “…for hours, then minutes…” (Maynard 1997:134) by removing a lens cap. At the beginning of photography, “[d]ue to the slowness of exposure times, only a slight movement of the subject’s head was enough to result in an unsightly blur…” (Batchen 1997:10, Miles 2008) unless a support was available to hold the sitter’s head steady. Later, with the development of faster emulsions, movement could be frozen, which required the introduction of controllable shutters. With this emerging control over the process came further experimentation with painting-with-light techniques and scanning methods (panorama cameras, horse-race photo-finish cameras) being used.
alongside short exposure methods—measured in fractions of a second—that also show situations humans cannot see. It was soon realised that there are many application where photography “…has the integration property that faint images can be recorded and summed over several hours if necessary” (Welford 1991:91, 94, Darius 1984). This gradual build up of complex or multiple images over varying amounts of time is something of which the human eye is incapable. Time-lapse still photographs, depicting movement over time, have long been acknowledged for both their scientific and aesthetic properties. These may take such forms as:

- several pictures of an event unfolding, (Figures 2.7, 2.28)
- blurred motion, (Figure 2.29)
- discrete steps within a single frame. (Figures 2.30, 2.31)

Figure 2.28 Serial photographs of a shrimp diving for food (1977) by Michael Shapter
Figure 2.29 *Greeting!* (1911) by Antonio Giulio Bragaglia

Figure 2.30 History of the jump (1884) by Thomas Eakins
Clearly, the way any spectator at the scene saw any of this motion differs considerably from the way the scene appears in the photograph. Photographs of scenes without any motion (architectural, some landscapes, still life studies of fruit, and the like) may retain an amount of veracity when judged against the appearance of the external world, but all scenes with motion present immediately lose veracity when those scenes are photographed as still images.

2.7.3 Emulsions
Compared to the projected image produced by the camera obscura (which has both colour and motion), many early photographs were tiny (Talbot’s were negative) and lacked “…colour, movement and fineness of the optical image… as well [as] the range of brightness differences in the camera image…” (Maynard 1997:153). With early emulsions, the formation of the highlight areas occurred before the formation of the shadow areas was complete. While this is still a consideration with exposures made using modern material (known as reciprocity failure) the effect has been minimised by optical and chemical filters in the lenses, film emulsions, and film-processing developing-chemicals that were not available to early photographers.

As well, emulsion thickness has an effect on the appearance of the final photographic image and this might result in, amongst other effects, lowered resolution or fogging.
from an halation effect. The emulsion of the film also determines whether the image is formed in colour or black-and-white and greatly effects the overall tonality. Finally, the emulsion also determines whether the image produced in the initial stage is positive or negative—if a negative is produced a subsequent re-exposure onto another emulsion is needed to render the image positive, if that is desired.

**The Hershel effect**
The Hershel effect (discovered by Sir John Hershel in 1839) describes the action of wavelengths of light on silver salts. Silver salts are more sensitive to short wavelength light (ultraviolet to blue) than to long wavelength light (red) and “red light actually inhibits the action of the very short violet” (Maynard 1997:79). Early photographic emulsions were orthochromatic (sensitive to blue light, and not red) as shown in Figure 2.32, so they rendered a scene differently to what a viewer would see (human eyes filter short wavelength light) in that green appeared dark and the sky white (Eastlake 1857). Slemmons (1989) describes this effect as resulting in “The naturally white skies of the early images (due to the tendency of orthochromatic emulsions to over expose blue)…” (Slemmons 1989:3) As a consequence, the printing techniques and styles of the era were influenced by the characteristics of the available emulsions:

As a result of technical limitations in the chemistry of the plates, nineteenth-century photographs emphasised the dark and light tones in the subject at the expense of the middle tones. (Willats 1997:158-9)

This led to higher contrast tonal ranges in prints of the period and an excellent example of this influence can be seen in the work of Le Grey (1820-1882) who printed many of his seascapes from two negatives; one exposed for the sea and the other for the sky (Figure 2.33). It is important to note that it is not recorded whether he mixed skies from different times or places with the seascapes (Barnes 2003).

![Figure 2.32 Response curve for typical daguerreotype emulsion](image)
2.7.4 Multiple exposures

Multiple exposure of photographs comes in several forms. A single frame of film can be subjected to more than one exposure in a camera; or several negatives (or slides) can be exposed on one sheet of printing paper, either sandwiched together or exposed sequentially to build up an image. In photography this is often referred to as photomontage, whereas montage or collage is the formation of pictures combined from separate sources (pasted together, perhaps) and re-photographed. McIntyre (1998) mentions several methods of producing multiple exposures including dodging and burning-in; darkroom tools which photographers commonly use to enhance, hide, highlight and fuse elements of their pictures. Computer software applications ape these effects and, today, offer some advantage over traditional printing techniques since similar results can be obtained quite easily. However, in many instances the darkroom version produces better, and more subtle effects. Ephraums (1998:24) notes: “Burning-in and dodging are the two most commonly used printing tools…” and describes a printing technique based on these that uses variable contrast photographic paper and different contrast filters to alter the relative contrast of different areas of a picture to affect the overall balance of the picture. Significantly, combining picture components from disparate locations or times, in any way, renders the scene(s) photographed, incorporated, and deliberately altered different from the appearance of the external world. Printing techniques such as combining negatives, burning-in and dodging are often used to render an image more realistic; compensating for photographic shortfalls—but the nature of the effect, when added to the photographic nature of the end-
product, can never reach the same extent as is offered by the scene in the real world.

2.7.5 Lens, light and filters

These three aspects of photography are dealt with together because they inter-relate significantly. For instance, the lens “bends various rays of light at different rates”, red is refracted at a different angle to blue, and to avoid colour fringing the various wavelengths need to be brought to focus at the same point (Carothers & Roberts 1989a:25). This is achieved within the lens by coating glass surfaces with optical filters. Surface coatings are also used on lens elements to reduce glare and internal flare, as well as to reduce the transmission of infrared and ultraviolet wavelengths of light. Lens flare is a characteristic that humans do not see from the external world so when it appears in photographs it must be considered ‘un-realistic’, and mitigate to lower veracity (Miles 2008:201).

In addition to the manufactured optical filtration, photographers may choose to alter the appearance of the subject by incorporating other filters into the light path. These filters may be used to more closely approximate the appearance of the external world, or to radically alter the appearance of the external world. For example, a polarising filter will reduce the glare in sky areas of an outdoor scene and render the sky more accurately blue (on colour film). This change may better represent the scene the photographer encountered than the film can capture without the filter. Without the polarising filter the film might show a washed out sky that would appear too bright or too white (or pale blue) due to haze. In using a polarising filter in this way, the aerial perspective could also be changed (reduced) and thus render the scene in the external world differently to how an observer saw it at the same time. Conversely, a red filter used with black-and-white film will render the blue sky dark grey. Both the advantages and disadvantages in appearance of the resultant images are underpinned by the fact that because the image no longer represents the scene as visually accurate, the veracity is lowered.

Other methods of so-called image enhancement such as:

i. graduated filters,
ii. special effects filters,
iii. all coloured filters used in black-and-white photography;
iv. light reflectors and fill-flash, and
v. post development chemical treatments (e.g. Potassium ferricyanide to reduce density)

are used, often, to render a scene, apparently, more realistic. The resultant photographs may achieve the visual effect the photographer set out to achieve, but they cannot, in
most cases, match the dynamic ranges of the external world, therefore the veracity of the resultant photographs is lowered.

2.7.6 Resolution
It is true to say that some film and lens combinations render subject detail in photographs more acutely than the human eye can discern in the external world (Williams 1990). The same can be said of the camera’s ability to magnify the detail of the external world beyond what the human visual system can achieve, as in macro- and microphotography. But in so saying, it can also be said that by doing this, the veracity of the external world transcends that of photography, or as Malcolm (1997:21) puts it: “Optical sharpness, after all, is more an attribute of the buzzard’s than of the human eye.”

The resolving power of film differs with type and manufacturer but the resolution of photographic film is “orders-of-magnitude” greater than digital capture devices can provide (Welford 1991:91, 94). Typically, six- to twelve-megapixels (million picture elements) is claimed for the best single-lens-reflex digital camera (the Nikon D3X claims 24.5 megapixels in 2009) versus ninety million picture elements (silver grains) for a 35mm Kodachrome transparency. The human eye has about a million cones and a hundred million rods (which can be regarded as picture elements) in each retina. These converge upon about one million fibres of the optic nerve (Gregory 1998a:793). Therefore the resolution of the human eye may commence at about one hundred and one million pixels (slightly high than Kodachrome) but is reduced to one million at brain level; less than the six million available with older high-end digital cameras, and far less than film.

Lens quality, likewise, varies from manufacturer to manufacturer, and with different types of lenses. For example, zoom lenses offer a compromise in resolving power to enable the provision of a range of focal lengths. Similarly, resolving power is reduced to enable larger aperture openings in lenses to facilitate photography under low-light conditions. All lenses have one point of optimum resolution that does not extend through the full focusing range, or aperture range, within that lens; and aperture size affects resolution. Whether a lens, or a photograph generally, offers the viewer a clearer view or a blurrier view of the external world, neither provides an accurate view when compared to the human visual perception system and again, veracity is lowered.

2.7.7 Focus
A camera lens is monocular whereas the human viewing system is binocular. Focus is a characteristic of lenses. The human equivalent is accommodation, and differs significantly from focus, although the terms are often used to mean the same thing.
Blur describes one characteristic of focus, the other is sharpness. Blur in a photograph can be foveated and scrutinised whereas blur cannot be foveated with viewing in the external world. Blur as a depth cue is learned from photographs (O’Shea, Govan & Sekuler 1997:610) and by extension so is focus, and that is probably the origin of interchanging the terms. Put simply, focus refers to the camera lens rendering a ‘sharp’ image of some objects in a picture (Wells 2000:258-259), while objects outside that plane of sharp-focus appear blurred. In human binocular vision, objects beyond the area of sharpness appear double (see Figure 2.34). This is clearly demonstrated by holding up one finger at eye-level then shifting focus with both eyes from the finger to an object in the background and back to the finger. Human monocular vision, however, gives a very similar result to that achieved by a photographic lens.

![Figure 2.34 Simulation of focus (or accommodation) in human vision](image)

### 2.7.8 Shape

Shapes in the external world can alter when presented in a photograph. Discussing the matter, Hamilton (1998:15) says photographs convert three-dimensional reality into two-dimensional form, flattening the world into an arrangement of shapes. Black-and-white photographs, for example, always reduced the external world to a pattern of black, white and grey shapes that remind the viewer of a probable scene from the external world—perhaps one they may never see for themselves. Colour photographs do the same with patches of coloured dye and shading—gradations of hue, chroma and saturation. Black-and-white photography, as a modern artform, is about intentionally creating pictures that look good in black and white (Malcolm 1997:80-81). It is, to some extent, what divides snapshotter (who predominantly use colour film) from artists (who chose one or the other). Yet while colour films also reduce the three-dimensional world to shapes, or patches, of colour, they provide more visual information than black-and-white films, although it is essentially the same net effect. It is the shading associated with these shapes which gives both black-and-white shapes and colour patches (marks on a surface) some of the depth cues that the viewer may use to separate the two-dimensionality into an illusion of three-dimensionality.
2.7.9 Reproducibility, multiplicity

Describing the, at least, “thirteen hundred original prints” of Ansel Adam’s *Moonrise, Hernandez, New Mexico* (Figure 2.35), Batchen (2002) points out that “there is no fixed point of origin” for the photograph, meaning that “neither the negative nor any one print can be said to represent… the entity” which is that particular photograph (Batchen 2002:152). However, the negative has a primacy that subsequent prints do not possess. Yet, if there is no original there cannot be a faithful copy. Each negative of a scene, including those adjacent on the film strip, and each print from a negative is unique, is different, “even if this difference is not immediately discernible to the eye” (Batchen 2002:154).

Figure 2.35 *Moonrise, Hernandez, New Mexico*, (1941) by Ansel Adams

In Australia in the 1970s, photographer Gordon Delisle was sued by a major petrol company because they believed he sold them an original photograph of a shiny purple Uluru (Ayre’s Rock) photographed after rain, which they found was also owned by another company. Delisle won the case because he could demonstrate both pictures were unique and separate frames (even if almost identical) side by side on the roll of film. The multiplicity of photographs is relevant to a discussion on veracity because, along with veracity, it is one of the components that was believed—and still is by some—to exclude photography from being high art. On the one hand, there is an artificiality about having more than one example of a scene from the external world because the external world is an ever-changing array. On the other hand, there could exist multiple copies in paint or marble (or any other media) of the external world, and while still offering an artificiality, these would not detract from the veracity of their representation in this regard. In both cases the veracity of the external world is lost not only in the representation of it, but in the creation of multiple versions.
2.7.10 Angle of view

Two types of angles of view apply in photography—the angle of subject coverage provided by the lens and the angle at which the photograph is viewed. In his discussion on how humans see the external world, Brackenbury says: “We view a scene through the biological equivalent of a camera fitted with a ‘standard’ lens…” (Brackenbury 1998:14), and he adds that other living creatures do not necessarily see the external world this way. Of course, the standard lens was designed for photography because it approximated human vision, not the other way round as Brackenbury implies. Photographs taken with a camera fitted with a standard lens result in pictures that resemble the angle of view of human vision—no other aspect of photography does, because other parameters or considerations such as focus and depth of field found in a photograph do not have an equivalent in human vision. Lenses other than the standard lens provide angles of view that humans cannot attain (see Figure 6.2).

The second type of angle of view applies to the way the finished photograph is viewed; and to a large extent where and how it is viewed. In viewing photographs (or other two-dimensional images) the viewer experiences little distortion even when viewing the photograph from a position displaced from the camera viewpoint. Pirenne claims this is because the viewer computes the relative distance and slant of the two-dimensional surface then compensates for the distortion on the retinal projection and constructs a representation of a three-dimensional scene from the available data (Pirenne 1970:99-100). On this aspect of viewing, Shepard (1990) explains that the surface information has two opposing effects:

It decreases the deceptive three-dimensional reality of the portrayed scene… but at the same time, it increases the robustness or invariance of the three-dimensional interpretation of the picture under deviations from the perspectively correct vantage point. (Shepard 1990:193)

In either case, what the viewer has actually received on their retina is not how the original scene is viewed or interpreted.

The viewing space, or place, influences the message received from the photograph, as well as how it is seen and from what angle(s) it may be viewed. For instance, a photograph hung in a gallery draws a different reaction from the viewer compared to the same photograph if it were seen in a family album, or in a newspaper. Photographs in books, magazines and newspapers are no longer photographs yet are discussed by many authors, as well as here, as if they were. Gallery visitors may walk away from the photograph or move closer to it or view it from a range of angles, whilst the family album may be perused from the stationary comfit of an armchair.
2.7.11 Colour rendering

In recent years, colour management (in digital imaging) has become the realm of the image-maker more so than the manufacturer. With conventional photography there is an expectation that the film purchased from a major manufacturer through a reputable supplier (not necessarily the chemist shop or supermarket) will comply with predetermined standards and offer parameters which behave consistently under normal circumstances. Film has a ‘best by…’ date and recommended storage conditions, and if these recommendations are complied with, the film should react as the manufacturer and user desire. Traditional photography relies on matching film to light source-type along with recommended processing, for accurate colour reproduction to be a given. But even within the tight parameters for colour film, there are variations from manufacturer to manufacturer with the result that hues do not appear consistent from one product to another; and there is even variation in material from the same manufacturer (e.g. *Kodak Kodachrome*, now discontinued, versus *Kodak Ektachrome*). Taking the hue red, for example, photographs made on material manufactured by Kodak, Agfa, and Fuji will produce noticeably different renderings of a scene where, for example, a woman in a red dress stands next to a red fire truck. Agfa material will offer the best separation of the red hue variations in this circumstance and Kodak the worst. Conversely, Kodak offers better blues than Agfa; and Fuji the best green separation of the three (Langford 1989, Sleep 1999, Reichmann 2004).

While it can be said that colours (hues) in photographs do not appear the same as they do in the external world, it can also be said that colours in the external world do not appear the same, either under different viewing conditions or to different viewers (Gregory 1998c:1693). Colour is not a property of objects in the external world it is a property of the way humans see the external world. The viewer “can judge the colors and tones in a scene only as they are perceived after the operation of the tone and color constancies…” (Willats 1997:132) and colour constancies are subjective. Colour photographs appear differently under various viewing light sources (daylight, fluorescent, tungsten, halogen) but after a short time the human viewing system compensates and corrects this anomaly. Figure 2.36 shows that the appearance of colour can change within the same image depending on the background or surround colour (see also Figure 2.4).
Figure 2.36 Illustration showing the effect of colour assimilation. A reddish hue appears in the white squares on the left and a bluish hue in the white squares on the right.

It can be argued that black-and-white photographs don’t provide high veracity because the external world mostly appears in colour. The extension of that argument, that colour photographs offer higher veracity, may equally be invalid because the colour renderings are unlike those in the external world. The degree of difference, or variation, becomes crucial to the discussion if a belief in high (or unique) veracity is to be retained for photography.

2.7.12 Time shift

Of the motion picture image, Cavell (1979) explains “That the projected world does not exist (now) is its only difference from reality” (Cavell 1979:24). While that idea is open to question, the extension of the idea is useful. Applying Cavell’s argument to photography makes it clear that the time represented in the image (when it was taken) no longer exists therefore the photograph must be different from reality in this respect also. Even so-called instant photographs (Polaroid™—now discontinued) do not represent the current moment in time because there is a small amount of time between the taking and the viewing of the picture. With all other silver-based photography there is a longer delay between when the picture is taken and when it is seen. While this particular characteristic of photography does not have a great bearing on veracity, the average photograph-viewer does not always hold the idea (unless a very long time has elapsed, or Grandma has died), when viewing photographs, that ‘this is a picture of grandma the way she used to look’ even though it is a fact. In this case the rationale might be that humans age slowly, but the principle holds equally well for photographs of events that happen quickly such as horse racing results.

2.7.13 Surface structure

“Beyond the surface” is where Solomon-Godeau (after Rosalind Krauss) suggests that photographs lie whereas paintings or drawings (hand-made images) most often lay on
the surface of the paper or canvas; in other words, “the image in a photograph appears to be in it…” and not on it (Solomon-Godeau (1991:180). This is physically the case with colour transparencies where the image is, in fact, embedded within various layers between the two outer surfaces of the film; the image not only appears to be within the surface of the medium, it actually is within the surface of the medium, in three separate layers. There is no whole (complete) image, only layered parts of the image seen as a whole by illusion. The actual surface of a photograph has, or is, a smooth covering. Even stippled and matte photographic paper is smoother than a canvas or some drawing papers, and are a contrived product. The photographic image itself does not give rise to a textured surface the way oil paint can, it therefore lacks tactility and it never reproduces accurately the tactile nature of the objects in the external world. Even photographs of smooth, shiny objects only unintentionally simulate the real object. It is the smoothness and the shininess of the glossy print that more than likely prompted Burgin (1999) to see Newton’s photograph as a marble slab (Section 2.6.4). Thus the surface of a photograph offers no tactile link to the objects in space that may offer verity to the photograph.

2.7.14 Tonal Range
Related to the tonal range of a photograph is tonality. Tonality changes within a photograph and from print to print (even from the same negative) and is often produced in the darkroom by dodging and burning-in (as was discussed in Section 2.7.4). Tonal range is usually referred to as contrast and the tonality, or distribution, is given a value (i.e. high key/low key). The tonal range of a photograph has a co-relationship with density, which is in turn related to exposure. Importantly, universal changes can be made to tonality in the film process stage, whilst local changes to tonality can be made during the production of photographic prints, particularly in black-and-white photography—overall changes can be made to a print by varying the exposure to light, by using different contrast papers, or using contrast filters with variable-contrast papers. Black-and-white films respond differently to different wavelengths—Kodak Panatomic-X film, like Adobe Photoshop™, mimics the human luminosity response quite accurately (Livingston 2002:38) whereas Kodak T-Max 400 film reproduces reds darker than Panatomic-X does.

2.7.15 Brightness range
The brightness range of the external world can rarely be matched in a photograph. The brightness range of an outdoor scene “varies by a factor of a thousand” whereas photographic paper “varies by a factor of twenty at most” (Livingston 2002:111), however, the individual cells in the human visual system only signal about a ten-fold variation in luminance. Using the centre/surround organisation the “visual system
discriminates locally” and can distinguish between levels 1 and 1.2 and 1000 and 1200 but not the whole range of 1 to 1200 (Livingston 2002:122). By using the appropriate film, varying the recommended processing and printing regimes, using colour balance control, and local burning-in, dodging and variable contrast control the photographer attempts to mimic the brightness values of the view from the external world.

It is not only the brightness range of the external world being transferred to the photographic emulsion that cannot be matched; it is also the brightness range the viewer achieves from the photograph. Black-and-white prints have a narrow brightness range which is compensated for, to some extent, by the various contrast grades available in paper stock. This contrast variation is less available in colour photography, so that even coloured photographs, for example, cannot provide an array of light matching that from a real scene, if only because the light intensities from the real scene range over extremes that cannot possibly be matched by the light coming from a photograph… (Willats 1997:132)

Given the above dynamics, it is clear that the brightness range from the external world can seldom be achieved in photographs and so in this regard, the photographic representation differs from the external world.

2.7.16 Viewpoint

Viewpoint refers to the photographer’s position in relation to the subject. For instance, whether the camera is at eye level, whether the view is downwards onto the subject or upwards towards the subject. The main factors influencing viewpoint are the original positions of the photographer in relation to the subject—and this relationship may give rise to unique or unusual viewpoints. The resultant changes to shape and perspective distortion can significantly influence a viewer’s reaction to the photographed subject, since the subject may appear very different in form to what the viewer is familiar with and, in some cases, it is possible that the subject may be completely unrecognisable.

2.7.17 Intent and interpretation

The intention of the photographer might often be important to how the viewer assesses the veracity of a photograph. If intent is seen as a directional flow from photographer to viewer, it is a one-way flow, with the pictorial intent being the domain of the photographer, and later, perhaps an editor. Green-Lewis suggests that intent “… cannot logically be absent from a work…” even though photography “is the medium with the least obvious human involvement” (Green-Lewis 1996:110). Again, it is the perceived lack of human involvement in the production of photographs that is part of the reason veracity in photographs is so high, even though photography is not a medium that lacks human involvement. Ward (2008) believes that when a photograph presents a “perfect copy” of an object it is a diminished representation of the original, adding that
“straight” or “pure” colour photography (as defined in the f/64 group manifesto) gives rise “to an emphasis on photography’s veracity above all else” (Ward 2008:55). Ward claims this belief dates from the 1930s and derives from the black-and-white works exhibited by the American purists Weston, Adams and the f/64 group.

If intent comes from the photographer then it is interpretation which comes from the viewer. Ashford (1998) says that “When shown a photograph, a viewer will make a number of assumptions about an apparent storyline that the picture purports to show” (Ashford 1998:15). The example Ashford uses is an image of a man with a suitcase in three different locations: outside a prison (“is he a newly released prisoner or a staff member leaving for a trip?” Ashford 1998:15); outside a railway station; and in a studio against a plain background. In the latter scene the viewer’s attention is directed to the man specifically and fewer clues are given to a possible storyline. In all cases the viewer is interpreting the image in ways which may be unrelated to what existed in the external world when the photograph was taken and may not coincide with the photographer’s intent. Given this tendency amongst viewers to make assumptions about an apparent storyline, the perceived veracity of any photograph will naturally differ from viewer to viewer—and might be different again from what the photographer intended. As Johnson (2000) puts it, “The viewer should at all times keep in mind that a photograph is a subjective recording of the raw materials of truth presented to the photographer” (Johnson 2000:unpaginated)

In light of these observations, it might be said that veracity is fluid—and this is a key point. Any two, or more, viewers will have unique reactions to photographic images and this is inherent in the nature of human perception. If the photographer’s intent cannot be successfully communicated (all the time) and different viewers take different messages from photographs, then for every viewer there is a different understanding of a photographic image. If that is so, there seems little chance of coincidental values of veracity. This is tested in the course of this study.

Yet, despite what the viewer interprets from the photograph there is connectivity, within a photograph, between the subject and the object, and this is a crucial aspect of a discussion on veracity of photographs.

2.8 Veracity lost
For the external world to be accurately reflected in photography, we would have to—paraphrasing Morgan (2007)—believe in a world that long existed only in shades of grey, but which suddenly changed to colour during a particular stage of photography’s history, a world which—although constantly moving and changing—has sometimes
allowed the light within it to be captured and preserved, and then frozen for posterity as a thin record of “reality.” Miles alludes to the prospect that veracity in photographs is poor because it is based, amongst other aspects, on the light coming from the subject to the sensitised emulsion, though she fails to fully argue this case (Miles 2008:160). Because veracity has a direct co-relationship with truth, any alteration (lowering in value) of the truth in photographs naturally reduces veracity. Whether the reason for the alterations are mechanically induced, physiologically derived, intentionally introduced to visually compensate for the shortcomings of the photographic process or are used to show the viewer something they would not normally see; none present the truth—and so veracity must be lost. On the other hand, almost all discussion of photography’s characteristics in the literature either overtly or implicitly draw on one or more of these characteristics to support photography’s perceived high level of veracity—and it is only the most obvious photographic examples of an intent to subvert veracity in photographs that are called to account in the debate. These prominent examples are usually linked to obvious fakes, intentional fraud and, of course, propaganda.

To a large extent, the literature in this field presents the reader with an overwhelming amount of compounding ideas, theories and other factors—drawn from a diversity of disciplines—that largely demonstrate failings or shortcomings in almost every aspect of photography (and in the entities who create and view photographs) that might be called upon to support an argument for the continuing belief in the high veracity of conventional photographs. However, in the following Chapters, some of this literature will be returned to in order to support some of the more advanced arguments in this study.

This review of literature has, by necessity, had to be extensive, due to the complex array of inter-related topics that influence photograph-viewing. In the following Chapters, the study will try to qualify veracity as applied to conventional photography and apply these values to whichever characteristics that might still support the attribution of high levels of veracity to conventional photographs. It is hoped, however, that the reader might find the going a little easier from here. The next Chapter explains the methods that will be used to achieve these ends.
Chapter Three

METHODOLOGY

3.1 Directions from the literature
The underlying hypothesis which drives this study relates to the sense in which photographs, in their role as records of the external world, are perceived as possessing a high level of inherent veracity. The literature review makes clear that there are numerous issues that derive from the complexity and the inter-relationships of all the components which influence photograph viewing (and its subsequent interpretation) and they must be explored further if the research question is to be effectively answered. Foremost amongst these is a relationship between reality and photography that seems as tenuous as the relationship between the external world and what we humans perceive, and conceive of, as being that external world, despite a direct connectedness between the object and the photograph achieved via the reflected light. Indeed, the external world/reality and photography dichotomy is such a complex notion that it will be approached from several different directions, with relevant inter-relationships being explored in turn. For instance, contrary to the views of several authors, there seems to be little or no direct or concrete evidence that traditional silver-based photographs deserve the high level of veracity with which they are perceived to be imbued. To further compound the question, it is clear that the issue of what exactly underpins this perception of inherent photographic veracity still remains vexed and is one clearly needing further attention and research even beyond this study.

The very idea of veracity is in itself an elusive concept, since it is not a simple matter of presence or absence; it is very much a quality that operates on a continuum. It is also a quality that is variable, perhaps malleable, over time, from viewer to viewer, and even from viewing to viewing. However, the literature review does yield several valuable suggestions from which to develop an interpretation of veracity applicable to the current research. These suggestions arise from:

- The concept of veracity overall, for example, that it existed for photography from the earliest developments of the media; that it evolved from the use of tools applied to drawing (camera obscura, physionotrace, etc.); that it is an inherited property of photographs; and that, although variable, it still remains
in place at a high level for most traditional photographs.

- Evidence of an early belief in a high veracity for photographs amongst practitioners, expounded for example by Daguerre’s (1839) description of his own method of recording images, as well as Arago’s (1839a and 1839b); Talbot’s (1846) and other pioneer photographers.
- The origins of that veracity ascribed to photographs by viewers based upon their understanding of realism and reality in the external world,
- Key indicators of photographic veracity: such as that it is inherent in the photographic process, that it applies broadly, that it is malleable, and that it is a given.
- The persistence over time of a belief in photography’s high level of veracity despite several early writers’ (e.g., Baudelaire 1862, Emerson 1889a, 1899) attempts to bring that perception into question.
- That, despite all current arguments to the contrary, many amongst the general public, including many photographers, continue to hold the view that a high level of veracity is present in photographs.

Using these key points as guides, the study will apply recently developed knowledge of the human visual system and brain function, along with a broader understanding of the way humans ‘see’ and use pictures, plus our more developed appreciation of the characteristics of photographs and photographic processes, to test this new knowledge against traditional and mainstream contemporary beliefs about veracity in photographs.

3.2 Realising the Aims

The justification for the choice of both the paradigm and the methodology is based on the author’s conclusions related to how viewers react to visual stimuli—which, fundamentally is all that photographs really are. As discussed in depth in Chapter Two, viewers see an object in the real world, including the subject in a photograph, and make particular assumptions biased by their prior knowledge and experiences. They then categorise their visual responses depending on a diverse range of individual interpretations. In order to maintain a logical flow for the reader, this study follows this perceptual sequence in setting down its parameters and in describing the development of the measuring tool used to measure (and, where possible, qualify) the determinants of perceived or ascribed veracity. To help summarise this, Table 3.1 provides an overview of the methodologies used in respect of each of the four key aims of the study identified in Chapter One. As can be seen, many of the tasks identified in Table 3.1 are both definitional and practical. In terms of establishing levels of veracity, the key parameters that apply to any categorisation must relate to such elements as:

- the stimulus (external world phenomena),
• the photographic process used in capturing an image,
• the output medium via which the viewer receives the image, and
• the viewer (including their pre-knowledge of images, their familiarity with photography, the viewing conditions, etc.)

<table>
<thead>
<tr>
<th>Table 3.1 Realising the aims of the research</th>
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<tbody>
<tr>
<td><strong>Aim</strong></td>
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<tr>
<td>1. Challenge the long established belief that conventional silver halide photographs naturally possess an inherent, high level of veracity.</td>
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<tr>
<td>2. Explore and investigate the extant level of understanding amongst photographic practitioners and viewers of photographs, through their perceptions of the veracity of photographs as records of the external world.</td>
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<tr>
<td>3. Describe and illustrate the characteristics of human anatomy, physiology and perception, and the characteristics of photographs which aid or preclude a perception of high veracity in photographs, and</td>
</tr>
<tr>
<td>4. Develop a tool to measure veracity in photographs in their role as records of the external world.</td>
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An early step in the study was to establish some common definitions from the extensive terminology used in the field so that it would be clear as to what the research is dealing with. These definitions are outlined in Section 3.5. However, the first step in the research proper, was to establish how widespread is the belief in a high level of veracity for photographs. To do this, a retrospective survey was undertaken of extant writing by photographers, commentators, academics and others on the subject.
major findings of this task constitute a major component of the literature review and cover the entire span of photographic history (Appendix A), as is shown as Table 2.1 (Photography’s role according to the Gatekeepers) and Table 2.2. (Photography’s role according to the Gatekeepers—50 year periods). A retrospective survey was used rather than interviews or questionnaires (for living authors) since this would prevent any bias the respondent may derive from a question asked of them and, of course, to avoid any historically induced imbalance.

With regard to the written material from which data for the retrospective survey was acquired, the samples selected from the literature were predominantly those available in English—however, where key writings were available only in foreign languages, a personal translation was obtained. Given the universality of photography, this situation significantly hampers a broader understanding of photography’s veracity because it eliminates the views of non-English speakers, or writers, in both the Western and Eastern worlds. For example, Flusser’s seminal work, Towards a Philosophy of Photography, was not available in English until almost 20 years after it was first published, but access to his writings on experimental photography had a direct bearing on this study. Nevertheless, it is felt that the views on veracity obtained from the diverse sources examined in the literature review effectively represent commonly held beliefs amongst photograph viewers—even if they are not always universal beliefs.

The collection of philosophical and physiological theories, popular beliefs, contemporary writings, understandings, misconceptions, notions and ideas used to inform the findings put forward in the retrospective survey are presented in chronological order so that the reader, and future researchers, can follow a progressive trail of veracity’s increase or demise over time. Additionally, these results were used to inform the criteria employed to identify the various aspects of photograph viewing that aid or preclude perceptions of a high level of veracity and consequently in the determination of the final selection of photographs used to test the tool itself and subsequent testing by the volunteer test subjects.

Publications since 2002 are treated separately, in order to identify any emerging alterations in beliefs that may have arisen under the influence of digital imaging, which has, since that year, become ubiquitous to the extent that it is now (in 2009) the predominant means of visual representation. For this reason, the early (retrospective) survey is compared to a later survey taken towards the end of the research to measure any changes over this time, detailed in Appendix B. A summary of the data is presented in Chapter Five with numerical values and percentages shown to allow comparisons to be clear and unambiguous.
It is essential to establish the validity of certain concepts and notions that currently cloud the issues under discussion and, in order to clarify the relationship between certain characteristics of photographs and various genres of photography, a rather extensive use of tabular data is necessary. To help illustrate some of the difficulties this strategy presents in the analysis of the findings, Table 3.2 is presented as an example. The table outlines a ranking for levels of perceived veracity according to four criteria and is based on the author’s analysis of relevant published material. For brevity, only four characteristics of photographs are examined in order to demonstrate how the inter-relationship between photographic characteristics and particular genres correlate and to demonstrate the high degree of subjectivity amongst authors that the project must contend with in order to allow a more objective framework (i.e., the Veracity Spectrum) to be developed. Eventually however, data such as shown in this table, was later used to inform the allocation of positions on the Spectrum for selected test images.

Table 3.2 Levels of perceived veracity of sample characteristics

<table>
<thead>
<tr>
<th>Photographic Characteristics</th>
<th>Photographic Genre</th>
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<tbody>
<tr>
<td></td>
<td>High perceived veracity = 5</td>
</tr>
<tr>
<td></td>
<td>Press</td>
</tr>
<tr>
<td>Colour</td>
<td>4</td>
</tr>
<tr>
<td>Black &amp; White</td>
<td>3</td>
</tr>
<tr>
<td>Magnification</td>
<td>4</td>
</tr>
<tr>
<td>Perceived level of authenticity</td>
<td>2</td>
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</table>

As can be seen, the brief data presented in the table above also highlights another problem which is addressed by the methodology used in this study: the general public’s range of views on applied and theoretical photographic issues—as opposed to the views and opinions of those who study and work within the field. For example, themes such as authenticity and veracity seem to have an important inter-relationship in the mind of the public, as noted in Chapter One, but induce different responses amongst critics and academics and this difference is not always apparent in simple tables such as this. Likewise, the reputation and standing of the image source, such as in different newspapers (e.g., London’s Times newspaper) compared to others (e.g., Sydney’s Daily Telegraph) may alter a viewer’s perception of veracity and authenticity in an image (this argument is usually conveniently broken down as tabloid versus broadsheet). Although, in these examples, the viewer is not seeing an original photograph, merely a photomechanical reproduction of the original, the general public usually do not make that distinction. Thus, viewing media, as well as viewer-understanding, has an
impact on the final analysis of the veracity of the photographic image. Each viewer might allocate different values to characteristics in the Table depending on their own knowledge and understanding. Further, it might be argued that high veracity is not a characteristic that can, or should, be applied to some types of photographs; fashion photographs, for example. Therefore, a limited number of genres were tested initially to establish whether or not a simplified system would allow the central issues to be clarified, and thus enable an explanation and expansion of the ideas. Values in some cases were neither predictive nor prescriptive; and the study adapts to these phenomena. The ramifications of these issues are expanded on below.

3.2.1 Choice of photographic material

Even before the digital revolution, alternative methods of image-recording did not contribute to the perceived high veracity of photography in the same way that traditional methods have done. Conventionally made photographs delineate the boundaries of the understanding of the perceptions of veracity in all photograph-like images. To ensure the validity of this study, it was necessary to identify and establish a collection of photographs, made by traditional methods, with a known provenance and which are accepted in the literature as being unmanipulated, to act as a benchmark against which the response of test subjects could be measured. In addition, several photographs taken and printed by the author were included, but were not identified as such to the viewers who participated in the study. All photographs used in the study were chosen to fit within an identified set of characteristics particular to traditional photography, in order that any resultant responses relating to perceptions of the levels of veracity could then be translated into a working formula. In several tests, some photographs from the benchmark collection were deliberately selected not to fit that category being examined in order to serve as a double-blind. The instances where this was the case are noted in the text accompanying the relevant examples.

Since an understanding of veracity is variable depending on both definition and application (for example, black-and-white photojournalism might be considered to possess a higher perceived level of veracity than colour sports photographs) it was determined, as a result of the literature review, that veracity might also depend on what characteristics a photograph principally exhibits in its subject matter. For example, a close-up image may have reduced veracity if it is difficult for a viewer to determine the subject depicted and thus the response might depend on the interpretive skills of the viewer. To address this problem, all of the images finally selected for use in the study were chosen for their immediate recognisability and their ability to be clearly categorised in response to the key questions which the study addresses:

- Does the type of photographs and subject matter, and why?
• Does subject matter influence perception of veracity, and to what extent?
• Do some subjects matter more than other subjects?
• Is colour more important than black-and-white?
• Does photographer, context or timing have a bearing on the issue?

Where any doubt arose as to which of several photographs might be used, the provenance of the photograph, the fact that it is indisputably silver-based and the quality of the reproduction available were all determining factors.

3.2.2 Choice of photographic genre

It is clear from the literature that different genres of photography produce different perceived levels of veracity. For example, forensic and medical photographs have a higher perceived level of veracity than do advertising photographs. In order to determine the influence of genre prior to commencing the main study, several different genres were selected and tested against a pilot spectrum to determine the extent that specific genres may effect perceived veracity. In these early tests, deliberate efforts to include a wide range of genre were made, in order to subsequently narrow down the field to a more manageable number of key types. This was particularly important in identifying any in-built biases that might emerge during the testing of later working spectra.

For the principal test spectrum, extant photographs available in the public domain were selected in order to establish any patterns that might arise that could be extrapolated to a wider range of photographs. Since it is not practical to identify and encompass all categories of photographs into a usable spectrum, a selection of six broader categories were identified based on their common occurrence in mainstream media, as shown in Table 3.3. The photographs used for the pilot test spectrum were selected from published media and are therefore photomechanical reproductions, so it must be noted that it cannot be established accurately if they are traditional silver-based photographs or not. However, during the early stages of developing the tool, authenticity of manufacture was not crucial because it was the broader trends that were being primarily investigated.
### Table 3.3 Genre of extant photographs applied in initial testing

<table>
<thead>
<tr>
<th>Photographic genre</th>
<th>Sub-category examples</th>
<th>Ease of categorisation or discernability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical</td>
<td>Family photographs, documentary photographs, pre-digital photographs, archival photographs with a known provenance.</td>
<td>easy</td>
</tr>
<tr>
<td>Editorial</td>
<td>Photographs used to support (usually) non-fictional editorial copy, in books, magazines and newspapers etc.</td>
<td>easy in context difficult out of context</td>
</tr>
<tr>
<td>Pictorial</td>
<td>Portraiture, landscape, illustrational and fine art photographs. Usually created for aesthetic or artistic purposes.</td>
<td>difficult</td>
</tr>
<tr>
<td>Advertising</td>
<td>Photographs and scenes specifically designed to entice a viewer to buy or respond positively to certain goods, brands or products.</td>
<td>not always obvious</td>
</tr>
<tr>
<td>Public relations</td>
<td>Photographs specifically created to influence public perception of an organisation in a positive light; not necessarily attached to advertisements but used for promotion, corporate photographs, executive portraits, etc.</td>
<td>difficult out of context</td>
</tr>
<tr>
<td>Photojournalism</td>
<td>Newspaper and current/political affairs photographs, usually made without a direct editorial imperative, often in series.</td>
<td>not always obvious</td>
</tr>
</tbody>
</table>

#### 3.2.3 Photographic characteristics integral to veracity

There are many characteristics inherent in photographs that may influence perceptions of veracity, but a selection of key determinants was made in order to simplify the development of a workable spectrum. A working assumption was arrived at, based on the literature review, that certain characteristics available in both the external world and in photographs will support veracity, while characteristics not shared will mitigate against veracity. Along with those photographic characteristics listed earlier, there are several other key characteristics identified by the author, that can be tested to judge their effect on veracity. Table 3.4 compares these “real world” characteristics with those apparent in conventional photographs, whilst Table 3.5 provides a list of the characteristics of photographs that mitigate against veracity in photographs. In each case the availability of these characteristics in both the external world and in photographs is indicated. Note that the term Chromatism in Table 3.5 relates to colour and image-toning and is different from the use of colour as a depth cue in Table 3.6.
<table>
<thead>
<tr>
<th>Visual cue</th>
<th>Available in external world</th>
<th>Available in photographs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outline/shape</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Features/detail</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Illumination</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Size</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Viewing distance</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Two-dimensionality</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Multi-images</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Sharpness/blur</td>
<td>Limited</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Available in external world</th>
<th>Available in photographs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Tonality</td>
<td>Limited</td>
<td>Yes</td>
</tr>
<tr>
<td>Monocularity</td>
<td>Limited</td>
<td>Yes</td>
</tr>
<tr>
<td>Shutter exposure</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Aperture function</td>
<td>Limited</td>
<td>Yes</td>
</tr>
<tr>
<td>Chromatism</td>
<td>Yes</td>
<td>Limited</td>
</tr>
<tr>
<td>Image quality</td>
<td>No</td>
<td>Limited</td>
</tr>
<tr>
<td>Processing</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Earlier research by the author (Shapter 1998, 1999a, 1999b) determined that depth cues are a key characteristic of photographs that suggest a high level of veracity to viewers. For this reason, particular emphasis was placed on examining this phenomenon in greater depth during the study and thus the role of depth cues was considered in all aspects of the research. Table 3.6, based on this earlier work, shows that in most cases visual depth cues are available in both the external world and in photographs although, interestingly, there are some visual depth cues that are characteristics of photographs (such as focus, framing and tonal perspective) that are not readily available to the viewer in the external world. However, these latter characteristics, whilst visually evident and often consciously used, are generally unfamiliar to many viewers and so do not necessarily mitigate against veracity.
Table 3.6 Depth cues used in this study

<table>
<thead>
<tr>
<th>Depth cue</th>
<th>Available in external world</th>
<th>Available in photographs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linear perspective</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Aerial perspective</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Size diminution</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Texture gradient</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Upward dislocation</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Overlap</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Shading</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Focus</td>
<td>Partially</td>
<td>Yes</td>
</tr>
<tr>
<td>Colour</td>
<td>Mostly</td>
<td>Sometimes</td>
</tr>
<tr>
<td>Frame</td>
<td>Not apparent</td>
<td>Yes</td>
</tr>
<tr>
<td>Tonal perspective</td>
<td>Only partially apparent</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3.3 Developing the Veracity Spectrum

Just as the colour spectrum is composed of a range of continuous values (wavelengths and hues) which are broken down into broad but somewhat arbitrary segments (i.e., red, orange, yellow) a spectrum of veracity can also be thought of as a continuum divided into a series of “values.” However, unlike electromagnetic energy, which exists continually beyond the visible spectrum, in discussing veracity there might be a point where a zero classification (no truth) needs to be applied to the spectrum. Therefore, to establish an initial test spectrum, the following steps were followed:

i. Selection and production of several standardised groups of representative images which form the basis for a series of Lickert Items and from which values on a Lickert Scale can be derived.
ii. Development of a categorising system with which to rate individual photographic images for veracity (discussed further in Section 3.3.2).
iii. Evaluation of the selected characteristics against the Veracity Spectrum (Rating).
iv. Applying the images to appropriate positions on the spectrum (Mapping).
v. Testing and appraisal of the functionality of the tool.

In order to simplify the methodology, in the first instance it was decided to work with a set of arbitrarily determined values ranging from high to low. Figure 3.1 shows all six images considered at this early stage which illustrate fairly clearly the extremes that were considered representative of the possible range of options.
3.3.1 Photographic Set A – extant photographs

To develop the initial test (pilot) spectrum, six sample images, all photographs of known provenance, were selected from the public domain to represent the genre listed in Table 3.3. In order to narrow the field of options and ensure a standard of photographic integrity uninfluenced by the researcher’s own values, extant photographs used for developing the pilot spectrum were selected from editions of the British Journal of Photography available to the researcher although, wherever possible, higher quality sources of the published images have been accessed. The BJP is a respected journal established during and for the early development of photography. Although it has ceased to do so recently (due to market forces) the journal has over many years published patent and other chemical formulae; although it does still continue to describe advances in technology, methods and practice relating to photography; and publish photographs by leading and emerging practitioners—and is considered to be the premier journal within the field by many photographic professionals. The selected photographs, by genre, are:

- **Historical** (*The Heart of the Empire* (undated) by Capt. Alfred George Buckham—Figure 2.15 and lower left in Figure 3.1),
- **Editorial** (a photograph used to illustrate a story not necessarily of news value—Figure 3.1, lower centre).
- **Pictorial** (a photograph used without text, *e.g.* as a poster—Figure 3.1, lower right).
- **Advertising** (*London Bus* (undated) by Jon Percell—Figure 2.13 and upper left above).
- **Public Relations** (*Beach and Ship* (undated) by Douglas Armand—Figure 2.14 and upper centre above).
- **Photojournalism** (a photograph used to illustrate news—Figure 3.1, upper right).

It should again be noted that these are only reproductions of photographs—not original photographs. However, for the preliminary stages of the study only the pictorial content—the subject matter of the photograph—was considered, not the provenance. Initially, the pictures selected were applied (as objectively as possible) to the spectrum by this researcher—so it must be recognised that the initial structure of the test modules was based on my own professional practice, knowledge and understanding of the subject—and, it is acknowledged that an element of subjectivity may have crept into the initial process due to the influence of unconscious biases at this stage. Nevertheless, the pictures were applied to the pilot spectrum based on a logical arrangement considering lifelikeness and a propensity to “reality”.

![Figure 3.2 Pilot veracity spectrum](image)

This pilot spectrum (Figure 3.2), constructed using these images, was used to determine a face value for veracity with the intention of triangulating initial viewer responses and determining values, and was also used to establish a threshold for veracity (a point at which viewers abandon faith in veracity). The simple scale shown in Figure 3.2 was created in an attempt to develop a linear progression with a value of high at one end and low at the opposite end, and with intermediate images arbitrarily placed to allow a working range. It became obvious to the researcher at this stage that different arrays would better represent more accurate levels of veracity—for example, colour images might have a higher veracity because colour more correctly represents the external world than do black-and-white images.

However, to correct for any inherent subjectivity, once a working spectrum was found to function reasonably well, an extensive survey of viewers was conducted in an attempt to identify and eliminate any unconscious bias. A peer review of the survey and the testing methodology found it acceptable for the purposes outlined and ethics approval was obtained prior to testing. Initial results from these trial spectra were somewhat unexpected, and it appeared that some influence was being detected based on external factors, such as knowledge of events, colour and so on. It became clear that
a set of numerical values needed to be determined and then applied to each photograph so that the placement became less subjective.

3.3.2 Evaluating levels of veracity
To quantify values on the Veracity Spectrum and thereby allow for a more objective evaluation, several factors that might determine or possibly influence viewer perceptions—based on different characteristics of photographs—were identified from the literature. For clarification, examples of four of the principle characteristics identified and the values applied are shown below, whilst a more comprehensive description of these and others is provided in Chapter Five. The four characteristics discussed here are:

- Chromatism (degree of being coloured)
- Key (lighting ratio)
- Platform
- Genre

Chromatism. In the case of Chromatism, full “natural” colour was frequently ascribed a high value in the literature, because most humans see the external world in colour and might equate that with a higher veracity although, considering photography from an historical context (until the 1940s most photographs in common use were monochromatic) suggests that this would not always have been the case. Even so, gradually reducing values of veracity seem to pertain to pictures that are other than full colour. When applying a veracity value based on whether the image is colour or black-and-white, the following values were therefore applied.

<table>
<thead>
<tr>
<th>Value</th>
<th>Veracity</th>
</tr>
</thead>
<tbody>
<tr>
<td>full colour</td>
<td>(5) high</td>
</tr>
<tr>
<td>part coloured, hand-coloured or muted colour</td>
<td>(4)</td>
</tr>
<tr>
<td>toned (i.e., sepia)</td>
<td>(3)</td>
</tr>
<tr>
<td>monotone</td>
<td>(2)</td>
</tr>
<tr>
<td>false colour (images coloured in an artificial manner)</td>
<td>(1) low</td>
</tr>
</tbody>
</table>

Key or tonal ratio, determines the mood and visual contrast of a photograph, with high key referring to photographs with light tones, minimal shadows and low contrast (e.g., a white cat in snow) and low key referring to photographs with darker tones, deep shadows and low contrast (e.g., a black cat in a coal bin). In weighting degrees of key, the following breakdown was used:

<table>
<thead>
<tr>
<th>Value</th>
<th>Veracity</th>
</tr>
</thead>
<tbody>
<tr>
<td>High key</td>
<td>(1) low</td>
</tr>
<tr>
<td>More high than low</td>
<td>(2)</td>
</tr>
<tr>
<td>Neither high nor low</td>
<td>(3) high</td>
</tr>
<tr>
<td>More low than high</td>
<td>(2)</td>
</tr>
</tbody>
</table>
Low key ................................................................................... (1) low

Here the values are not evenly stepped but are symmetrically balanced around a midpoint, on the basis that at the extremes these types of tonal representations are infrequently encountered in a natural environment or setting.

**Platform** (the surface on which the picture appears, or the delivery system) is perhaps a little more complex to define, given that in many instances the boundaries between them may be difficult to define. Following are the determinants and values used in this study as defined and used by the author.

- Silver-based photograph ..........................................................(5) high
- Slides and Transparencies (conventional, silver based) ..........(4)
- Printed surfaces (derived from a photographic process) ......(3) moderate
- Projected images (created from slides and transparencies) .....(2)
- Digital ......................................................................................(1) low

Only the most common of the many alternative platforms were selected within this characteristic in order to simplify the test and limit the possible number of potential permutations. Many other platforms, television images of photographs for example, may fall in between those shown, or outside the range.

**Genre** was used consistently across all the test spectra and has been discussed in depth in the preceding paragraphs. However, to standardise the allocation of values, a numerical range was developed based on the findings underpinning Table 3.3 and is shown below:

- Photojournalism ...............................................................(6) high
- Historical ............................................................................(5)
- Public relations .................................................................(4)
- Editorial ...............................................................................(3)
- Pictorial..............................................................................(2)
- Advertising .........................................................................(1) low

Based on these criteria, it is then possible to allocate a more objective value to any given photographic image. It should be noted, however, that whilst there are 21 factors listed here that might determine or possibly influence viewer perceptions in the examples outlined above, there are only 19 possible outcomes (*key* is scaled 1–3). In this example scenario, the “historical photograph” (Figure 2.15) used in the pilot Veracity Spectrum tests (Figure 3.2) and reproduced in Figure 3.1, lower left, would therefore achieve the following values based on the four chosen characteristics used in this example:
This set of values would then be averaged to give a value of 16 out of 19 (or 0.84) and the picture positioned at that value on a spectrum with a range from 0—19, where 0 equals low veracity and 19 equals high veracity. Alternatively, the values could be then transferred to fit within the range of any chosen spectrum based on the number of selected characteristics used in each test. As can be seen, anyone wanting to classify photographs or determine levels of photographic veracity can, by using this system, do so.

3.4 Survey methods and ethics
The final step for the study was to test the Veracity Spectrum, and this was done using an in-depth survey of selected viewers. The aims of the survey component of the study were threefold—to evaluate viewers’ understanding of veracity as it applies to photographs; to test the effectiveness of the Veracity Spectrum as a tool for use in allocating values to photographs; and to identify any changes in the belief in photographic veracity that may have occurred since 2002 (the cutoff point for the first part of the retrospective survey and the start of the “digital era”). Secondary, but equally important ethical factors such as relationships between researchers and participants; risks to researchers and participants while collecting data; consent, privacy and confidentiality issues relating to the data collected; ownership of intellectual property; the physical, emotional, psychological, social and financial well-being of participants were all considered while the survey and survey methodology was being prepared and were assessed as part of the Ethics approval process.

Following approval from the University Ethics Committee, a cohort of volunteer subjects from the University of the Sunshine Coast were asked a range of questions to determine their level of understanding of photography and its veracity and to evaluate selected photographs for placement on a series of Veracity Spectra. For logistical reasons, the survey was undertaken in an audience participation style, rather than individually, and all information gathered was on an anonymous basis. Although anonymous, the survey gathered information regarding the age range, sex, and the level of visual literacy of the survey participants, the latter being determined by exposure to at least one or more design-based, or other course, teaching visual literacy at tertiary level. Visual literacy was considered to be a potentially distorting factor in the test cohort due to the fact that many participants may have been students of the design programme at the University,
and may thus demonstrate bias based on prior knowledge in answering test questions. To help in assessing whether or not enhanced visual literacy may be a determining factor in the responses, survey participants were divided into three categories:

- **Design or Visually Educated**—those who have experienced at least one semester of tertiary Design studies or undertaken courses teaching visual literacy.
- **Non-Design or Visually Uneducated**—those who have not experienced any tertiary Design studies or undertaken courses teaching visual literacy.
- **Students from the University of the Third Age (U3A)**—typically mature age students, often retired or semi-retired and whose visual experience mostly pre-dates the digital era. These participants were also questioned about their extant level of visual literacy.

The language of the survey was English and a functional understanding of the language was assumed since the target cohort were students or employees of the University of the Sunshine Coast and the University of the Third Age who had already demonstrated a prerequisite knowledge and understanding of the language for enrolment or employment. People under the age of 18 years were excluded from the survey to alleviate the difficulties of getting parental approval on the days of the survey. Consent was explained to participants before the survey began and anyone who did not want to participate left the room or was invited to remain in an observer capacity.

Following a comprehensive briefing, viewers filled in a questionnaire and responded to a range of test questions using a series of Lickert items as images were presented on screen via a PowerPoint presentation. Whilst not conventional photographs *per se*, the test subjects were informed of the provenance of the images shown and were asked to rate the pictorial content accordingly. The individual scales associated with each item asked participants to rate selections either from 1 to 5, or over a range of five options from ‘disagree strongly’ to ‘agree strongly’. Some questions were reworded to seek answers about the same concept in order to reduce any bias that could arise from any guessing the participants might attempt, although strictly speaking, there should be no correct or incorrect answers since the questions were intended to elicit the participant’s personal views on the issues under review. A definition of the terms in use (such as ‘veracity’, ‘verisimilitude’ and ‘verity’) were on a second screen at all times as the survey proceeded. Details of the survey questions are shown in Appendix B. This stage of the research and an analysis of the subsequent findings are documented extensively in Chapter Five.
3.5 Definitions

Up to this point, the technical and photographic terms and the definitive words used, particularly to describe what photographs do, have primarily followed the meanings given them by the individual authors being discussed. As the reader will have noticed, this situation may give rise to some confusion, since many definitions may have changed over time as the technology developed or authors may have coined their own terminology. For example, the task of defining what a photograph does with the external world when an image is captured is fraught with difficulty and, as Maynard notes, nowhere in the literature is it possible to discover any attempt to define or to explain the relationship “___ is a photograph of ___” (Maynard 1997:15).

Chapter Two in particular illustrates how authors have used a variety of terms to describe what they believe photography does with its subject matter. As there are so many terms, it is sometimes difficult to know whether or not they are being used synonymously by all authors. Consequently, it is necessary to provide some definitions for the terms subsequently used in this study to provide a standardised meaning throughout the following discussion. This is done on a limited basis for this thesis, rather than to establish definitive meanings for words or actions discussed elsewhere by others. Whilst the definitions herein may not, indeed, will not, coincide with the usage by all other authors, it is intended that the parameters will establish consistency for the thesis. While it could be argued that these definitions are somewhat arbitrary, they are based wherever possible on most consistent use in the literature, common-sense and logic. Since the sources are too disparate and mixed to allow precise references to be given for all entries, wherever a definition can be attributed to one source it will be cited.

3.5.1 The external world and reality

The external world is believed to be a ‘concrete’ structure of physical matter (objects in space) and is said to exist within something called the Universe. The external world is perceived by the senses and conceived by the brain. It is governed by laws, and consists of space, time and space-time (Hawking 1992, 1994, Davies 1992). Many people commonly believe that there is nothing beyond the Universe (Deutsch 1997:45). Given that there may be differences in the way each viewer conceives the external world (Pinker 1997), a separate definition is needed to categorise reality.

Reality is that which humans believe is themselves and what is beyond them in the external world, and which is known to them via their senses. It is believed to have consistency and permanence and is generally believed to have features which are shared by all observers and to be separate from them, but of which they are a part. However,
this perceived reality\(^1\) might be different for each person. The idea that reality may be a unique individual experience for each person cannot be ignored in this study.

The differentiation of the external world from reality is an important separation because if the difference can be sustained with logical argument and from practical experience, then a perception of high veracity for photographs—which depends on a continuing certainty about the external world—cannot be upheld if everyone’s judgement of reality is different (by whatever degree). It is difficult to provide conclusive evidence that there is in fact a difference between the external world and reality and which demonstrates that reality is separate, though current research in brain studies and psychology (as outlined in Chapter Two) is compelling in its assertions that a difference does indeed exist for each individual.

### 3.5.2 Images

Within the literature many authors apply different meanings to common terms, or use words such as photograph, picture and image interchangeably to describe the same thing. For consistency in this study the following definitions will be applied to the various types of images in the visual process.

A **photograph**, for the purposes of this study, is a positive image made on a light sensitive surface by means bound by the definitions below and which involves no other processes. Excluded from this definition are photomechanically reproduced images made from photographs, such as newspaper and magazine pictures and images made using digital means of capture, either camera or scanner. This is a different approach to Sontag for example, who does not distinguish photographs from reproductions of photographs via other media (Sontag 1977:4).

A **photographic image** is one formed when light passes through a lens to affect specially prepared light sensitive chemically-based emulsion layers in such a way as to produce an analog negative or positive image of objects in space. In this study, these will always be called photographs.

A **picture** is the visual content of a photograph (and other pictorial display). The photograph is the container of the picture, its support; but the two words, along with image, are often used in the literature to mean the same thing.

A **retinal image** is one formed when light sensitises the image-forming structure of the back of the human eye.

---

\(^1\) For this study, reality will be spelled in lower case but some of the quotes used have an upper case first letter.
A **visual image** is the image formed in the brain as a direct result, or by-product, and cognitive result of, the retinal image. It includes *after-images*, which are the result of localised saturation of the retina with light (Wade 1990).

A **mind image** is one formed in or by the imagination. It includes dreams, hallucinations and images induced by artificial brain stimulation.

A **digital image** is one formed by the action of light or other radiation on an electronic chip which produces an electrical output to establish a code of ones and zeros which are then translated by the appropriate computer software and display hardware into a picture.

### 3.5.3 Image actions

Within the literature, different writers apply different meanings to common words relating to the recording of the picture. This often differs from field to field (e.g., words may be used to mean one thing in photography and may be used differently in psychology). The following definitions apply in this project, to the action of a photograph in its role of picturing objects.

**Depict.** In the context of this study *depict* is used as a simile. For example, a drawing of an actual tree depicts that tree.

**A copy** is a facsimile, a reproduction of an original.

**Represent.** In the context of this study *represent* or *representation* is used as a metaphor. For example, the shadow of a branch on a wall may represent a tree (Scruton 1981).

**Reflect.** For this study, *reflect* will be used in its literal sense as when light bounces off a shiny surface. So a photographic image will not reflect anything, but its glossy surface may reflect light.

**Mirror.** To *mirror* will be used in the same context as reflect but only when the image is optically true to the original, as in glass-mirror surfaces, (Gregory 1997) and will imply lateral reversal of the subject. For example, a photograph cannot mirror anything, unless the film is reversed in reproduction.

**Show.** This study assumes that a photograph does not *show* anything—in that a photograph can neither hold something up to view nor demonstrate something in its own right.
**Record.** This study will mostly use the word *record* (verb) to describe the actions which photography takes when assigning characteristics of the external world to the photographic result, at any step in the photographic process (*i.e.*, negative production, positive production, or intermediate steps).

These limits on word meanings are set for the sake of clarity so the reader can be confident that the same theme is being addressed consistently. Hence, from the above list, the two words most likely to be used in this study to describe the action of photography are ‘depict’ and ‘record’ (both verbs). This is analogous to sound reproduction wherein a playable object—Edison tube, vinyl disc, magnetic tape, compact disc—is a *recording* of a musical performance, for example.

### 3.5.4 Descriptions

This study will use the definition of *description* suggested by Price (1994) wherein captions, titles, and text accompanying photographs will be called *descriptions*. These will exclude words which appear in the photograph such as signs or names, and words added to photographs such as signatures (autographs of celebrities or signatures of photographers as author) and dates, as well as textual messages in photographs such as those made by Duane Michals, for example.

### 3.5.5 Definition of the photographer as artist

Wells’ description of the photographer as artist is useful to establish a definition in relation to the creative individual:

> The artist is characterised as a special sort of ‘seer’. Or visionary of ‘truth’, poetically expressed. In the case of photography, the artist is viewed as transcending ‘mere recording’ of events, offering a unique perspective on or insight into people, places, objects, relationships, circumstances. (Wells 2000: 254-255)

The author, as a creative photographer, shares a similar view to that expressed by Wells and to some extent extends the definition further still. Wells’ description would not apply to the snap-shooter. The separation is occasionally made in this study between the general public and photographers, this definition of a photographer-as-artist is made to partially illustrate that difference.

### 3.5.6 Veracity itself

Three words closely apply to this study and are frequently used. Their definitions are integral to the study and how their application is accorded within the wider community. The first two of them are sometimes used synonymously. The distinct definitions used here are for clarity of discussion.

**Veracity.** Having the characteristics of truth
**Verisimilitude.** Having the appearance of truth

**Verity.** The quality of being true, in accordance with fact or reality. (Delbridge 1985:1442-3)

Veracity and verisimilitude are often used synonymously (perhaps to make the writing more florid) but they mean different things. The difference between veracity and verity is subtle. Veracity and verisimilitude can be explained using the analogy of two accused bank robbers. The first accused person (representing veracity) is guilty of the crime because they actually committed it whereas, whilst the second person (representing verisimilitude) has the appearance of guilt (i.e., wearing a mask and having a past criminal record for bank robbery) they are not guilty because they did not commit the crime. Verity then, using the same analogy, is the robber (veracity) confessing to, and being convicted of, the crime (confirmed truth). This study is concerned with the veracity of photographs and (without pre-empting the outcome), while it might eventuate that photographs have verisimilitude, they might not possess veracity or verity. These definitions are binding within the context of this study. How they might be applied elsewhere is irrelevant for current purposes.

### 3.6 Moving forward

The methodology outlined in this Chapter describes the multiple stages and activities that comprise this study and which are summarised in Table 3.1. In order to present the core data as succinctly as possible, much of the specific detail concerning statistical and survey results, descriptions of questionnaires and so on, is presented in the form of Appendices and is referred to directly from the relevant part of the study, thereby allowing the reader to return to that data at leisure whilst focussing on the line of argument.

If, as is hypothesised in the research question, there is little or no direct or concrete evidence that traditional silver-based photographs deserve the high level of veracity with which they are perceived to be imbued, then surely it cannot just come down to a matter of opinion amongst viewers. Only by testing the hypothesis in the light of existing knowledge can some progress be made. The following Chapters interrogate this question in greater depth and, finally, provide some answers to the problem.
Chapter Four

VERACITY AND PHOTOGRAPHS

4.1 Truth to tell

Given the multiplicity, the diversity and the complexity of the influences that affect the viewing and interpretation of photographs presented in the Literature Review, this Chapter seeks to consolidate the many lines of reasoning presented there, in order to identify those arguments and strategies which are of particular value in determining the specific characteristics of veracity most applicable to the development of one of the key outcomes of this study: the Veracity Spectrum. For the purposes of this study, we must define exactly what it is that is being photographed from the very outset. Only then can we move on to what the photograph itself is, and this must be defined before we can even begin to decide about photography’s relationship with veracity—or any sort of truth for that matter. Since many of these issues have not yet been resolved in their primary fields of research and debate, it will be necessary to make some statements of principle based on the researcher’s own logical analysis of the literature—and it will be up to the reader to agree or disagree as they see fit.

According to some writers, a mirror-like relationship exists between photographs and the external world and, for some researchers, the metaphor also extends to memory and the external world—wherein the viewer’s visual and perception systems, are triggered in the same way by the same signals. The human mind struggles to understand the process of viewing photographs primarily because the mind is a product of its animal ancestry and is still uncertain about how it perceives the external world—and photographs are merely a small part of the diverse range of sensory signals emanating from that world. In order to help clarify their understanding of the functions of human perception, some researchers have introduced the notion of probabilities. However, introducing probability into the equation is to explicitly relinquish the condition that knowledge must be certain (Watzlawick 1984:22)—a necessary benchmark when discussing veracity and photographs. In doubting the existence of a single reality—Realism—degrees of uncertainty are introduce and probability then becomes a sub-set of reality, of which possibility is also a sub-set. Nothing, therefore, is certain, there remains only degrees of probability (Watzlawick 1984:63), as illustrated in Figure 4.1.
Figure 4.1 Subsets of reality

To know the external world from photographs (or paintings or other two-dimensional forms) is to know it differently than to know it from experience (von Glasersfeld 1984:28). “Second-hand” knowledge can never be as complete as personal experience although, as WHF Talbot notes in *The Pencil of Nature*

> It frequently happens, moreover – and this is one of the charms of photography – that the operator himself discovers on examination, perhaps long afterwards, that he has depicted many things he had no notion of at the time.

(quoted in Ray 1999:xiii)

Indeed, this was one the themes in the motion picture *Blow Up* directed by Michelangelo Antonioni (Bridge Films, London 1966) in which a photographer is shown examining enlargements of his photographs for evidence missed during previous viewing and of the scene at the time they were taken. This subsequent discovery of additional knowledge can come at any time after the event, especially since photography provides the opportunity for new knowledge to be acquired long after the original experience. The new knowledge is not always derived from factors new to the image—the information was present at the time the photograph was taken and was available to the viewer if they chose to look thoroughly enough, or if they knew what to look for. The camera has the advantage of capturing all the detail of a scene in fractions of a second whereas a viewer will take longer to assess the scene with the same thoroughness. Photography, therefore, provides the viewer with a tool to make close inspections of a scene over time.

To most observers, the external world appears stable, repetitive and concrete because that is usually the way the mind perceives it to be (von Foerster 1973:58). Yet, if each individual’s perception is unique only to that individual then the perception that the external world is stable, repetitive, and concrete is misguided and may not be relied upon. However, because of this uncertainty, and because the uncertainty was seldom
thought to be applicable to photography, the general population came to consider photographs to be a more accurate representation of the external world than painting (despite logical evidence to the contrary) until digital technology caused a perturbation which lead to the re-examination of the many other properties of photographs upon which they relied for veracity.

4.2 Where does the veracity lie?
While it is reasonable to assumed that learning to view paintings, drawings, and photographs, happened gradually over time and that the ability to see and interpret two-dimensional images is the result of an evolutionary process, it seems unlikely that the belief in the veracity of photographs was acquired gradually. The attribution of inherent veracity of the conventional photograph seems to have been present right from the announcement of the first of the several techniques that became modern photography. To some extent the notion of certain forms of images having innate veracity pre-dated the introduction of photography, because it was an already accepted characteristic of the image created by the camera obscura. To whom or to what extent to attribute the origins of photography’s higher than expected veracity is thus a difficult question to answer. There are several possible places where we might lay the blame, including photographers themselves; the photography industry’s own publicity and public relations machinery (some might even like to consider the word propaganda); public perception, developed over many years before and after the invention of photography; and, of course, the camera itself.

Crary (1993) suggests that the camera obscura, like virtual reality systems today, was an apparatus more discursive than material, arguing that the camera obscura was much discussed but that not everyone who knew of the apparatus or who talked about it had actually seen or used one. In this way “the main use of the apparatus was not to produce images but as an object which stimulated philosophical reflection and speculation on the nature of perception and knowledge” (Lister 2000:321) a paradigm then used to reflect upon knowledge of the external world and reality. Such reflection may have established a level of veracity for the camera obscura image (appropriately applied) which subsequently transferred itself to the photographic image (where it was inappropriately applied)—if for no lesser reasons than that unlike the camera obscura image, the photographic image was textured by the surface coating, and was monochromatic).

Freund (1980), Tagg (1988), Marien (1997) and others suggest that photography inherited part of its early reputation for veracity from the Physionotrace, a device “invented in 1786 by Gilles Louis Chretien” (Tagg 1988:39). The subject sat in the
device and their profile was traced at a reduced scale “by a stylus connected through a system of levers” onto a copper plate from which multiple copies could then be printed. It was believed by the emerging middle-class, who mostly subscribed to this method, that the images thus produced offered “a mechanically transcribed truth” (Tagg 1988:40).

Assuming he is using the word synonymously with veracity, Kolbowski traces the belief in the verisimilitude of conventional photography to an early photographic experiment in which Niepce reproduced an image by means of contact printing an oiled engraving onto a light sensitive emulsion. This early experiment in photography later led to more successful attempts by Niepce to fix an image, eventually developing a process for which he subsequently sold the rights to Daguerre. Kolbowski noted that the verisimilitude, ascribed by commentators, to the resultant photographic image at the time “is still loudly proclaimed in the mass media and many areas of the academy” (Kolbowski 1999:162). Similarly, Tagg notes that the notion of inherent veracity was frequently reinforced by Daguerre, who stressed his invention’s “potential accessibility to a wide public and its automatic nature—two factors which were seen as inseparable from the imagined objectivity of the technique” (Tagg 1988:41). However, what the viewer saw in early photographs may not always have been an actual scene from the external world. Certainly daguerreotypes are difficult to double-expose but as Rosler (1991) points out, many early landscape photographs were double-exposed or double printed in order to render clouds in the sky (sometimes even if they were not present during the initial exposure). This was done because the orthochromatic emulsions of the era were incapable of achieving such results; i.e., having both sky and landscape correctly exposed simultaneously, as shown in Figures 4.2 and 4.3.

![Figure 4.2 (left) Large wave, Mediterranean Sea (1857)](image1) ![Figure 4.3 (right) The Brig (1856)](image2) by Gustave Le Grey, in both prints the sky is exposed separately from the sea and then double-printed.
Rosler explains that the existence of veracity posed no problems for the photographer or viewer of these early, manipulated photographs because the manipulations were thought to be “in the service of a truer truth, one closer to conceptual adequacy” (Rosler 1991:54). As well, Rosler argues that this printing method was readily accepted due to “The great attention [already] paid to skies in landscape painting” (Rosler 1991:54) and which consequently paved the way for such parallels in landscape photography. However, accepting Rosler’s view presents a contradiction of veracity’s true meaning; on the one hand saying that veracity is up to the viewer to determine, while on the other saying that veracity is present in manipulated images as well as non-manipulated images. Rosler further muddies the waters, arguing that “The identification of photography with objectivity is a modern idea…” which she sees as being “born of the early twentieth century” a viewpoint which, she argues, derives from “the absence of an invested point of view” (Rosler 1991:54-55).

Although press-printed reproductions of photographs are not actually photographs per se, it should be remembered that the photomechanical reproduction of photographs via the printing press only became possible around 1880 (Rosler 1991:54). For the general public it was “… the Daily Illustrated Mirror (today’s [UK] Daily Mirror) [which] was launched in 1903 as the first newspaper in the world to use photographic illustration…” (Holland 2000:145)—more than sixty years (at least two generations) after photography was first introduced, that first made the use of photographic images commonplace. It was only at this time that a truly widespread intimacy with photographic images started, a familiarity which began the landslide to today’s media image saturation.

Burrows (2002) suggests that it is the camera operator (the photographer) who is the untruthful one—more so than the photograph itself that is to blame “when the camera lies”—because the photographer is in control of what the subject matter is in the picture and how that subject matter is treated. Burrows then extends this responsibility to the picture editor, the publication owner, the caption writers, and anyone else in the editorial and reproduction chain when the photograph is subsequently used in a publication (Burrows 2002:5). All of these common editorial activities, when questioned in this way, bring in the censorship debate and the extent that the simple act of choosing and cropping photographs influences perceptual outcomes. A similar line of reasoning can be applied to gallery owners, curators and other “gatekeepers”—to use Coleman’s (1988) term—who use photographs outside of the publishing arena. Regardless, it is the photographer who makes the first conscious decision about a photograph (since the subject, if human, can be unaware of being photographed) and who consequently
must bear the brunt of responsibility. Yet it is not the photographer who directly gives photographs their veracity—it is the viewer.

Daguerre, Talbot and Niepce believed that photographs were the product of nature, not of an operator (Marien 1997:3). Furthermore, Ermarth (1983) and Green-Lewis (1996) identified the creator of the realist photograph, i.e. “the documentary picture, the medical record, the mug shot…” (Green-Lewis 1996:227) as a “non-person”, or at best a collective anonymous author because the resultant images are typically perceived to have been minimally influence in the way the subject is depicted. However, if this is the case, then, by extension, the creator of a picture that is non-realist in nature must be an identifiable person. By further extension, it might be assumed that any photograph where there is a definite creator could be regarded as non-realist—which is essentially a nonsensical proposition. However, the camera itself is a tool, an inanimate object incapable of taking a photograph by itself without human intervention. Even remotely controlled cameras and surveillance cameras need to be set up, have power supplies connected and, have their images viewed and analysed by a human observer before they become useful tools. Given these issues, it could be said that the origins of photographic veracity come down to the following three factors:

• the photographic process
• the concept – photography generally
• the mind of the viewer

The way in which each of these factors has contributed to the belief in photographic veracity will be dealt with in turn in subsequent sections.

4.2.1 The photographic process

At one time, the human eye was thought to be an accurate, reliable and objective instrument for viewing the external world. In many ways the camera obscura was thought to be the equivalent to the human eye—the retine physique (Arago (1839b:270) or “physical eye”, and therefore incapable of distorting reality. Of the cameras obscura fitted with a lens, there were observable differences in the image produced—some produced images with bowed straight lines, the image on the viewing glass was often dark and the colours and shades were often muted. Just as with modern photography, the quality of the equipment determined the quality of the image to a significant extent. Even so, the idea that mechanically produced images were of high veracity came to photography directly from observations of the images made by the camera obscura—even though the first photographs hardly resembled the image as viewed through the camera obscura. Marien (1997) notes:

The conception of photography as an artificial retina ignored critical differences between camera vision and human vision. In early analogies between photography and human sight, the artificial retina was understood to be monocular and static, not binocular and active like human vision. Nevertheless, the similarities between
camera vision and human vision were pushed to the point that the two types of vision became synonymous. (Marien 1997:6)

In the opening years of the twenty-first century the belief that conventional photography closely and accurately reflects the external world has still not vanished from our understanding of traditional photographic methods. The commonly held view of the camera as being “a precision instrument, with scientific purpose” (Thomas 1978:32) deeply influences nineteenth-century public understanding of photography’s veracity, for as well as having significant value in scientific applications (geography, geology, etc.) the daguerreotype was seen to be ideal for use in making studies for painting and engraving as well as reproducing paintings and other artwork for study. These applications were recognised long before any “pictorial functions” (Maynard 1997:72) were considered to be a primary purpose for the photograph.

A daguerreotype is a photographic positive on a metal plate with a mirror-like silvered surface, characterised by very fine detail. Each one is unique and fragile and needs to be protected by a padded case (Ramamurthy 2000:167). The ability of daguerreotypes to show “extraordinary resolution of detail, continuous tonal recording, and [optical] perspective” (Maynard 1997:72) were some of the reasons cited for the invention’s rapid gain in popularity as a scientific tool. However, daguerreotypes are difficult to view—they must be held at the correct angle to the source of illumination (Batchen 2002:61), they appear alternatively as both negative and positive images and they present an image that is laterally reversed. Talbot’s paper negative/positive process had lower resolution, but the resultant prints were easy to view and multiple copies were possible. Nevertheless, as an effective tool for scientific research, the fact that early photographs were either difficult to view or of low resolution, made them significantly flawed in application.

That the image in a photograph is a variant on the way we see the external world may be obvious to the modern viewer—since even with the best cameras, the original scenes are rendered in a way that shows the external world differently to how it is viewed by the eye. Thus it was for viewers of early photographs, even if they didn’t realise it. For example, any subject movement was blurred because pictures such as: The first still-lifes exhibited by Louis Daguerre in 1839 required 15 to 30 minutes of exposure; in little more than a year this period had been reduced to about one minute through the work of a British chemist, Goddard, who made the daguerreotype coating more sensitive to light. (Thomas 1978:14)

Even then, a one-minute exposure still blurred moving subjects. Large plates required longer lenses and, consequently, exposures several times longer—whilst Calotypes using a paper negative required from one- to four-minute exposures (Thomas 1978:14).
The wet collodion glass plate negative (1851), coated with silver salts in collodion, further reduced exposure times to as short as five seconds in bright sunlight (Thomas 1978:14). Twenty-five years later the dry plate was introduced which, after some modification, reduced exposure times further. However, even when exposures were reduced to fractions of seconds, they were often still too slow to freeze even ordinary day-to-day action.

As well, early photographic processes varied considerably in the quality of the images they produced, and the human element often played a significant part. For example, the quality of the calotype varied considerably depending on the method used to coat the emulsion.

Talbot’s process involved brushing the light-sensitive emulsion onto the surface of the paper negative, whereas Blanquart-Evrard discovered that floating the negative in solution yielded a more detailed, less fibrous image. (Solomon-Godeau 1991:14)

The resulting image quality ranged from the “…grainy, soft and shadowy quality of, for example, the Hill and Adamson portraits of the mid-1840s…” to the “…crisp, detailed appearance…” of the work of Edourd-Denis Baldus of 1851 (Solomon-Godeau 1991:14). The calotypes of Louis De Clerq from the mid-1850s are soft with a narrow tonal range, since “Talbot’s first processes provided not very sharp images, as his table salt and nitrate of silver coating somewhat penetrated the surface of his paper into the fibres” (Maynard 1997:42). Because the albumen prints from glass negatives of Gustave Le Gray from the 1860s are sharp, full of fine detail with a wide tonal range (Figures 4.2 and 4.3) and it is difficult to distinguish them from photographs taken a hundred years later on more modern materials. Le Gray’s process “…involved waxing the negatives before exposure…” which if used with “…finely textured wax paper was … indistinguishable from a print made from a wet collodion or albumen negative” (Solomon-Godeau 1991:14). Whereas, soft, grainy photographs would hardly lead a viewer to say such an image resembled the external world, the sharp, finely detailed images might, except they were in black-and-white or toned and did not resemble, in that regard, the coloured external world.

Marien (1997) suggests that the post-mortem photograph, popularised during the 1840s and 1850s as a part of Victorian mourning rituals, was partly responsible for the increase in people’s belief in photography’s high veracity (especially over painting) because “the deathbed photograph gave a family a chance to hold fast the appearance of a loved one in a form deemed more reliable than human memory” (Marien 1997:75). The widespread acceptance of this notion demonstrates that the veracity of photographs was being compared to that of both painting and human memory from the early days.
of photography—and that photography was already considered to possess a higher level. Although deriving from a different source, Green-Lewis (1996) also places the beginning of the rise of belief in photography’s innate veracity to the same era as does Marien—about the time of the Crimean War (1854-1856)—when Roger Fenton was commissioned as an official war photographer to document the campaign. Why Fenton’s photographs would have had such an influence is difficult to understand in retrospect, primarily because they typically show the battlefield after the bodies were cleared away and therefore are not accurate records of the “truths” of the event (Figure 4.4). “Fenton’s pictures unambiguously contradicted the newspapers of the day and the later history books” (Green-Lewis 1996: 102). Green-Lewis argues the photographs outweighed the written reports when it came to influencing the beliefs of the readers of the day, and that the situation:

…was made possible by the supposedly natural relationship photography enjoyed with its subjects, and was further fostered by photography’s lack of surface, its ‘window-effect,’… they were perceived as independent and unmediated facts,…

(Green-Lewis 1996:102)

The idea of this “window effect” bears further consideration. Marien argues that “For many people in the nineteenth-century, the photograph alloyed a mirror’s fine detail with a window’s view of the world” (Marien 1997:39) though Green-Lewis points out that:

It would be inaccurate to imply that there was in 1855 a universally naïve realist response to photography, of which the response to the war photographs was just an innocent instance. The camera’s engagement with its subject, its physical presence, its mediating capabilities, were in fact widely discussed and indeed more heatedly debated as the nineteenth century progressed. Nevertheless, the discourse that shaped the early understanding of photography’s relationship with truth was distinguished by an eagerness to overlook its human agency. (Green-Lewis 1996:103-104)
Green-Lewis posits two misconceptions concerning photography that derive from this view to which veracity is attached. The first is the misconception concerning the “lack of [an] intrusive surface of other media… like a pane of glass between the viewer and the world…” (Green-Lewis 1996:109). The second follows from the first; “being invisible, photography is also assumed to be more accurate than other forms of representation” (Green-Lewis 1996:109). Again, in this characterisation, the photographer is seen as an uninvolved bystander merely operating a machine—the picture being produced by a process of autogenesis. Although there may be marks and textures on the surface of an emulsion or print, there are no “marks of human labour” (Green-Lewis 1996:119).

The Victorian era concept of photographs being a “window to the world” is further reinforced by the nineteenth-century habit of decorating certain photographs in a family album with “curtains, … or other ornate borders” (Green-Lewis 1996:113 n 41)—as if to simulate the appearance of a window. Significantly, the practice of specially framing photographs—in an album or for an exhibition—suggests that a framed photograph should invite comparison with a framed painting. Without the frame, the comparison becomes unlinked especially if we ignore, for the moment, that the edges of a photograph also constitute a frame of sorts (Gombrich 1979, Arnheim 1988).

An Appearance in court
Claims about when the first photograph (daguerreotype) was used as evidence in a legal sense vary greatly. Green-Lewis (1996) suggests November 1839 in Germany, while Golden suggests July or August 1839 in Paris (“less than a month after photography was patented…” (Golden nd: unpaginated) whilst the first legitimate claim in the United States is either 1859 (Golden nd) or 1871 (Green-Lewis 1996: 194). As is the case now, photographs were seldom used without corroborating written or verbal reports (Scott 1999: v2: 298-299). The Parisian police used daguerreotypes from before 1841 (Scott 1999: v1: 2) but not in court and Scotland Yard began using photography regularly as evidence in 1868 (Smith 1985: 121, Tagg 1988) although by 1874 it was believed that “The process has become one in general use, so common that we cannot refuse to take judicial cognisance of it as a proper means of producing correct likenesses.” (Scott 1999: v1: 4).

Making and taking
The distinction between a photograph of something and a photographic depiction of something has never been successfully defined (Maynard 1997:114). As a result, the distinction between a photograph and a reproduction of a photograph by photomechanical processes is rarely made by the public—and is a distinction which
even Sontag (1977) failed to recognise. The extent of this difference becomes more apparent when we consider the distinction between a photograph of a subject and a photograph used in the production of something else such as a computer microchip or a circuit board made using a photolithographic process (Maynard 1997:118), which people clearly see as not being photographs of subjects in the same way as a family album snapshot.

Aside from the extreme example of photolithographic chip manufacture, many characteristics of photographs combine to separate the appearance of an object in the external world from its appearance in a photograph. According to Galassi

Photography recorded not the physical reality before the lens but its visible aspect, determined by a specific point and scope of view, at a particular moment, in a particular light. (Galassi 1981:29)

In addition, the camera format, the film type, the lens used, and the camera-to-subject distance will all alter some aspects of the appearance of the final image. For the first three decades of photography, exposures took considerable time and cameras were tripod-mounted, so photographs were records of periods of time rather than moments of time—thus early photographs were primarily used to record and documentation important people, places, things and events—a very different attitude to that of today. It should also be noted that the subject of each daguerreotype is laterally reversed (Galassi 1981:144) as was the case with all early photographs made with cameras using single lens optics and not correctly reversed in a subsequent stage. However, it is not entirely the photographs themselves that are at issue, it is the way they were made that contributed to the widespread belief in their inherent truthfulness.

**Hands off**

The physical and chemical aspects of the photographic process itself are more problematic than the actual equipment used, in that it is the scientific, almost ‘hands-off’ characteristic of the process—with its resultant mechanical, detached and possibly even automatic nature—that later led to the almost unquestioning acceptance of photographic veracity. In 1859, the prominent medical journal, *The Lancet*, went so far as to suggest that:

Photography is so essentially the Art of Truth – and the representative Truth in Art – that it would seem to be the essential means of reproducing all forms and structures of which science seeks for delineation. (*Lancet* 22 January 1856:89)

The “hands-off” nature of the photographic process has long played a significant role in this regard. For much of its history the processing side of photograph-production has been hidden from the majority of amateur photographers by the multinational corporations which controlled the developing and printing market—and it is this hidden aspect of the process that has contributed significantly to photographers accepting
a high veracity for their own photographs. Price (1994) notes that once amateur photographers relinquished, “the assembly line performance of operations”—a task originally done by the photographer—“claims to manipulation” no longer survived for the snapshot and the perception of veracity increased (Price 1994:30).

However, if the general public was more aware of the manipulations possible within photograph production processes, the perceived veracity of photographs may not be as high as it is. Yet many professional photographers, picture editors, and “gatekeepers”, all people with a high level of knowledge about the photograph production techniques, continue to attribute a high level of veracity to photographs as is outlined in Chapter Two and Appendix A. The “industrialisation” of the production process—and the consequent separation of the processing stages of photograph-making from the image making stages, may hold some answers.

Factory made
An increase in photography’s perceived veracity can be traced to the time when factory processed photographs made photography both practical and popular (accomplished from about 1851 and effective in the 1880s) as a hobby or pastime for the more affluent public. These photographs were made on “cheap, processed, standardized surfaces…” (Maynard 1997:48), a process which brought about an end to the belief in the uniqueness of individual images and the idea of hand work being involved in a photograph’s production. This factory style processing resulted in the swing away from the idea of making photographs to the idea of taking photographs. Thus, the vast majority of photographers ceased to be the competent professionals (a term, in this sense, which includes the true amateurs) and photography was taken over by the snapshot photographer who took a photograph, gave it away for processing and got back a print (set) that resembled the scene when they ‘clicked the shutter’. These changes coincided with, and were driven by, the introduction of dry plate and roll film technology and increasingly smaller and more portable camera equipment (Maynard 1997:48-50).

Manufacturers of photographic equipment and consumables established what photographs looked like—based on ease of production rather than meeting consumer demand—and the ways that photographs appeared were “consistently engineered, at great cost, to approximate human environmental seeing” (Maynard 1997:196). Each photographic black-and-white (monochrome) print-material produces a particular hue or tone (warm or cold; depending on manufacturer’s specifications) which, in production, renders two images of the same subject different in appearance on different papers, even if printed from the same negative. Even given the diversity of appearances
in contemporary photographs, it is still insufficient to negate the perception of high veracity that conventional photography seems to possess. Some answers can be found by examining the concepts that lay behind photographs themselves.

4.2.2 The photographic concept generally

The photographic process and processing determine the surface appearance of the picture; the photographic concept is a more difficult topic for viewers to be aware of because some of it comes about subconsciously. As discussed in the literature review, commentators on photographic veracity vary considerably in their beliefs. Kozloff, for example, believes that photographs partly receive their high veracity because people believe they affirm the external world, because through them “we have concrete proof that we have not been hallucinating all our lives” (Kozloff 1979:101). In contrast, Berger notes that “The relationship between what we see and what we know is never settled” (Berger 1972:7) whilst Baudelaire accepted the veracity of photographs (Baudelaire 1859:297) at one time but later rejected it entirely (Baudelaire 1862).

Many of the early comparisons which gave rise to a belief in photography’s veracity were based on an understanding of painting or human memory (Holmes 1859, 1861) not comparisons with the external world. In the nineteenth-century, photography did not always have the same level of veracity that it gathered in the twentieth-century. The rise in popularity of the stereographic photograph during the late 1850s and 1860s contributed significantly to the perceived high veracity of photographs by adding a three-dimensional illusion of depth (Marien 1997:78) but why this then carried over into single view, still, black-and-white photographs is not clear. For as Green-Lewis says:

…photography’s power lay in its potential to be identified either as validation of empiricism in it surface documentation of the world, or, conversely, as proof that any visual account inevitably represents the world inaccurately. Realism’s triumph over the meaning of photography in general was ironic in that science deemed reliably truthful a process of representation that had achieved notoriety and popularity through its potential to lie. (Green-Lewis 1996:2)

Sontag believes that the word emanating from Paris in 1855 that the camera could lie “made getting photographed much more popular” (Sontag 1977:86). However, she argues that the falsification of photographs (retouching, for example) distorts reality whereas a fake painting only falsified art history. Countering this, Green-Lewis says that doubts concerning photography’s limitations “were largely outweighed by enthusiasm for its possibilities, and the camera was far more widely regarded as an instrument of revelation than of deceit” (Green-Lewis 1996:3). Revelation, however, does not always imply truth, merely the revealing of detail, and to this end artist-photographers such as Oscar Gustav Rejlander (1813-1875), Henry Peach Robinson (1830-1901),
and others of the period made photographs either as photomontages or staged tableaux in attempts to create a more desirable image than was possible simply by pointing a camera at the external world. In this regard these photographers were aware that photography had a veracity which could be exploited to convince the viewer that their created scenes were more truthful than a similar scenes created by painting.

**Acceptance by the State**

Tagg (1988) suggests that by the last quarter of the nineteenth-century the increasing use of photographs by medical, legal and government instrumentalities further helped establish a second measure of photographic truth which reinforced the veracity it already derived from its hands-off, mechanical nature (Tagg 1988:60-61). In so saying, Tagg is also suggesting that prior to that time photography did not always possess that same level of truthfulness, even though photography’s truth-value might be self-fulfilling, as Green-Lewis suggests:

Because realism’s own relation to truth (or lying) is so well illustrated by photography, photography became useful as the metaphorical substance in which wider representational topics with both ethical and practical imperatives could be argued. What realism ought to do and what it was actually capable of were topics for which photography was able to provide confirmation. (Green-Lewis 1996:20)

Green-Lewis points out that early photographs and modern photographs “are not taken but made, that their collective semantic is prone to the same influences and power struggles that shape other forms of representation.” (Green-Lewis 1996:5) and that “The camera had by the nineties [1890s] become a means of establishing identity as well as verifying authenticity…” (Green-Lewis 1996:68). Particularly pertinent, according to Tagg, was the official approval of the police use of photographs in Britain. The Metropolitan Police Force was set up by an act of Parliament in 1829 and subsequent Acts in 1920, 1938, 1948 and 1952 all authorised police to take photographs of suspected criminals for record purposes (Tagg 1988:75-76). Tagg notes:

The use of photography here, as a process which enables accurate records to be made quickly and cheaply, is clearly underpinned by a whole set of assumptions about the reality of the photograph… (Tagg 1988:76)

Whilst photographs had been used as evidence in British courts since 1868, the attitude towards them as evidence changed rapidly—“The nineteenth century began by believing that what was reasonable was true and it wound up by believing that what it saw in a photograph of was true” (Ivins 1953b:94). Tagg suggests, following Foucalt (1977), that truth is bound to power and the power of photography’s truth arose out of the development of a capitalist regime with political, economic and institutional overtones epitomised by the photographs used by police and the legal structure as evidence (Tagg 1988:94-95). Tagg says of two written guides for police photographers from which he quotes, that they are “… unshaken in their belief in the photograph as a direct transcription of the real” (Tagg 1988:98) and suggests that the police photographers
who wrote the guide books saw falsifications such as cropping, retouching, or any interference with the negative as “perversions of this purity of nature” (Tagg 1988:98). Tagg believes that because the actual production of photographs is hidden from the general public’s view and it is the product itself that is stressed; that, “the signifier is treated as if it were identical with a pre-existing signified” (Tagg 1988:99), since the truth about the truth of photography is hidden from the public’s view as well. Thus, photographs are rarely supported by their “supporting and surrounding discourse” and this which allows their truth to be historically changing (Tagg 1988:101). This implies that the veracity of photographs, although widely accepted since the earliest times, was open to question on a very key matter. This situation remained largely unchallenged until the 1970s—at which time it encountered significant critical comment. The intense academic debate that arose in the 1970s, along with the advent of digital imaging two decades later, brought photographic veracity into question in the wider arena of public debate and away from academia, where it had dwelt before then.

Revealing the truth
At most, it might be said that photography shows the shape and forms of objects more correctly than other means of three-dimensional representation. In a report to the US Secretary of the Interior in 1875, Dr. Hayden—an expedition leader—criticising poor quality, hand-drawn illustrations of topographic features made twenty years earlier wrote: “The truthful representations of photography render such careless work so apparent that it would not be tolerated at the present day” (Thomas 1978:37). The illustrations Hayden is referring to, which he called caricatures due to their crudeness, showed mountains “with angles of sixty degrees inclination, covered with great glaciers and modelled upon the type of any other than…” those they purported to represent. Retrospectively, it is most obvious that some of the belief in photography’s veracity stems from such comparisons with poor quality hand-drawn illustration, and not from comparisons with the object in the external world. In so saying not much at all, a great deal is said.

More than thirty years later, in 1909, George Bernard Shaw wrote, along similar lines, from the opposite perspective, about the “terrible truthfulness of photography” (Thomas 1978:163 n6). He was comparing a painting of a pretty girl which the painter calls Juliet (after Shakespeare’s character) with a photograph of a pretty girl also called Juliet. As Shaw describes it, the photograph “is still Miss Wilkins, the model. It is too true to be Juliet” (Thomas 1978:163 n6). As in the previous example, this is affording photography a high veracity (Shaw’s “terrible truthfulness”) yet is again comparing a photograph with a painting and not with the object in the external world. Shaw’s observations indicate that over time the clear understanding of photographic veracity
has evolved. The “terrible truthfulness” of photographs once meant as compared with painting whereas by Shaw’s time it has come to mean as compared with the object in the external world. This change might have been brought about by the introduction over time of sharper images due to faster emulsions in conjunction with faster shutter speeds, higher quality lenses, truer colour images, and a more sophisticated appreciation of images.

Throughout the nineteenth-century, a major direction of photography was “towards the revelation of truths” (Thomas 1978:77) and movement which accelerated with the beginning of deliberate documentation of things and events, came to maturation with the establishment of photojournalism and continues still. For the Victorians, one of the appeals of photography was the expression of metaphor—such as waves and tide, fishing boats pulled up on shore (romantic expectation and readiness)—images intended to counter “the time-harried present” and “the unsettling effects of the rush of time” (Thomas 1978:126). Importantly though, metaphor could also be used for social ends, to represent the plight of the poor or the squalor of the cities, for example. Photography provided the metaphorical in equally realistic detail as painting but with a higher veracity than painting; not a higher veracity than the external world.

To this end, the social philanthropist Dr. T J Barnardo used photographs to show the condition of children taken into care at the East End Juvenile Mission in London. In 1876 he was accused by other city missions of deception because one of his subjects, Katie Smith, was not the match-seller she was purported to be. A tribunal at a public hearing declared “photography implied actuality and Barnardo had been deceptive in creating ‘artistic fictions’.” (Thomas 1978:144). This accusation could well be made in modern times with little change to the argument, or outcome. That there was a perceived higher veracity in photographs than painting is also shown in the projects of Jacob Riis. Riis was a social reformer and a newspaper reporter turned photographer who photographed living conditions in New York’s Lower East Side in the 1880s and 1890s to demonstrate the squalor and poverty. He obviously felt photography offered more to his cause than could painting or other illustrative methods.

As Thomas suggests, “it took the Victorians, both photographers and the public, some time to learn...” the visual language of photography (Thomas 1978:161). Levine says that nineteenth-century realism “was not a solidly self-satisfied vision based in a misguided objectivity and faith in representation, but a highly self-conscious attempt to explore or create a new reality” (Levine 1981:19-20). This search was led from the start by the establishment in 1853 of the Photographic Society of London—later the Royal Photographic Society, which operated along a positivist philosophical line closely
modelled on that of the Royal Society’s (founded in 1660) empirical documentation of the world. However, the desire to establish photography’s objective credentials predates the establishment of the Photographic Society—Talbot’s findings were first read to a meeting of the Royal Society on 31 January 1839 in his paper: An Account of the Art of Photogenic Drawing or the process by which natural objects may be made to delineate themselves without the aid of the artist’s pencil. (Green-Lewis 1996:38).

**Art or science?**

The early emergence of the dichotomy between photography as a science and photography as an art is outlined by Green-Lewis (1996:39). Debate raged over what various journals should be classified—as fine art or scientific publication; how exhibitions of photographs should be categorised—art or craft; and the social status of photographers—artist, craftsmen or camera operators. These side debates did nothing to cement a stable identity for photography, or to clarify perceived levels of veracity but they did, however, leave photography open to attack by some of those whose livelihood was based on more traditional skills. That early photographs gave the observer an inaccurate representation of the view—full of fine detail but laterally reversed was such an opening. This mirrored “falsification” of reality is ignored by the viewer when assessing the veracity of a photograph, however, with most other products, falsification is considered criminal, as the illustrator Joseph Pennell pointed out in 1897:

> With his machinery and his chemicals, …can put upon canvas, upon paper, upon metal, pictures which look to himself and his friends surprisingly like the real thing. The man who sells margarine for butter, chalk and water for milk, does much the same, and renders himself liable for prosecution by doing so. (Pennell 1897:212)

The question naturally arises as to whether it is the photographer who is peddling phoney products—passing two-dimensional representations off as the real thing—or whether it is the viewer misunderstanding the product? If a customer uses a computer as a boat anchor it is not the retailer who is at fault for misrepresenting the product. As Green-Lewis says “Pennell’s real complaint has rather to do with the substitution of photography for drawing and painting. More effectively than either, a photograph can indeed look ‘like the real thing’. ” (Green-Lewis 1996:52).

Because photography could better represent an object of the external world, one school of thought arose that argued that photography should always represent the external world as accurately as possible—and contrived photographs like those of Robinson (Fading Away, Figure 2.20) and Rejlander (Two Ways of Life, Figure 4.7, Section 4.4) should be avoided. Moreover, according to some commentators, “photographers were to acknowledge manual and chemical interference [e.g. retouching or addition of sky],
not as an admission of skill but as a disclaimer, so that the viewer could determine what was truly the work of the camera and what was not” (Green-Lewis 1996:54-59). Today’s debates about identifying manipulated digital images in the media are, in this context, not new.

The issue of veracity did not exist for images created using optical drawing tools until after the first true photograph was made. Whatever veracity illustrations made using the camera obscura may have claimed originally was transferred directly to photography—although the claims for higher veracity derived from the photographic process itself. Batchen (1997, 2002), and Burgin (1989) suggest that a desire to photograph predates the invention, or development, of photography and they both allude to a desire amongst the burgeoning middle-class to “protect itself ‘against the loss of the object…and the loss of identity’ ” (Batchen 2002:19). Willis (1988) adds to this notion when she says of photographs, that “these images were icons of pride: pride in new status and newly acquired possessions” (Willis 1988:63-65). In other words, if an object is owned, it was believed that it should be recorded as being owned, and if the object itself could not be possessed then a picture of it could be. A photograph is a portable record (evidence) of that property which may not be moveable, such as a house, a boat or a garden. If a photograph was deemed to better represent an object than a painting of the object could then clearly it would be more desirable to own a photograph of the object than a painting of it. First-hand comparison is available of the original object and the photograph of it and if the resemblance is convincing then photography’s level of veracity is lifted.

These interwoven concepts of what photographs are and what they do with the external world when it is recorded are mixed and interpreted by each viewer, so now we can determine what might be at work there.

4.2.3 The mind of the viewer

Individual viewers see photographs through their own paradigm. They might even see a photograph differently the first and second time they view it. What they are perceiving is “sense-data”: that is, as Cavell (1979) explains, the difference between the object itself and a photograph of the object. If the sense-data of the photographed object were the same as the sense-data of the object “we couldn’t tell a photograph of an object from the object itself” (Cavell 1979:20). However, the difference is only in the flatness of the photograph’s surface, since most of the viewing cues are the same for both the external world and photograph, so perhaps those who believed in the high veracity of photographs do so because they wanted to believe it, and because they have a vested interested in doing so. This could have arisen because professional
photographers need to sell photographs to earn a living, newspaper owners and editors want to sell newspapers and advertising space, critics and commentators seek to enliven the debate to continue being published and manufacturers needed to sell more film and printing paper, and so on—so once put forward the notion of high veracity became self-perpetuating.

Ivins observes that the viewers of early photographs spoke of “photographic distortion” until photograph-viewing became so commonplace that the broader public became fully conditioned to photographic images. It was only then that the notion of distortion was eventually displaced in their viewing mode (Ivins 1953b:138), which in turn led to descriptions such as “photographic precision” and “photographic truth” being applied. It is in this way that Maynard’s contention that “photography has changed our way of seeing” (Maynard 1997:192) can be understood.

It is in the beliefs of the general public that the acceptance of any level of inherent veracity attributed to conventional photographs must ultimately sit. Most people alive today have grown up with a notion that the camera never lies. They have taken photographs themselves and seen the resultant image to be similar to what they saw in the viewfinder; they have seen other people’s photographs and determined that what the image shows is something like what the real world looks like, they accept the veracity of photographs without either considering the matter deeply enough to ponder the alternative—and they ignore the characteristics of the photograph that do not resemble the characteristics of the external world. In some instances viewers see photographs of people they know well, including themselves, and consider that the image does not look like that person, or themselves, yet their belief in photography’s veracity stands unquestioned. The illusion is an allusion. In effect people often take the veracity of photography as a given and trade away the notion of accurate representation.

One of the ways early photographs differed from many paintings was in the rendering of foreground and background detail (Clarke 1863), a feature Marien refers to as “its sharp foreground and equally sharp background detail” (Marien 1997:106). This depth of field characteristic of photographs is not present in the external world, nor even in all photographs. Maynard suggests that puzzlement expressed by early viewers about what photographic images actually were about, i.e., what and how they depicted the external world “should have signaled an already existing unclarity in their understanding of traditional media as well” (Maynard 1997:119)—for example, viewers of camera obscura images did not (or perhaps could not) separate in their minds the image projected (even if it was imperfect) from the image as seen.
Batchen (1997) notes that both Daguerre and Niepce referred to their processes as making “spontaneous reproduction” of nature. With the amount of chemical processing both knew was necessary both before and after a lengthy exposure, their use of the word spontaneous is different to what it is understood to mean today. In the eighteenth-century, “spontaneous” meant that something “proceeded entirely from natural impulses” (Batchen 1997:90). The terms “take”, “shoot” and “snap”, used in describing photograph-capture arose after film became fast enough to allow hand holding of cameras which, by that time, were small enough to be portable. A one-hour expose time does not conjure up the idea of “snap!”, yet it is in the use of language that many notions are formed or ill-informed.

**Merely words?**

As Hagstrum (1958) and Batchen (1997) point out, the terminology of the eighteenth-century might cloud some of the definitions for today’s reader. Hagstrum suggests that the optical devices such as the cameras obscura and lucida and the Claude glass used to view scenes of landscape lead the viewer to see the scenes as both “faithful realism and stylized idealism” (Hagstrum 1958:141). If the meaning of terms such as “truth” and “reality” were understood differently in the eighteenth-century from what they are in the twentieth- and twenty-first-centuries, then comparisons between how modern viewers perceive photograph’s veracity and how their eighteenth-century counterparts perceived it are, perhaps, impossible to make. However, our understanding of photographs has shifted over time due to forces other than mere words. Batchen questions Hagstrum’s idea by suggesting that by the mid-nineteenth-century, landscapes viewed with these optical devices were “no longer seen as a guarantee of unmediated reality” but were taken as metaphors, one of which he describes as representing a “real-ideal” (Batchen 1997:81). This is partly what Batchen is referring to when he says that during the time leading up to the announcement of photography there was “radical dislocation and transmutation” of ideas and concepts informing the desire of the early experimenters to fix the image of the camera obscura.

This involved the general refiguring of prevailing relationships between knowledge and subjectivity, as well as the reconceptualization of representation and its metaphysical implications. (Batchen 1997:100)

For this reason, it may be difficult, if not impossible, for the modern scholar to ascertain the correct meaning and nuance in the thinking of the time—even from the writing of the inventors of photography and their contemporaries who commented on and criticised the results. Whilst the language of the nineteenth-century may have some bearing on our understanding of the thought process of early viewers, their use of logical reasoning would not have been too dissimilar to that of today. Pinker (1997) observes:
Logic is indispensable in inferring true things about the world from piecemeal facts acquired from other people via language or from one’s own generalizations. (Pinker 1997:335)

Logic, however, will only apply when like is compared with like. The difference in appearance between the scene in the external world and image projected in a camera obscura is marked, but not very much so. However, the difference in appearance between the image in the camera obscura and the daguerreotype or calotype produced from it is marked—very much so. It requires more than logic to infer the same true things from both images even when it is conceded that there is similarity in detail, tonal range, shape and form in the two.

Nevertheless, the ardent desire to see fixed the image formed by the camera obscura was strong enough in the mind of the general public that when this was achieved by Daguerre, Talbot and others the public ignored the discrepancy between the tiny, monochromatic recorded mirror image or blurry print and what the scene from the external world would have looked like (Batchen 1997). A photograph freezes a moment in time and usually retains much detail from the scene depicted. If the image shows too much detail—beyond that which humans can discern from looking (as daguerreotypes can do), the resulting photograph will not match what is normally seen in the external world. If the photograph has low resolution (as Talbot’s early photographs have) the resultant photographs will not match the external world as humans see it. In both these ways photographs are different from how humans see the external world—so much so that the picture cannot represent truly anything the viewer has seen or experienced in the external world. It can be argued that this is why many people accept poor quality snapshots as good photographs; since poor quality snapshots better represents the external world as actually experienced by the human mind.

**Motion**

The influence of motion pictures on photograph-viewing, and hence veracity, cannot be underestimated. In 1959, Panofsky noted that “The medium of the movies is physical reality as such” (Panofsky 1959:31) while Bazin argues “Cinema is committed to communicate only by way of what is real” (Bazin 1967:110). Cavell clarifies this when he says “...the basis of the medium of movies is photographic, and that a photograph is of reality or nature.” (Cavell 1979:16). Movies are perceived as being more real than photographs because they contain movement, a characteristic of the external world missing from photographs—and because they are mostly (these days) in colour. A conventionally made movie is merely a sequence of still photographs and, as with photographs, part of the veracity ascribed to movies—even when the viewer is aware they are contrived, manufactured pieces of fantasy (Cavell 1979)—may derive from an earlier knowledge of home movie-making which allowed little leeway in creativity.
Selling an idea

The amplifiers for the support of one product over another (marketing, advertising, propaganda) will inevitably cause a demand for the more successfully promoted item rather than for the one best suited or the superior product. For example, following World War II, road transport was promoted over rail transport in the USA with a publicly funded highway system, tax advantages, and artificially low petrol prices (Maynard 1997:76-77, Franklin 1992:69, 97). Similarly, the marketing of photography to the amateur market has long emphasised promoting the processes and equipment with sales pitches designed to persuade the buyer of the wonders of the method, the ease of operation and the veracity of the results. In promoting photography over painting and drawing, Talbot used the terms “truth and reality” (Maynard 1997:200) in his writing to emphasise the benefits of his invention and Daguerre advertised his product as having “very fine gradations of tones” (Daguerre 1839:11). The most convincing argument for photography’s veracity was that viewers “imagine correctly and in great detail how their subjects are…” (Maynard 1997:29). As with road transport, once the technology becomes economically and politically important there is an imperative to maintain the position of the product in the market place. Any danger in its use or any false information about it are suppressed by those with vested interests in maintaining the status quo.

Price and Wells warn that direct comparison with contemporary perceptions of photography are inappropriate because in the mid-nineteenth-century “drawing was received differently” and photography was seen as replacing “the informational sketch” rather than interpretative or creative painting (Price and Wells 2000:13). This was because photography was “seen as offering mechanical accuracy combined with a degree of quality control” since it “showed the world without contrivance or prejudice” (Price and Wells 2000:15-16). This idea persisted at least until the Pictorialists abandoned straight photography and started to make pictures which were:

- out of focus, slightly blurred and fuzzy;
- pictures of allegorical subjects, including religious scenes;
- [and] scratched and marked prints … to imitate something of the appearance of canvas. (Price and Wells 2000:14)

More recently, photography’s distinctive and unique relationship (both technically and aesthetically) with what was in front of the camera has meant that “analogical theories of the photograph have been abandoned” (Price and Wells 2000:18). Thus many contemporary viewers no longer believe that photographs directly replicate circumstances from the external world. Rather they recognise that:

…technologically, the chemically produced image is an indexical effect caused by a particular conjuncture of circumstances (including subject-matter, framing,
light, characteristics of the lens, chemical properties and darkroom decisions). (Price and Wells 2000:18)

However, how widespread such an opinion is amongst the general public is not mentioned and the authors point out that the renewed debate about photography’s veracity opened up by the introduction of digital imaging “shows that, in everyday parlance, photographs are still viewed as realistic” (Price and Wells 2000:18)

It is the indexical effect that plays a key role in maintaining this sense of realism: “The key characteristic of photography… is its ultimate dependence upon, and therefore reference to, a physical person or object present at the moment of making the original exposure” and since this physical presence is the origin or source of the possibility of an image “this indexical status [becomes] the source of the authority of the image and, thus, of central theoretical debates relating to realism and ‘truth’.” (Price and Wells 2000:34). Barthes also regards photographs as signifying reality “rather than reflecting or representing it. The emphasis is upon what the viewer as ‘reader’ of the image takes as the principal cues and clues for use as the basis of interpretation” (Price and Wells 2000:43).

In recent years, the frequent use of photographs in heritage tourist venues, museums, galleries and the like, to depict a history which might be unrelated to the original purpose of the photograph has renewed debate in photography’s “implicit claim to authenticity” (Price and Wells 2000:60). For instance a photograph of factory labourers originally taken to emphasis the unsafe working conditions might be presented to depict the fashions of the era, or the appearance and stance of members of a particular trade. To a large extent, this practice is somewhat incongruous, since the notion of veracity was thrust upon photography in its early stages as a reaction to contrived images such as Rejlander’s Two Ways of Life and Robinson’s Fading Away. Thus, to maintain the integrity of photography, “…practitioners of the medium were urged to stick to images of observable reality” primarily because the photograph’s optically accurate image better resembled human vision (Marien 1997:88).

The desire to preserve truth in photography ignored the fact that both examples given above could just as easily have been staged and photographed on one negative as created in a darkroom from many negatives, and was an outcome of the concurrent debate about photography as High Art more so than about veracity. That veracity having already been assumed can be seen in the idea that rendering a photograph “a little out of focus” (Newton 1853:6-7, de la Blanchere 1859:3) would make it less real and more painterly—a sacrifice of detail went against a demand for photographs to “submit to the iron law of ‘things as they are’…” (Morton 1866:72).
Perhaps it was the newness of the imaging medium which confused nineteenth-century thinking. Marien describes photography of the period as providing “a new kind of verisimilitude, not quite a copy, not quite an actuality…” (Marien 1997:111), whereas human understanding of reality, and beliefs about photography’s depiction of reality, were the product of education, learning and cultural influences, an ability to discern information, and reactions to the development of ideas over time—along with the mind’s internal sequences of self-righting and filtering of knowledge. Even today, there are still social experiences which condition particular beliefs and mental function and development processes, adaptations and organisational structures that may be in conflict or allied to each other. Consequently, a natural truth can be misinterpreted for many reasons—propaganda, misunderstanding, misconception, and so on, and these influences can accumulate over time.

Whether it is the photographic process, the general concept of photography, or the mind of the viewer which attaches high veracity to photographs may never be fully ascertained—although each of these will aid in the development of a tool to clarify and quantify photography’s veracity. However, there are still several avenues of investigation with which to contend.

4.3 The interpretive nature of photography

There is an interpretive nature to photography, that viewers might ignore in everyday viewing, which makes photography no less a contrived visual medium than painting, drawing, sculpture, or any other representation of objects. Whilst, on one hand, a photograph is a description of a surface from the external world, on the other hand, it is also an interpretation of that world. Interpretation, in this sense, can be as basic as cropping a scene from the external world; as simple as colour dyes or grey tones not being equivalent in value to the appearance of the colours or tones of the world; or as complex as any considered fine art photograph can be. It is known that aspects of the external world such as brightness in sunlight cannot be matched in the limited dynamic range of photographic film and paper, yet the perception of high veracity—seen as accurate rendition—persists even when this dynamic range is compressed. It seems that the human brain makes allowances for the differences between the two scenes as they are viewed. The compensation is often as subtle as when the iris adapts to changing light levels without the viewer being aware it happens.

The extent to which photography is interpretive has been the subject of debate since the invention of the process. Yet, the debate about whether or not photographs depict the external world accurately is often deeply overshadowed by the debate as to whether, by its nature, photography is too mechanical to be considered an art form (Emerson
and many writers blur the two issues when commenting on photography. The reason the confusion arises when the comparisons are made is that the graphical elements—such as the brush-work, retouching, combination printing, soft focus effects, etc.—that are often used to lend credence to photography as art are often the factors that can detract from the authenticity of a photograph, thereby lowering belief in its level of veracity. However, the photograph-as-art debate is not at issue here. Whether or not photography is too mechanical to be considered as art is a separate issue (see Section 4.9) to whether the mechanicality of photography aids its ability to reproduce the external world accurately.

As we have discussed, the veracity of photography might be contingent on a viewer’s knowledge of the processes involved in the production of a photograph and in the manufacture of the consumables (film, paper, chemicals) used in the picture-taking mechanics—most of which remain hidden from the end-user. Photography, as a recording mechanism, was significantly different to anything that predated it. Painting, drawing and illustrating require skills many people lack and are often time-consuming processes, yet the preparation of photographic plates was also time-consuming and required knowledge and skills that many people lacked. In some instances, the recording time (exposure) was long but, in those early days, this and other aspects of the media seem to have largely been ignored when comparisons were made between the mechanical and manual processes that are photography and painting. The key to the difference is that the highly skilled use of the hands in manoeuvring brush or pen was no longer required to make a representational image of an object. Although modern photographic techniques are similar to the methods used by Daguerre’s contemporaries they do differ slightly from daguerreotypes. The following description of how a photograph is made provides a useful starting point to explain the process:

Analogue photography is the capture of light on a photo-sensitive emulsion. The reaction to light on the sensitized crystals in the gelatin emulsion is made visible by the chemical developing process. Frozen in the now visible image is a representation of a fraction of a second in the continuum of time. (Blackman 2001:1)

Photographs are formed not by the line of a pen or the stroke of a brush, nor are they formed at one starting point and continued at the next until an area is covered with marks. Instead, an entire area is affected at once, and over a relatively short time an image is built up, first latently and later visually and it was this factor that gave the impression that photographs came directly from nature. Several aspects of the finished product, for instance, the frozen moment of time, are ignored in concluding that the resultant photograph successfully resembles nature (the external world).
This aspect of photography—the non-temporal nature of the image—differentiates the still image from the moving reality of the external world. Aligned to the temporal aspect of the image is the temporal nature of the process. From a twenty-first century perspective many people see photography as instantaneous and, while some photographic processes seem more so (e.g. the now defunct Polaroid™ processes), there is still manufacturing time to consider just as there was in Daguerre’s day. The actual image recording time for most photographs is now measured in fractions of a second rather than hours or minutes, and the interpretive nature of photography has been significantly influenced by that change over time. The first photographers avoided scenes with moving people and animals because they caused blurred portions in a picture; early portraits had their subjects looking stilted because they were held in head and neck braces. With faster shutter-speeds and more sensitive film, animal motion could be frozen; and in recent times even faster shutters and light-sources have enabled photographers to capture images such as those of a bullet passing through a playing card.

It may seem to the photographer who loads a film into a camera and takes photographs immediately, yet needs to wait while the film is processed, that the split-second it took to record the image on film is the instantaneous moment that freezes the continuum of time. Whether that be a fraction of a second or more than an hour, whether that be achieved in 1839 or 1939, or today, it may also seem that it took little time and not much effort—and that it was all achieved without complex training and sophisticated hand skills. Interestingly, digital image-making (with many cameras) is even more instantaneous than traditional photography because the picture almost immediately appears on the camera screen.

Unlike in the early days of photography when photographers coated their own glass plates and processed the resulting image, the majority of contemporary photographers who employ analogue photographic methods are still unaware of the mysteries of manufacture, processing and post-production. Only those photographers who, after capturing the image, go on to process their own films and make their own prints are aware of the wider and more exciting interpretive nature of photography, and the possibilities for subsequent manipulation. Those who actually manufacture their own emulsions and make their own printing paper are also likely to have an even wider understanding of the interpretive nature of the medium. This is an important concept because it is here, in the hidden processes of photography, that veracity might be maintained in the minds of ordinary users and viewers. Yet, whatever their understanding of analogue photography, the vast majority of viewers take a photograph’s high veracity as a given and, as a result, use the images for what they need them to do—without considering,
4.4 Photographs in and of the external world
On a day-to-day level, logic dictates that a photograph can be used to represent, in some way, the external world as it is perceived, conceived and understood by humans—in other words, as a record of what people mean by reality. People use photographs for identification (passports, drivers’ licences); they use them in scientific and medical research to document results; they use them in magazines to illustrate fashion trends and make-up styles; they use them in newspapers to illustrate stories and historians use them to discern information about past eras. However, using a photograph for illustrative purposes, or to verify scientific findings, is not the same as accepting that a photograph accurately depicts the external world. Although prior to the development of photography, paintings and drawings were used for illustrative purposes, their veracity (even that of the most highly accurate anatomical drawings) has never been considered to be as high as that of photography. Put simply, a photograph of the applicant is accepted with a passport application whereas a drawing of the applicant would be immediately rejected.

If they are believed to be authentic and unmanipulated, photographs are used as reliable evidence of features in the external world. Yet studies in brain function and visual perception (Pinker 1997, Carter 1998, Greenfield 2000) show that the way humans receive and decode visual messages precludes them from accurately interpreting the external world itself, let alone photographs of it. This problem, as well as that of determining what photographs actually are, and from where veracity has arisen, is fundamental to this study. If a photograph of the external world merely triggers the same signals in the brain as the external world triggers, then the characteristics of the photograph could be markedly different from the characteristics of the external world and still produce the same result—or a result so convincingly similar that scientific observers could not discern the difference that the two responses have on the human viewing system. Nevertheless, enough sense-data permeates the visual system for most viewers to see the object in a photograph as being different from the object itself.

It follows that if humans cannot directly link objects from the external world with images of objects from the external world then a reference to what the photographic image is, is needed. Some authors (e.g., Kracauer 1960a, Sontag 1977, Barthes 1977a, 1981, 1984,) have referred to photographs as symbols and as objects which can be viewed symbolically. Their arguments attempt to define photographs as being indexical or iconic depending on what the author believes photographs do with objects.
from the external world. However, whilst the details of each author’s position are examined in Chapter Two, it is pertinent here just to mention that a viewer, when interpreting symbolic images, might come to different conclusions to those arrived at when interpreting non-symbolic data. The sign on a toilet door, for example, indicating gender is an indicator to something, not the toilet itself. As a result, it seems most viewers don’t see photographs as symbols, and therefore grant photographs high veracity.

Although very few commentators throughout the history of the medium have directly questioned the veracity of photographs, those who have questioned it’s veracity (for example, Charles Baudelaire in Trachtenberg 1980, David Hockney in Sheff 1991, and Hockney 1998:74, Sekula 1999) and it’s role in society (Stieglitz 1899, 1907:13, Sontag 1977, Solomon-Godeau 1994, Batchen 1997, 2001), seem to have had their observations ignored by the general public—and many photographers as well. To this end the history of fake photography (King 1997, Brugioni 1999) provides numerous examples of photographs that have been altered to meet a variety of end results: not all altruistic, nor evil.

The fact that some newspapers have long use manipulated photographs to illustrate stories has had a profound effect on convincing unwitting readers that photographs told a better story than words alone—thus, “Photography created an impact where words often failed” and at the same time convinced readers that the images are both genuine and unmanipulated (Brugioni 1999:44). In the USA particularly, turn-of-the-century Hearst newspapers such as the New York Chronicle were especially guilty of photo-manipulation to support their dubious practice of yellow journalism (Coleman 1943:34). In this context, it should be noted that once a photograph has been reproduced through a photomechanical process—such as is used to print newspapers—any alterations to the original photograph would be difficult or impossible to detect. It was this cynical use of photographs, along with supporting text (subtle or subliminal) further reinforcing the idea that they were genuine and reliable reproductions of the real world, which helped heightens the belief in high veracity for photography in the early twentieth-century.

On an everyday level, the general public’s understanding of photography—along with those of many professional photographers—is profoundly different from those of scholars of the subject (Watney 1982, Carothers & Roberts 1989, Batchen 1997). It was not until overtly manipulated digital images came into widespread use that the general public, influenced by the news media coverage of the issue (Simpson 1993:18, Silverman 1993, Nelson 1997, Elgar 2004, Williams 2004), began to question the
veracity of all digital images to the point where digital images now lack any form of immediate credibility. Significantly, this is still not the case with conventional photographs (Price 1994, Maynard 1997). The implication that digital images have little or no veracity mainly because they are perceived to be easily manipulated cannot be overstated in relation to this discussion.

That photography has helped shape the world by providing certain visual references to that world—at least the Western world—is unquestionable. It has provided visual references to fashion (for example, Twiggy, The Beatles), politics (Winston Churchill’s portrait by Karsh, Trotsky and Lenin Figure 4.5) and war (Nick Ut’s Vietnam photograph Figure 3.1, flag raising at Iwo Jima Figure 4.6); it has given prominence to visually attractive people in media reporting (Spice Girls) over more talented performers; and it became the foundation of lifestyle reporting (Life Magazine, Picture Post). That every day, everyday people rely on photographs for information about the world is part of our understanding of the world, and it would appear that photographs frequently present a reliable tool for that job—except when fraud is demonstrated.

Figure 4.5 Lenin addresses the troops, May 5, 1920. Photographs taken moments apart show the removal of Trotsky and another figure (arrowed) to disassociate them from Lenin.

Figure 4.6 Raising of flag at Iwo Jima by Joe Rosenthal February 23, 1945
The issue as to how viewers “know” or assume one picture to be untruthful (for example, Rejlander’s, *The Two Ways of Life*, 1857 Figure 4.7) and another to be truthful (Nick Ut’s photograph Figure 3.1) is based extensively—along with the context in which it is used and the credibility of the photographer, amongst other criteria—on the viewer’s presumed knowledge of the external world. Consequently, the process is fraught with difficulty because notions of what constitutes truth may be in the mind of the beholder, and because prejudice (i.e., racial, sexual) and bias (i.e., political, fashion) come into play when people make such value judgements (Roberts 2006). For example, it is little known that the girl’s genital area in Ut’s photograph has been retouched to render it less sexual, and the image cropped. Not knowing this fact allows the image a certain perceived level of veracity—but a question arises as to the level of perceived veracity once the fact of retouching and cropping is discovered and thus further questions arise—does it alter to a significant degree the truth inherent in the picture? does the fact that it was “friendly fire” from which the people fled alter the perceived level of veracity? Whether or not veracity is in the mind of the viewer or is contained in the image is a recurring theme in this study.

The veracity of digital images is perceived as being far less than that of traditional photography. Yet as end-products, the resultant pictures are usually viewed without the viewer being aware what technique was used to produce the image. So, to a great extent, the viewer cannot make a judgement of veracity on the basis of medium alone. Yet because the two production methods—analogue and digital—are so different a comparison, and a distinction, needs to be made early in the discussion.
4.5 Digital imaging versus traditional photography

Although a discussion on analogue photography’s level of veracity could have occurred at any time before the invention of digital imaging, it is the emergence of digital imaging which has brought the debate into sharper focus. It is difficult to compare the particular specifications of digital technology with conventional photography because the two processes are so fundamentally different that one should not be thought to be the same or even similar to the other. Quality is a major factor used when the media are assessed as this has an impact on perceptions of accuracy and thus veracity. In mid-1999 Ian Coates claimed: “As yet digital camera images still do not come near to matching those produced using conventional film stock.” (Coates 1999:7) Despite digital images rapidly attaining a more photographic-quality in the ensuing period (in accordance with Moore’s Law, which states the resolution of a photo-sensor chip should double every two years), Coates’ description still remains valid at the time of writing this thesis because the pixel size cannot easily be reduced (Stix 1994, 1995) and because of limitations caused by Quantum Efficiency—the sensor’s ability to convert light to electricity. Coates also notes that, at the time he was writing: “…development of the optics has somewhat lagged behind that of the electronics and cameras” (Coates 1999:7) a state of affairs which is still the case in 2009. These two characteristics—pixel size and optics—of digital imaging are important because they interact to leave the fidelity of digital images lower than for traditional film even as we approach the end of the first decade of the twenty-first century.

Lens manufacturer, Schneider Optische Werke of Bad Kreuznach in Germany, as other lens manufacturers do, develop lenses for digital cameras specifically with a view to making them with a lower resolving power than those produced for conventional photography. According to a spokesperson for Schneider:

> Because digital sensors are composed of separate elements, they cannot resolve details that are smaller than one pixel. There is, therefore, no point in the lens resolving detail to a smaller scale. Indeed if any such detail is presented, it will exist in the image only as noise, not useful picture information. (Tarrant 1998:18)

Some of the noise associated with digital images equates with neutral density (the creation of base fog in the emulsion) in silver halide photography. Thus, it is desirable to reduce the amount of noise to present clearer images. Importantly, noise adds to the file size, so by reducing the lens quality and therefore the amount of noise generated, the file size is reduced—a useful marketing feature because when file sizes are smaller, more images can be recorded on a media-card or camera storage chip.

Nevertheless, by 2009 even the most sceptical of photographers are beginning to regard digital images as being near-photographic in quality. Many of the high-end consumer digital cameras produce upward of ten million pixels in image area, but a
distinction still exists between the two media because technical quality is still used to judge the appearance of an image, especially when enlarged. Even so, many users no longer agree to a distinction between the two media—a view which has been emerging gradually but consistently during the past decade. Coates marked the origins of this when he asks of digital imaging “…is it any longer photography?” and in answering his own question noted: “…photography is just a small specialised part of imagery and can no longer stand alone” (Coates 1999:13). Thus Coates indicates that at the turn of the century, digital imaging was becoming (or already had become) just another means of recording three-dimensional images on two-dimensional surfaces (or the four dimensions of space and time to the two surface dimensions, according to Flusser 1983/2000:8). Consequently, should it be thought of separately from traditional photography? The continuing notion that one medium has low veracity (digital) and the other a higher veracity (analogue) seems to suggest a differentiation is required between the two media.

The idea that digital imaging can be readily equated with analogue photography is challenged when it is demonstrated that digital images need not have the same reference to the external world that photographs must have. Hilton (1998), a solicitor, discussing the UK Protection of Children Act 1978 (PCA) points out that:

The scope of the PCA was extended in 1994 to meet the new threats presented by computers; digitally-stored photographs and ‘pseudo-photographs’ are now covered by the PCA. A ‘pseudo-photograph’ is an image which appears to be a photograph, such as a computer generated image. (Hilton 1998:9)

From a legal source we have a term which can be adopted for discussions involving photography. These pseudo-photographs have come about because:

Electronic technology is getting sophisticated to the point that images can be created purely on screen, deceiving even the most sophisticated eyes into believing they were taken with a camera (Golden 1998b:11)

As with any visual medium, the quality of the image produced will vary considerably depending on the skills of the practitioner and the tools and technologies used in the working process. Tarrant is referring to digital images when he notes: “…heavily reworked pictures…sometimes seem closer to illustration than to photography.” (Tarrant 2001b:3) a view which might equally apply to silver halide photographs such as Rejlander’s Two ways Of Life. The digital realm of image-making is somewhat predetermined for the user by the tools that can be used.

In the case of Photoshop (Adobe, USA) for example, users can only perform actions that programmers have provided: everything is a combination of the available options, and the possible results are definitely not infinite. This fact contrasts starkly with the case for silver halide photography, which is a much less regimented area of activity. And it is because of this difference that the traditional medium must inevitably offer those who master it a greater variety of creative possibilities. (Tarrant 2001d:3)

In addition, there is some debate as to what these digital image-makers should be
called. Whilst some practitioners are “inclined to call themselves ‘image makers’ or ‘lens-based media artists’…” (Golden 1998b: 11) the latter obviously would not be an appropriate title for someone producing pseudo-photographs in which lenses do not figure in the production. If the material used in producing an image can be detected when enlarged—and a traditional photograph can still thus be discerned from most digital images—then the involvement of a photographer is evident in the case of the conventional photograph. The same cannot be said when we compare a digital image from the external world and a pseudo-photograph. Herein lies a valid basis for us to consider digital images as being different from traditional photographs when assessing veracity.

Whilst the above argument may initially appear to be little more than an issue of semantics, Batchen (1997) argued that digital imaging technology challenged the very foundations of veracity “…digitization abandons even the rhetoric of truth that has been such an important part of photography’s cultural success” (Batchen 1997: 211). Digitization in itself may not alter the perceived level of veracity attached to digital images—but the steps in the process can. If picture quality plays any role in determining levels of veracity then the quality of digital images compared with traditional photography images is significant and so the characteristics of photography which apply in this situation are analysed in detail in Chapter Five. Meanwhile, the steps in the digital process that can alter perceptions of veracity need to be considered, since they play a pivotal role in deciding veracity levels for traditional photographs.

4.6 Manipulation of photographs
Chapter One began with some comparatively recent examples of photographs being manipulated to suit various end-purposes, but manipulated photographs date back to the earliest times of photography. In the early years, the commonplace practice of photographic manipulation was arrived at by degrees of magnitude and was rarely intended to be fraudulent—rather, the intent was to make better or more faithful representations of the original scene. Early emulsions were orthochromatic (sensitive to blue light but not green and red) so the sky, for instance, was rendered white—and therefore unrealistic. Clouds from another negative were often double-printed on to the landscape exposure to compensate. Conversely, panchromatic black-and-white emulsions (sensitive to the full range of the visible spectrum, and sometimes further into the infrared range) render sky areas a darker grey than the original scene showed. Manipulation was also used to balance composition. A tree or a person might be added or cropped from a scene. Indeed, photography itself can be regarded as a manipulation of the external world into an image form; a three-dimensional view transformed into two dimensions.
It was due to the publicised existence of manipulated photographs in the first place that questions regarding perceived levels of veracity for photographs first arose. Before the widespread use of manufactured photographic material (film, paper, chemicals, etc.), photographers made their own emulsions, so only they knew what degree of variation occurred from photograph to photograph, and to what extent manipulation might have occurred. At one end of the spectrum could be counted any small variation in the photograph due to the materials from which they were made (and which might impact on its sensitivity to light, for example), while on the other end of the spectrum could be included the gross alterations of images such as the not-too-subtle removal of political figures from pictures (e.g. Figure 4.5). The notion of a spectrum or continuity of manipulation or truthfulness might exist—whether intentionally produced or not—suggests the need for an illustrative tool with which to assess degrees of veracity—and it is for this reason that the development of a Veracity Spectrum forms a key part of this study.

Deliberate image manipulation has been part of photography since the earliest times. Allegorical pictures were created which represented an idealised world and some of these have become collectors’ items that are recognised for their artistic merit and their creator’s ability with manipulation techniques. That they are manipulated photographs is secondary to other considerations such as aesthetics, historical relevance, message, creativity, technique and so on. In conventional photography many manipulations are done by hand, often in association with other photographic techniques and are widely accepted as valid artistic processes. Collage and Photomontage— involving the cutting and pasting together pieces of photographs, drawings, paintings, printed material and other items are highly regarded creative strategies, especially in the hands of certain artists. Painting and other brush-work (e.g., painting emulsions onto paper, brushing developer onto exposed emulsions, etc.) can be used—as well as stitching (the work of Betty Hahn, for example) and other craftwork. Double exposure techniques in the camera or the darkroom are commonly used and are taught as a matter of course to students in those art schools still working with traditional photographic technologies. Such additions are incorporated to achieve a photograph-like image that may (but not always) purport to be a photograph of a real or imagined aspect of the external world. Well known historical examples of this diversity of manipulation include the Cottingley Fairy photographs (Figure 4.8), John Heartfield’s political montages (Figure 4.9) Man Ray’s Rayographs (Figure 4.10), and Jerry Uelsmann’s multi-exposures (Figures 4.11).
Figure 4.8 (above left) Elsie Wright and Frances Griffiths (1917) Cottingley fairies photograph. Frances is shown with the fairies. Figure 4.9 (above right) John Heartfield (Helmut Herzfeld). Like Brothers, like Murderers.

Figure 4.10 (above left) Man Ray Rayograph (1924)
Figure 4.11 (above right) Jerry Uelsmann Untitled.

Photography has always had its manufactured images, its abstract images, and its distortions of the external world. It matters little if these are intended as expressive or simply as art. In an artistic context the veracity of these images need not be questioned but in a wider context they form part of the continuum which is being addressed in this study. While viewers may read beauty into a photograph, or may discern if a photograph is well executed, it can be argued that they don’t normally set out to consider a photograph’s veracity as part of their visual experience—unless visual cues draw attention to obvious discrepancies or inconsistencies—as might be encountered in some fine art or in other clearly manipulated photographs. For this reason, any learned degree of visual literacy that might assist in the assessment of veracity is unlikely to be derived from frequent exposure to “run of the mill” photographic images—and it is precisely these ordinary, unmanipulated images that constitute the vast majority of the images encountered on a daily basis.
The introduction into the imaging field of digital technology and, in particular, computer-based seamless montage techniques, has brought the veracity of pictorial images into question by the general public. Western culture is heavily influenced by the widespread use of pictures—particularly in advertising—ensuring that most people are exposed to hundreds of pictorial images each day, many of which are photographic in origin. While exaggerated manipulation (a mouth made larger to suggest hunger or a body stretched to suggest height) are taken as humorous, the subtle manipulations (air-brushed skin, changes to garment colour) largely go un-noticed or are agreed to be a characteristic of the digital process, although even when manipulation techniques were used with analogue photography, critical analysis of the changes was rare (for decades, Playboy centre-fold models have had their blemishes removed and readers didn’t object—since “perfection” is part of the erotic visual fantasy).

Visual literacy in relation to photography increased significantly during the inter-war years (1918-1938) as a “result of the dissemination of photography through the illustrated newspapers” (Ramamurthy 2000:169). Historically, photographs usually existed as small hand-held items but when “… the Daily Illustrated Mirror (today’s [UK] Daily Mirror) was launched in 1903 as the first newspaper to use photographic illustration…” (Holland 2000:145) photography’s journey to ubiquity began. Eventually, culture fed photography and photography fed culture because as Ramamurthy says “Commercial photography constantly borrows ideas and images from the wider cultural domain” (Ramamurthy 2000:179) an idea which reflects Hall-Duncan’s (1979) observation regarding the vigour with which Surrealism was adopted by fashion and advertising photography commencing in the 1930s. However, not only does photography borrow from culture—it helped liberate art: “It is a truism that photography ‘released’ painting from its responsibility for literal depiction, allowing it to become more experimental” (Wells 2000:259). Photography (such as the work of Eadweard Muybridge) may have lead to the rise of cubist painting, although it was Picasso who “visually hacked up the body” (Ramamurthy 2000:184) a technique which allowed photographs in advertisements to depict parts of bodies (Pollack 1979, Goldman 1992). Such reciprocal borrowing has allowed the fashion photograph to use themes from photojournalism, pornography, and painting—from Classicalism to Surrealism (Devlin 1979, Evans and Thornton 1989). As Wells notes: “The developing relationship between [painting and photography is] considerably more symbiotic” (Wells 2000:259). From the perspective of this study, it might be expected that such cross-fertilisation would have revealed deep flaws in the high veracity ascribed to photographs, but it seems not to have had much effect. Perhaps many small changes over a long period of time dull the response of the effect in the mind of the viewers.
Visual literacy is a vexed issue. For instance, photojournalist, Marc Riboud believes that the general public is far more visually literate than at first might be expected, when he claims that:

…there are many more people who have started to ‘read’ photography, who know how to reason why a photograph is good, not just say ‘Oh that’s beautiful’, but understanding something of the form and the content and the links between several photographs. (Green 1998b:465)

While it might be the case that viewers can assess aspects of photographs, it is argued here that an understanding of veracity does not come to viewers through frequent exposure to images. Viewers need to learn how to discern certain characteristics of images from others and, clearly, many have failed to do so—otherwise, how is it that manipulated photographs and unmanipulated photographs have co-existed since the beginning of photography and not raised more explicit questions as to the veracity of each—even when context (satire, art, propaganda) is considered? Surely a visually literate population would see through the haze. It would appear that the answers lie within the paradox that unmanipulated photographs gain a higher level of veracity than manipulated photographs, because of the existence of manipulated photographs in the first place.

It is difficult for viewers with low or underdeveloped levels of visual literacy to determine if an image is manipulated or not. Logical deduction cannot always be used to determine changes in some images and thus make the manipulation obvious; indeed, it is the subtlety applied in making the alterations that typically makes the final image successful. Since the advent of computer technologies that allow the creation of pictorial images, manipulation is more easily achieved through the use of a computer with suitable software (e.g. Abode Photoshop). However, because many digital alterations are blatantly obvious, it is commonly believed that computer-generated images do not have the same levels of veracity enjoyed by photographs. Indeed the difference between the two methods of image production—photography and digital imaging—is in the making as much as in the end result—and it is widely understood that at every step a computer-produced image is generated through the selection of certain options provided in the computer software. Pictures are scanned-in or digitally captured, parts selected, options chosen to blend and alter until the desired end result is achieved. Interestingly, the computer terminology used to describe the different digital editing process (e.g., cut and paste, cropping, etc.) is taken directly from artists and photographers who first developed them, and reflects the differences in techniques between the two artistic practices. Even so, all these steps require human hands on a keyboard or tablet and humans decide how to apply them. As soon as the image is digitised, it is converted from anything recognisable into a complex, and meaningless,
set of ones and zeros. In Britain, the House of Lords has ruled that the original of a
digital image is this camera-produced file of digital data that can never be viewed
without further mechanical intervention, and their ruling states that if the image file
is shown in any subsequent form (mechanical intervention on a monitor or as a print)
it is a *copy* of the original (*Digital Images as Evidence* 1998; Barry, Kanagasingam,
Constable & Eikelboom 1999:19).

On the other hand, a photograph—a traditional silver-based photograph—is considered
to be the product of an optical system delivering light to a chemical surface that is
further chemically treated to yield a picture—without contrived alteration by human
hands. This is especially apparent when machines are employed to process films and
prints. As noted earlier, it is this hands-off mechanism which may partly contribute to
photography’s perceived level of veracity Yet, machines were not used for processing
when photography was starting out, so this part of the concept of veracity has come
about in more recent times.

### 4.7 Seeing photographs

What viewers see in photographs and how they see them is largely cultural in origin.
Cavell (1979) likens photographs to reality because the question of what lies outside
the frame can be asked, whereas in painting the question is nonsense because the
frame (or edges) of a painting are the limits to the world of the painting. However,
this is a wrong-headed notion, the cropping in a photograph is no different from the
selection of what will appear in a painting and the world of the photograph is also
limited to the edges of the photograph. Photographers have a choice as to what to put
into or leave out of a photograph just as painters do with their paintings. Photographs
are considered selections of the external world, although the content of a photograph
is limited to visual references only. For instance, “Unhappy childhoods, broken
families, child abuse, disgruntled teenagers and the persistence of poverty are only a
few of the all too common experiences not recorded in domestic pictures” (Holland
2000:151). In the same way, pictures of people (either snapshots or formal portraits)
dressed in their best clothes are deceptive because they hide the “pressures outside
the frame” (such as poverty, class, ethnicity, etc.) which motivates people to have a
photograph made of themselves in their best clothes (Holland 2000:152). Just a decade
ago, Krauss (1999) suggests that it was “families with children [which] have cameras;
single people, typically, do not.” (Krauss 1999:173) and that those cameras are used
“to record the objective fact of family integration. …it is an agent in the collective
fantasy of family cohesion…” (Krauss 1999:174). However, it must be noted that
the modern phenomenon of combining a digital camera into a mobile telephone has
certainly changed the propensity of single people to not own cameras. One would
have to know the nature of Krauss’ own familial background to measure the extent of her observation against her personal bias, though she makes the point that the family photographs are often set up or posed to show an event which didn’t quite take place. Thus, that what the photograph shows (from the photographer’s, and therefore the viewer’s, viewpoint) is the family having its photograph taken. With regard to formal wedding photographs, Holland says,

“This is one occasion for which a professional photographer (who knows the rules and will abide by them) is usually engaged, for the power of such photographs is precisely in their embrace of convention. (Holland 2000:156)

Family members use private photographs “…to explore ways in which their present identity carries the weight of the past.” (Holland 2000:156). They place themselves in their family and in their family history using the family album, yet “The disjunction between image and remembered experience, the uncertain borderline between fantasy and memory…” plays a part in any deception arising from such placement (Holland 2000:158). For this reason, different viewers react differently to images, for example “An image that is erotic to one individual is revolting to a second and ridiculous to a third.” (Vance 1999:320). In the USA, for example, for material to be classified as obscene, it has to contain all three of the following conditions:

1. The average person, applying contemporary community standards, would find that the work, taken as a whole, appeals to the prurient interest, and
2. the work depicts or describes, in a patently offensive way, sexual conduct specified by the statute, and
3. the work, taken as a whole, lacks serious literary, artistic, political, or scientific value. (Vance 1999:311)

Given the broadness of such a definition, Vance notes that “Material can be sexually explicit and even pornographic without being obscene” if it can be shown to be artistic in nature. Referring to specifically sexually explicit material, he continues: “Age, gender, race, class, sexual preference, erotic experience, and personal history all form the grid through which sexual images are received and interpreted” (Vance 1999:311). Exactly the same criteria apply to all images, including photographs;—whether pornographic or not—and we can add to that list: education, level of visual literacy, and consciousness of photography’s limitations to be anything but representative. In this way, as Burgin puts it: “…the photograph … acts as a catalyst – exciting mental activity which exceeds that which the photograph itself provides” (Burgin 1982:9).

How photographs are used in the media and the subject and choice of the photographs themselves are often determined by prevailing ideological codes and editorial bias. For example, Australian, British, European and United States mainstream media will compare the Holocaust with terrorist activity while ignoring the nuclear attacks on Hiroshima and Nagasaki; or will give precedence to the plight of Israelis at the hands
of Palestinian guerrillas rather than the plight of Palestinians at the hands of the Israeli military—and almost nothing is heard of continuing warfare in South America and north Africa despite extensive funding of Right Wing groups by the US. Such is the strength of the Jewish lobby, and the industrial interests of media magnates such as Murdoch and Turner. Significantly, it is the images we see frequently—images made by embedded photojournalists and carefully selected to represent a particular world view—that help us construct and reinforce our sense of reality.

Photojournalism has always encouraged the kind of images (moving and still) that urge the viewer to gawk at the spectacle (Sontag 1977); which draw on sensationalism. Thus, “Photojournalism for instance, like other journalism, is primarily concerned with the selling of newspapers, rather than the conveyance of ‘news’” (Ramamurthy 2000:168). To add further impact and to differentiate such images, the “…stark, grainy black and white type of imagery traditionally associated with documentary images and photojournalism…” (Ramamurthy 2000:176) is stylistically contrasted with the glossy, high-colour photography in advertisements in many magazines—although the average reader/viewer rarely notices the difference. As might be expected, advertising long ago seconded the photojournalist style for certain projects, cynically trading on photojournalism’s perceived higher veracity compared to other photographic genre.

As Cavell points out, there is an understanding amongst people that whereas painterly realism represent likeness of things, photographs present the viewer “with the things themselves” even though this is paradoxical (Cavell 1979:17). To say that this photograph is an earthquake, or this one is Kylie Minogue is patently false. It is equally paradoxical to say that a photograph of Kylie is not Kylie. The missing ingredient in the language used, which is likely to be missing from the viewer’s thinking, is that this is a photograph of Kylie, or this is a photograph of earthquake damage. The distinction is subtle but the difference is important enough to warrant attention. Children learn from hearing people say “of a photograph, ‘That’s your Grandmother.’ Very early, children are no longer puzzled by such remarks” (Cavell 1979:18) and the miscomprehension is carried throughout life. Whilst how we see photographs is fraught with learnt errors there are also aspects of the content of photographs which can be miscomprehended.

### 4.8 Lighting: direction and quality

In the external world viewers assume the light comes from above, that is, from the sun, an understanding inherited from our primitive ancestors. Siegel explains that “given a black and white photograph of an egg, most persons assume that the egg is lit from above and thus the egg’s surface is perceived as convex” (Siegel 1999:unpaginated). If the photograph is turned upside-down the egg appears concave yet many viewers will
over-ride this information and assume the egg to be convex despite appearances to the contrary. By comparison, many contemporary snapshots are illuminated by direct, on-camera flashlight and cannot resemble a scene lit by sunlight coming from above—the quality of light from an on-camera flash renders an unrealistic appearance in that it is a lighting effect not seen in a natural setting. Indeed, any artificial illumination rendered in a photograph that does not mimic natural sunlight (which includes overcast skies and moonlight) has the potential to portray a subject in an unfamiliar way. However, over many years, humans have learnt to see subjects illuminated with flash in photographs as ‘normally’ lit. Miles explores this theme extensively, and she maintains that it is light that gives photography its veracity. However, it might also be light that inhibits that veracity in some cases (Miles 2008:34, 148-156). For example, early portraits distorted the facial features of the sitter as they squinted into full sunlight during long exposures (Vogel 1875), and yet viewers remained convinced of the high veracity for photographic studies despite distortions of “the likeness that [photography] was said to reproduce so faithfully” (Miles 2008:148).

The nature of the light illuminating an object also influences colour vision in humans, a phenomenon known as metamerism or colour constancy. Hart (1992) observes that if the centre of a receptor cell is being stimulated by a long wavelength of light and the surround by a middle wavelength, a colour shift to shorter wavelengths can occur (Hart 1992:610) which amounts to a shift in colour being perceived from the colour being seen. Hart also points out that our experience of colour is entirely subjective: “Human awareness of colour arises out of subjective visual experiences in which given sensations are ascribed names” (Hart 1992:708). If the process of metamerism is joined with the viewing of colour pigments on a photographic emulsion that only resemble the colours of the external world then the light direction and the colour in the pictures are merely assumed correct by the viewer. It is what they learn to accept.

4.9 Fundamental functions

It has not yet been ascertained, either in this study or elsewhere, what exactly a photograph does when it records the external world. Unfortunately when words like ‘reflect’, ‘reproduce’, ‘depict’, ‘record’, ‘represent’, ‘mirror’, ‘trace’ etc, are used synonymously by different writers to describe what a photograph does to the external world it is difficult to establish or assign a precise meaning to the role which photographs play in their ‘capturing’ of that external world. For example, the image in a photograph does not reflect or mirror the external world, although a glossy-surfaced print does reflect and mirror in the usual meaning of that word. The contents of a photograph may depict reality (a question posed in this study) and if a photographic image doesn’t depict reality it may well represent it—that is, if depict is used as a
simile in the sense “to draw a likeness” and represent is used in a metaphorical sense. In an attempt to make some sense of this semantic confusion, Coleman chooses to use the term *encode* to describe the function or process “for what a photograph does… or how the image is produced…” (Coleman 1981:92), noting that, for example: “Photographic images can be encoded in negative form in fractions of seconds…” (Coleman 1983:146). Price prefers to call the process “transcription” (Price 1994:182 note 6) since the word “encode” implies potential manipulation of the message to keep it private whereas “transcription” is a neutral term. However, encoding is what Solomon-Godeau believes photographs do because she suggests the viewer “decodes” the image as part of the normal semiotic process:

...because the very notion...of the photograph requires that it possess a subject, a referent, and mandates that it be in some fashion about something in the world, the manifest lack of content [in some photographs] in no way blocks or neutralizes the viewer's need to project some meaning [into the picture]... meaning does not fill the image... but, rather, resides in the knowing and decoding activity of the viewer. (Solomon-Godeau 1991:100) (emphasis added)

Solomon-Godeau also notes that the “dynamic act of reading a photograph” requires invocation of the “perceiving eye, the subjective I, and the visual field” (Solomon-Godeau 1991:190) before the meaning of the photographic is understood.

Weber (1996) points out that television, like photography, involves three stages: production, transmission and reception. These are distinct, interrelated and essential operations, although how deliberate each, or every, step of the three is made depends on individual circumstances and, as a result, the message formulated originally may not always be the message received. Photographs are made for many reasons—some have simple messages and some have complex messages as Barthes and others tried to unravel and explain—but it is their role and validity as a vehicle of artistic expression that still engenders passionate debate amongst theorists and practitioners alike.

**The debate over photography as Art**

The debate as to whether photographs can be considered art may have been long settled in academia yet it still continues amongst practitioners1, but as recently as the turn of this century there still remained differing opinions as to what types of photographs could be accepted as “valid” art. Krauss (1999) noted that there still remained a “…notion that there is really an art photography as opposed to a primitive photography of common usage…” (Krauss 1999:175) even though this observation could be easily dispelled by evidence of snapshot-type photography (such as the aesthetic style of Diane Arbus) being hung for exhibition in galleries and museums. Even if original intent is a key determinant of whether a photograph is art or not, the fact that the photographer chose the snapshot genre does not disqualify the resultant pictures from

1 e.g. http://artbistro.monster.com/topics and www.theartstrust.com/debatemessage
the art category. Neither does any critique which contains only reference to the technical components of the picture—such as framing, focus, tonal values, composition, and so on—determine the artistic merit of the photograph. Rather, it is often the unnatural composition, the frontal, centred, formalised grouping of people or things, such as members of the family, that renders snapshots unartistic—more than technique or genre.

Comparisons of specific photographs with paintings leads to an “intellectual discomfort” (Krauss 1999:175-176) which does justice to neither medium. The singularity of painting and the multiplicity of photography—along with the possibility that two photographers standing side by side photographing the same subject may produce very similar looking pictures whereas two painters painting the same subject will not—is one cause of such discomfort. In the same way, comparing any one of the cast of great photographers with any one of the cast of great artists (painters) serves no useful purpose, just as comparing any one of the cast of great photographers with any other cast member serves no useful purpose. Their photographs (individually or in collection) may appear to be similar but their original intent may have differed considerably, just as viewer reaction will differ, even if the images are viewed consecutively or concurrently (to the extent that two pictures can be viewed concurrently). Thus, we come to two contentious terms, not used so far, that apply most strongly when we seek to determine what differentiates ordinary photographs and fine art photographs—originality and uniqueness.

One of the things which a group of photographs intended for exhibition can do is to formulate a cohesive statement about the nature of reality as expressed in this dissertation—that is, that it is something different for each viewer. Reality and photographs of the external world are individual and exclusive experiences and for that reason there are many photographs which do not show their subject matter as it looks like when it is photographed (to paraphrase Garry Winogrand). There are photographs that are more than inactive forms, presented for appreciative responses; they can be powerful interactive devices created to conjure an emotive reaction from passive viewers who may be unaware of their own activity. However, to produce photographic representations which make assertions and which potentially generate predetermined responses requires a pre-knowledge of the consequences of so doing and an understanding of the methodologies that inform the process. It was at the Bauhaus that some of the early experimental work in this direction was undertaken.

The Hungarian Constructivist photographer, Laszlo Moholy-Nagy, considered photography to be a functional, impersonal and rational process and believed “that the
essential tool of photographic practice is not the camera but the light-sensitive layer” (Moholy-Nagy undated:47). Importantly, Moholy-Nagy understood that the camera enabled a way of seeing that was distinct from that of human vision, a process he called the New Vision. As such, the qualities of the medium itself—the spectrum of tones from black to white, the variations in colour from various manufacturer’s materials and within each image itself, the clarity and precision of the camera image, the spatial and formal abstractions formed by the camera image… are all aspects of a photograph which can vary and which can be manipulated by the photographer. In addition, the choices available to the photographer—the photographic milieu (tonality, grain, format, etc), the framing, the time component, the vantage point, (Solomon-Godeau 1991:87-88) are also characteristics of photography over which the photographer has control. Each of these variations can render the appearance of the subject of a photograph differently to how the subject appears in the external world and, through deliberate manipulation, can change how the viewer will respond to the image. For example, if it is understood that spatial coordinates—such as which is top, which is bottom?—disappear when a photograph is viewed (unless the subject matter is obvious to the viewer) it is possible to deliberately confuse the viewer about orientation and thus about how the photograph should be interpreted. This is just one of the means the photographer has, in making a photograph, to apply the artistic techniques that might be similar to ones used by the painter. In so doing the photographer creates an image no more nor less an individual interpretation of the subject than is a painting of the subject; thereby creating an image that readily operates on the same level as a painting—but with two fundamental differences—the experienced photographer can often create a much more persuasive image when we take into account the viewer’s instinctive belief in its inherent veracity—and the image can be replicated as often as the photographer wishes.

**Image multiplicity**

The reproducibility of photographs has long been a subject for debate particularly amongst fine art photographers. To maintain the uniqueness (and value) of his images, Emmet Gowin (1941-) produced what he called “…‘monoprints’—editions of a single print from a negative” for an exhibition of his work (Solomon-Godeau 1991:106). Although the daguerreotype is a one-of-a-kind process, it was soon after the introduction of the paper negative, and later the glass plate and film-based negative, that multiple reproduction of a photographic image became possible. To maintain the uniqueness of their work, many photographers have since chosen to destroy a negative after a limited edition of prints has been made. Ansel Adams famously used a railway punch which left a pattern of holes which read “cancelled” across the 5x4 inch, and larger, sheet film in order to render the negatives unusable for exhibition prints, but
which still allows them to be viewed by students interested in seeing the quality of the negative. Such practices leave, as Solomon-Godeau says, photographic print-runs that are either “unique by process [or] unique by conscious choice”. It is still felt by some fine art photographers that uniqueness is desirable and value-adding commodity, given that uniqueness has “since at least the days of the Photo-Secession, served as an important strategy in realigning photographic discourse to conform to the demands of print connoisseurship” (Solomon-Godeau 1991:106). To this end, Walter Benjamin (1936) was concerned that multiple copies of photographs would devalue them all and, that one print could not be considered the original, even if it was the first. To illustrate this point, a print—one of only three in existence—made from his own negative by Edward Streichen sold for a record US$2.9 million in 2006 (Coleman 2009:18) whereas a print—five available from the one gallery2—of Moonrise, Hernandez N.M. 1941 by Ansel Adams (according to Batchen, at least thirteen hundred prints exist) can be purchased for US$25,000-35,0003 (100 times less). What Benjamin failed to consider was that this aspect of photography did not make it unique in two-dimensional representation. Other reproduction methods (woodcuts, lithography, linocuts, screen-printing, etc.) can produce multiple copies—but photography does so in a different way, there is no loss of quality as each print is made—and it has gained its individuality from that difference. Finally though, it must be remembered that it is the negative (unless a colour transparency is considered) which has primacy over the subsequent prints made from it.

4.10 On veracity

As we have seen, the task of determining the basis for the continuing belief in photography’s veracity is a complex one. Many factors combine to compound the problem, including:

- having to examine how humans see and perceive the external world,
- determining the difference between what the external world might be and its relationship with reality,
- how humans conceive that connection,
- examining what photography does with the external world and reality when it records it,
- determining how accurately—compared to human perceptions—that record might be, and finally,
- assessing photography’s veracity as against the veracity of an individual (possibly manipulated) image.

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2 Andrew Smith Gallery, Inc., Santa Fe, New Mexico, USA.
3 Christies, New York, October 2009
While some commentators have gone so far as to question the veracity of all photographs, to the extent of claiming that everyone now doubts photography’s veracity (Solomon-Godeau 1991), none have explained in a substantial manner the reasons why the belief in the high veracity of photographs should for so long have been so over-rated or why, as this author would argue, it continues to persist. There are two forces at play: there is a belief that photographs maintain a high veracity, and there is a perception that photography’s veracity is unique to the photographic medium. If photography is found to have inherently high veracity, it will have to be determined whether that level of veracity is somehow unique to photographs, as compared to other two-dimensional representation.

Referring to the era from 1850 which saw the rise of interest in travel, anthropology, ethnography and documentary photography, Price notes that many in the Victorian age saw photography as an effective and truthful means of seeing the world without leaving home:

> Carefully contrived and constructed photographs were consumed as though they were unmediated images and offered a neutral reflection of the world. They were, however, far from being transparent and dispassionate images of the world… (Price 2000:70)

Documentary photography (named by John Grierson in 1926), now known more widely as photojournalism, is defined as claiming “a special relationship to real life and a singular status with regard to notions of truth and authenticity” (Price 2000:75). However, the seeds of doubt are already evident. Price points to a collection of photographs made in 1871 (Les Crimes de la Commune) which, although being “crudely montaged and retouched” were “convincing enough for a public who were confident that the camera could not lie” (Price 2000:76). Yet a few years later in 1876 Dr T J Barnardo was criticised before a public hearing, accused of faking photographs of poverty by using child models in before-and-after images depicting his organisation’s work. The Barnardo case in particular along with other less famous examples drew public attention to the “…relationship between the accurate portrayal of a single case and a general truth about the nature of things” (Price 2000:76). Jump forward in time to 1936 when American photographer Arthur Rothstein (1915-1985) admitted moving an animal skull (see Figure 2.21) “a few metres to obtain a more dramatic pictorial effect.” (Price 2000:77), an action which was decried in certain quarters as manipulating the viewer “for purposes of rhetoric or propaganda” (Price 2000:77).

Rothstein’s action was no different from numerous cases throughout the history of photograph-taking when “Children who were untidy or had no clean clothes were kept well out of sight by their parents…” when the travelling photographer was recording streets scenes in urban towns and cities (Holland 2000:140) or such as when Fenton
photographed the Crimean battlefield after the bodies were removed. Such action by proud parents changes the street scene from what it actually was, whilst Fenton’s action hid the true nature of war. The growing public understanding that photographs did not always accurately convey a scene led to a gradual shift in the locus of photographic veracity. By around the 1930s the idea of the camera as the truth-sayer had been replaced by “the personal integrity of the photographer” as the final arbiter on the veracity of a scene (Price 2000:77).

It is assumed that Price (and the public he discusses) saw the veracity of the camera and the veracity of photographs as the same thing. As he explains, “One reason why the veracity of the camera was readily accepted in the nineteenth-century was that photographs appeared to confirm ideas about the world that had been the subject of other artistic and cultural forms”(Price 2000:77-78). The impartiality of the camera was confirmed when the viewer looked at a photograph of someone they knew and recognised that person. By omission, the reverse did not occur: the impartiality was not questioned when the image in the photograph did not look enough like the subject to be easily recognised. Instead the techniques of the photographer, the nature of the light, the quality of the image, and any number of other reasons were cited to make up for the failure of photography to tell the truth about the appearance of the subject. It was as if the viewer, and the public in general, wanted photographs to have a high veracity and, through the application of a slightly biased judgement—and by shifting responsibility from the camera to the photographer—were able to conclude that that was indeed the case.

It is wrong to assume a continual and gradual decline in the veracity of photography from the beginning of photography until the digital era, or that there was an attributed high veracity for 140 years which suddenly collapsed with the advent of digital imaging. What is more likely is that there had existed two concurrent parallel paths; one along which there is a continual assessment and reassessment of the veracity of photographs on a scholarly level, and the other along which the general public have—by and large—unquestioningly accepted the high veracity of photographs. Over time, the number in one group (blind-believers) has decreased while the number in the other group (questioners) has increased. Price suggests that:

> Each society has constructed its own ‘regime of truth’. Elaborating frameworks, institutions and discourses which validate particular procedures and permit us to distinguish true from false statements. (Price 2000:107)

If Price is correct, and individual societies do determine their own regimes of truth, it stands that their must also exist hierarchies of truth within those regimes and, if this is in fact the case, it should be possible to create a scale against which these levels of truthfulness can be measured. It is in this domain that a core component of this study
has been particularly focussed.

4.11 Moving forward

Although there are strong reasons to identify the allocation of levels of veracity to a photographic image as a subjective judgement made by the viewer, and argue the determination of levels of veracity from that stance, it is a key goal of this study to attempt to quantify the outcomes so they are predictable, repetitive and consistent.

In this chapter, we have seen that the three potential sources determining the attribution of high levels of veracity in photographs—the photographic process (particularly its hands-off, mechanical nature), the photography concept (connectivity to the object, acceptance by the State) and the viewer’s role (their beliefs, and how they see) are key components that must be considered. These sources are augmented by the interpretive nature of photographs as a record of the external world and how photographers use their medium to show that world—a situation that includes the paradox of manipulated photographs coexisting with unmanipulated photographs whilst beliefs about veracity remain constant. Also, the ways in which viewers use photographs are an important consideration and this colours a number of other debates including the long-standing discussion as to whether or not photography can be considered to be art. This aspect is important because it delineates the two sides of the broader argument over veracity—if photography is art it does not necessarily have high veracity—but if it is not art its veracity remains high in comparison to other two-dimensional representations. Currently, a compromise seems to be in place; wherein some photographs have high levels of veracity and some low levels, depending on a number of factors including subject matter. For this reason, it is necessary for an attempt to be made to systematically classify veracity using a mechanism that allows control, repetition and consistency. I have called this tool a Veracity Spectrum and in the following chapter, the process of developing and testing this tool is outlined beyond the initial testing described in Chapter Three.
5.1. Utilising the spectrum
The previous chapter outlined the findings arising from the first stages of this study in which the parameters for photography’s veracity were determined under three headings: the photographic process, the photographic concept, and the viewer’s actions in relation to seeing photographs. As was shown, all of these characteristics are essentially nebulous in nature—and, as a consequence, the resulting decisions on veracity vary greatly between individuals. The conclusion drawn from these findings suggest that a more concrete form is needed to explain and classify veracity. This chapter outlines the search for such a quantitative structure, a process which involved identifying those characteristics of photographs relevant to the aims and objectives of this study, the selection of the most pertinent ones, the categorisation and evaluation of them and the application of these values in the development and testing of a measuring tool—a Veracity Spectrum.

As noted earlier in this study, a Veracity Spectrum is defined as a continuum of “truthfulness” values upon which can be placed a number of photographs depending on what level of veracity a viewer appraises each photograph as having. In this chapter, the work stemming from the pilot spectrum described in Chapter Three is discussed, and several spectra are tested to determine the extent to which viewers consistently and predictably place the same photograph at a specific point—or within a narrow range. As will be shown, the resultant outcomes determine whether or not specific and consistent veracity values can be allocated to any given photograph and, where they do not, they suggest very strongly that other considerations come into play.

5.1.1 Photographic characteristics
The seventeen characteristics of photographs described in Section 2.7, which may aid or preclude photography having a high veracity, are listed at the end of this paragraph. Each of these characteristics was considered individually or in combinations as potential determinants of veracity which can be applied to the spectrum. Items 1 to 15 are attributes of a photograph or relate to how the picture appears, whereas item 16 depends on the viewer’s physical position in relation to the photograph.
under consideration and item 17 is totally open to interpretation (by the viewer), but nevertheless is influential in determining the final outcome. The characteristics are:

<table>
<thead>
<tr>
<th>1. Shutter mechanism</th>
<th>7. Focus</th>
<th>13. Surface structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Shutter exposure</td>
<td>8. Shape</td>
<td>14. Tonal range</td>
</tr>
<tr>
<td>5. Lens, light, filters</td>
<td>11. Colour rendering</td>
<td>17. Intent and interpretation</td>
</tr>
<tr>
<td>6. Resolution</td>
<td>12. Time shift</td>
<td></td>
</tr>
</tbody>
</table>

As well, there are four significant factors that must be considered when we try to compare the characteristics of photographs. These are:

- Substantive factors (universal to all photographs)
- Individual factors (governed by the content of the photograph, i.e. the picture)
- Human vision (factors related to the way humans see the external world)
- Genre specific (factors relevant to a particular genre and not others)

Table 5.1 shows the photographic characteristics considered here as they relate to the factors listed above. A dot indicates where coincidence occurs.

**Table 5.1 Characteristics of photographs applied to factors listed above**

<table>
<thead>
<tr>
<th>Photographic characteristic</th>
<th>Substantive</th>
<th>Individual</th>
<th>Vision</th>
<th>Genre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shutter mechanism</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shutter exposure</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emulsion</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple exposure</td>
<td>•</td>
<td></td>
<td></td>
<td>•</td>
</tr>
<tr>
<td>Lens, light &amp; filters</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Resolution</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Shape</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Reproducible, multiplicity</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle of view</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Colour rendering</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Time shift</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface structure</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tonal range</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brightness range</td>
<td>•</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viewpoint</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Intent and interpretation</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

From Table 5.1 we see that most of the selected characteristics of photographs being applied here are common to all photographs, and that some can be universal as well.
as being governed by the content of an individual photograph. It also shows that those characteristics that are the result of vision or photographic genre must also be characteristics of photographs individually or universally, though saying this may be as meaningful as saying a red object must also be coloured. Nevertheless, despite such definitional difficulties, these factors play a necessary role in analysing the assessments that were made when the selected photographs were placed on to the spectra for initial testing.

5.2 Test spectrum I
For the pilot spectrum, six sample images were selected from the public domain to represent the photographic genres of photojournalism, historical, public relations, advertising, editorial, and pictorial (Figure 3.1). These photographs are described in depth in Section 3.3.1. A simple spectrum was created as a straight line with a value of high at one end and low at the opposite end and the images were placed onto the scale by the author. The initial result (shown in Figure 3.2) was that the most common placement order seemed illogical. For this reason, the same images were applied to the scale based on criteria identified and discussed in depth in Section 3.3.2:

- Genre - according to the pilot spectrum
- Chromatic type - colour pictures, toned, or black-and-white
- Platform - silver halide or digital; and
- Reality - on a range from probable to impossible according to how realistic the content of the image appears

The result are shown below as Test Spectrum I (Figure 5.1):
As can be seen, the result was that no picture occupied the same position under every criteria. Analysis of the reasoning informing the placement of photographs gives some insight as to why this was the case.

In the genre category, photojournalism was accorded a greater veracity than most other genres; and, in this case, purely pictorial photographs had the lowest veracity. The other genres fall in between. Under the chromatic type category colour photographs are considered to have higher veracity than monochrome photographs because colour more closely resembles the external world. Another shift occurred when the category of platform was considered—with traditional silver-halide photography being attributed a higher veracity than images that could potentially be digital in origin, or which were made with other photographic processes (e.g., the Rawlins Oil Process). Finally when the life-likeness of the images (their propensity to reality) was considered a different array was generated, as seen in the lower set of photographs shown in Figure 5.1.

Given the lack of consistency apparent in these results and the subjective nature of placement, the idea that specific values applied to the veracity characteristics of the images might aid placement on a spectrum, rendering it less subjective and this was tested next.

5.3 Test spectrum II

Based on the outcomes described above, a second spectrum was devised with the aim of clarifying the evaluative methods employed. To test this spectrum, specific values were placed on the x-axis with a range of 1 to 5 from low to high, depending on the characteristics being examined. Using some existing and some new characteristics, values were applied to each photograph in order to quantify the results to make explicit the value. The incremental values used in this stage were:

- a range of 5 increments for Chromatic type or Chromatism: with 5 for full colour and 1 for false colour (as described in Section 3.3.2);
- a range of 6 for Genre with photojournalism at 6 and advertising at 1;
- a five-step range with 3 values for Key: being 1 for high and low and 3 for neither high nor low, and 2 being for more high than low, and more low than high (as shown in Section 3.3.2):
- and for Platform: silver-halide photographs having a value of 5 and digital a value of 1.

These values were then applied to a spectrum using a simple mathematical formula to evaluate three photographs from Test Spectrum I and four new photographs from the researcher’s own collection with clearly known provenance. However, at this developmental stage, some digital images were still being measured to facilitate
testing criteria—to assess any biases which might arise from this platform. However, the four additional photographs (Figures 5.2—5.5) were all produced on a silver-halide platform: Figure 5.2 is a multiple exposure, Figure 5.3 is toned, Figure 5.4 is a ‘straight’ photograph with filtration, and Figure 5.5 is in colour.

![Clockwise from Top Left: Figure 5.2; Figure 5.3; Figure 5.4; Figure 5.5.](image)

Based on the test criteria, an image such as Figure 5.2 therefore, returned a set of values such as

- Chromatism - 2
- Genre - 3
- Key - 3
- Platform - 2

When these are then averaged (10 divided by 4 = 2.5) the picture is placed on the spectrum at increment 2.5. The remaining six images were similarly evaluated and
positioned as shown in Figure 5.6.

![Figure 5.6 Test Spectrum II](image)

As can be seen in Figure 5.6, the photojournalism image (by Nick Ut—originally Figure 3.1) is positioned at 3.75;

- Chromatism - 2
- Genre - 6
- Key - 2
- Platform - 5 thus 15 divided by 4 = 3.75

and that the historical photograph (Figure 3.2) is positioned at 3.25

- Chromatism - 3
- Genre - 5
- Key - 2
- Platform - 3 thus 13 divided by 4 = 3.25

and has the same veracity as the public relations image (Figure 3.3) at 3.25.

- Chromatism - 5
- Genre - 4
- Key - 3
- Platform - 1 thus 13 divided by 4 = 3.25

However it also shows a fine art photograph (Figure 5.5) that has a veracity of 4.5

- Chromatism - 5
- Genre - 5
- Key - 3
- Platform - 5 thus 18 divided by 4 = 4.5
The value of 18 for Figure 5.5 arises partly because it is a colour image and partly because without a genre value allocated for fine art photographs it was given an historical classification (because it is clearly none of the other genres), and thus assessed it produced the highest veracity rating of all seven images. Additionally, there is no indication that the evaluation system was biased away from digital images when compared to traditional silver-halide photography, since the public relations photograph falls at the same point as the historical, toned photograph. At this stage it became clear that there was no convincing evidence to support the continuing use of digital images to inform future outcomes, thus the third test spectrum was designed to include silver-halide photographs only, thereby returning to the original focus of the study. Equally clear, was the lack of consistency or, indeed, immediate relevance of some other criteria used to classify the images in the study so far. For instance, black-and-white images do not closely resemble the external world, which appears mostly in colour and thus colour photographs inherently have an over-riding bias towards high veracity and therefore tilt the results. For such reasons, several characteristics were relinquished in the next generation of test spectra, as described below.

5.4 Test spectrum III
To narrow down the accuracy of the study, a third spectrum, working with eight key characteristics was designed in an attempt to clarify the formula used to evaluate the test photographs. As well, Test Spectrum III was examined using only one genre—landscape—selected because this particular genre of photography was determined by the researcher to most effectively reflect the external world without too much need for subjective questioning on the part of the viewer—and because the researcher has personally produced the landscape photographs used and therefore the provenance of each image in terms of platform (e.g., silver-halide), presence or lack of manipulation, and so on, can be warranted. Other possible genres which could equally well be said to depict reality accurately include portraiture; photojournalism; medical, scientific and forensic photography; and architectural photography—the so-called vernacular genres and supposedly the non-artistic types of photography—and all would benefit from a similar analysis in future studies. However, in selecting this specific genre, platform was consequently limited to one type and the need to consider chromatism was eliminated, because all images used were unmanipulated colour and of guaranteed provenance.
### 5.4.1 Selection of photographs

Several colour negatives and transparencies (slides) from the researcher’s personal photograph collection—made prior to and during the course of the study—were reviewed for the project. After the final selection was made by the author, based as objectively as possible on the original intent behind the photograph—i.e., its “neutrality” or “unbiased recording of the scene”—a number of trial images were then produced. However, in order to maintain as much consistency as possible, there was a need to establish what style the images would take. Because the visual assessments of each image was being made via a computer monitor and any reproductions appearing in printed form would involve digital output via an ink-jet or laser printer on high quality printing media, it was not essential to actually make a hardcopy print in traditional silver-halide form. For this reason, colour, brightness and tonal ranges reflecting the leading manufacturer’s parameters on fine art photography paper was utilised as a standard for reproduction. Importantly, it was necessary to take into account that the characteristics of an Adobe Photoshop image displayed on a screen gives rise to dynamic ranges greater than can be reproduced using traditional photographic printing material, so comparisons via this method are difficult. Additionally, computer software provides opportunities for manipulation unavailable in the darkroom (should the photographer choose). In this study all such functions were avoided. The reproductions shown below in Section 5.4.4 resemble as closely as possible traditional photographic output.

### 5.4.2 Characteristics applied to landscape photographs for Test Spectrum III

The following table examines the characteristics of photographs (from Section 2.7) to be applied to Test Spectrum III and contains explanations as to their usefulness.

<table>
<thead>
<tr>
<th>Photographic characteristic</th>
<th>Description of usefulness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shutter mechanism</td>
<td>Different effect with different cameras. Will not be assessed separately from shutter exposure.</td>
</tr>
<tr>
<td>Shutter exposure</td>
<td>Is a criterion that distinguishes photographs from the external world, it is related to shutter mechanics, but the rendering is common to all photographs.</td>
</tr>
<tr>
<td>Emulsion</td>
<td>Is a criterion that distinguishes photographs from external world appearance and is common to all photographs.</td>
</tr>
<tr>
<td>Multiple exposure</td>
<td>As above.</td>
</tr>
<tr>
<td>Lens, light &amp; filters</td>
<td>Differs from photograph to photograph.</td>
</tr>
<tr>
<td>Characteristics</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Resolution</td>
<td>Is a criterion that distinguishes photographs from external world appearance and is common to all photographs.</td>
</tr>
<tr>
<td>Focus</td>
<td>Is a criterion that distinguishes photographs from external world appearance and is common to all photographs.</td>
</tr>
<tr>
<td>Shape</td>
<td>Rectangular- or squareness, and other shaped photographs, along with orientation—vertical, horizontal—differentiate photographs from an external world view but shape is common to all photographs.</td>
</tr>
<tr>
<td>Reproducible, multiplicity</td>
<td>Does not affect individual veracity.</td>
</tr>
<tr>
<td>Angle of view</td>
<td>Two aspects: 1) all photographs have an angle of view (camera angle, lens focal length) but each photograph has a place within the total range. This angle of view often does not associate with normal human vision. 2) The viewer’s position when seeing a photograph.</td>
</tr>
<tr>
<td>Colour rendering</td>
<td>Accurate, unfiltered colour aligns with human vision, all other photographs do not.</td>
</tr>
<tr>
<td>Time shift</td>
<td>All photographs are time-shifted.</td>
</tr>
<tr>
<td>Surface structure</td>
<td>Cannot be known in the context of this study.</td>
</tr>
<tr>
<td>Tonal range</td>
<td>All photographs have a tonal range but each photograph has an individual range within the total.</td>
</tr>
<tr>
<td>Brightness range</td>
<td>Each photograph has an individual range within the total.</td>
</tr>
<tr>
<td>Viewpoint</td>
<td>May render subject difficult to determine.</td>
</tr>
<tr>
<td>Intent and interpretation</td>
<td>The photographers’ motivation or intent cannot directly affect veracity because veracity is applied by the viewer. The viewer’s response is not a characteristic of a photograph itself but does affect perceived veracity.</td>
</tr>
</tbody>
</table>

The above Table reveals that the characteristics related to shutter function need to be combined for ongoing examination, whilst several others are found to be unsuitable because either they do not affect veracity or they are common to all photographs and
thereby negate any comparison. Thus the following seven characteristics remains as valid characteristics and are therefore useful for applying values to Test Spectrum III: multiple exposure; lens, light & filters; angle of view; colour rendering; tonal range, brightness range and intent and interpretation, and it is these that are applied to the selected photographs described below.

5.4.3 The photographs for Test Spectrum III
It is important to remind readers at this stage that for logistical reasons (in particular the need to simultaneously test large groups) the photographic images used in assessing Test Spectrum III and subsequent spectra were not shown to the test subjects using silver halide film emulsions and conventional photographic chemicals printed on silver-halide emulsions coated fibre-based paper—although this may have been possible under other circumstances. Although this particular criterion may seem relevant to the accuracy and validity of the study (in order that the test subjects are actually experiencing traditional silver-halide photographs in the assessment) it is not essential. For the purposes of testing, the photographs need only start life as traditional photographs to be assessed as such, as long as they have warranted provenance and the audience is made fully aware of this. In addition, since the photographs for this spectrum exist in their original form as traditional silver-halide photographs, either as negatives or transparencies (slides) it is always possible for the provenance to be verified at any time by access to the original material. Nevertheless, for Test Spectrum III the pictorial content is more important in assessing veracity than the consumables, once provenance is established and biasing parameters eliminated. Finally, the following photographs (Figures 5.7—5.14, shown on the next page) were then evaluated and the outcomes applied to the spectrum, as set out below.

5.4.4 Evaluation of characteristics
The same principle of numerical values was applied to these photographs as was employed in previous test spectra. For each image, numerical values were applied for the criteria selected. Values fall within a range of 1 to 5 where one represents a low level of veracity and five a high level, 3 is neither high nor low, and 2 or 4 represent an intermediate assessment of the level of veracity. The profile tables below show the results of the allocation of values, with descriptive notes to aid an understanding of the process, following which the photographs are placed in the appropriate position on the spectrum.
Top row, left to right:
Figure 5.7, Figure 5.8, Figure 5.9 and 5.10

Right, top to bottom:
Figure 5.11
Figure 5.12
Figure 5.13
Figure 5.14
### Profile table for Figure 5.7

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, complex layering of surfaces</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal or standard angle of view</td>
<td>5</td>
</tr>
<tr>
<td>colour rendering</td>
<td>normal</td>
<td>5</td>
</tr>
<tr>
<td>tonal range</td>
<td>broad (key – more low than high)</td>
<td>2</td>
</tr>
<tr>
<td>brightness range</td>
<td>limited shadow detail, highlights saturated, midtones normal</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>3.7</strong></td>
</tr>
</tbody>
</table>

### Profile table for Figure 5.8

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, peace and tranquility</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal view</td>
<td>5</td>
</tr>
<tr>
<td>colour rendering</td>
<td>Green tinge due to mist, but as seen in nature</td>
<td>3</td>
</tr>
<tr>
<td>tonal range</td>
<td>narrow (key – low)</td>
<td>1</td>
</tr>
<tr>
<td>brightness range</td>
<td>Shadow and highlights absent. Midtones normal</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>3.3</strong></td>
</tr>
</tbody>
</table>
### Profile table for Figure 5.9

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, peace and tranquility</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal view from a low viewpoint</td>
<td>5</td>
</tr>
<tr>
<td>colour rendering</td>
<td>blue tinge due to cloud, but as viewed</td>
<td>3</td>
</tr>
<tr>
<td>tonal range</td>
<td>normal (key – neither high nor low)</td>
<td>3</td>
</tr>
<tr>
<td>brightness range</td>
<td>Shadow and highlights absent. midtones normal</td>
<td>3</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td>3.5</td>
</tr>
</tbody>
</table>

### Profile table for Figure 5.10

<table>
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<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, monochromatic light</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal view</td>
<td>5</td>
</tr>
<tr>
<td>colour rendering</td>
<td>blue tinge due to dawn light, but as viewed</td>
<td>3</td>
</tr>
<tr>
<td>tonal range</td>
<td>narrow (key – neither high nor low)</td>
<td>3</td>
</tr>
<tr>
<td>brightness range</td>
<td>Natural</td>
<td>5</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td>3.8</td>
</tr>
</tbody>
</table>
### Profile table for Figure 5.11

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters.</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, beauty of oceans</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>Cropped to panorama format, provides a view unusual for human vision</td>
<td>3</td>
</tr>
<tr>
<td>colour rendering</td>
<td>normal</td>
<td>5</td>
</tr>
<tr>
<td>tonal range</td>
<td>natural (key – neither high nor low)</td>
<td>3</td>
</tr>
<tr>
<td>brightness range</td>
<td>Shadow detail absent, midtones normal</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>3.5</strong></td>
</tr>
</tbody>
</table>

### Profile table for Figure 5.12

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters.</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, colours of nature</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal view</td>
<td>5</td>
</tr>
<tr>
<td>colour rendering</td>
<td>Dawn light</td>
<td>3</td>
</tr>
<tr>
<td>tonal range</td>
<td>normal (key – neither high nor low)</td>
<td>3</td>
</tr>
<tr>
<td>brightness range</td>
<td>Natural range of light with highlights and shadow</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>3.8</strong></td>
</tr>
</tbody>
</table>
### Profile table for Figure 5.13

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, power of storms</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal view</td>
<td>5</td>
</tr>
<tr>
<td>colour rendering</td>
<td>Brown tinge due to mist, but as viewed</td>
<td>3</td>
</tr>
<tr>
<td>tonal range</td>
<td>Narrow (key – low)</td>
<td>1</td>
</tr>
<tr>
<td>brightness range</td>
<td>Shadow and highlights absent. midtones normal</td>
<td>3</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>3.3</strong></td>
</tr>
</tbody>
</table>

### Profile table for Figure 5.14

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Examination result</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple exposure</td>
<td>this is a single exposure image</td>
<td>3</td>
</tr>
<tr>
<td>lenses, light &amp; filters</td>
<td>50mm lens used, ambient light, no filters</td>
<td>3</td>
</tr>
<tr>
<td>message</td>
<td>scene from nature, misty tranquility</td>
<td>5</td>
</tr>
<tr>
<td>angle of view</td>
<td>50mm lens on 35mm format provides a normal view</td>
<td>3</td>
</tr>
<tr>
<td>colour rendering</td>
<td>Brown tinge due to mist and dawn light, but as viewed</td>
<td>3</td>
</tr>
<tr>
<td>tonal range</td>
<td>narrow (key – low)</td>
<td>1</td>
</tr>
<tr>
<td>brightness range</td>
<td>Shadow and highlights absent. midtones normal</td>
<td>3</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td><strong>3.0</strong></td>
</tr>
</tbody>
</table>
5.4.5 Results for Test Spectrum III

Based on the evaluation of each profile, and the clustered nature of the results, the photographs are placed on an enlarged portion of the veracity spectrum (range 3 to 4) to facilitate easier viewing (see Figure 5.15). As is immediately evident, when similar images, drawn from within a specific genre and photographic style, are placed onto the spectrum based purely on an objective assessment of the seven “universal” characteristics examined, the results appear to fall within a narrow range. Most importantly for this study, none of the images tested ranked above a value of 4—implying that high level veracity might be difficult, if not impossible to attain, even with photographs of known provenance and of a non-digital origin.

![Figure 5.15 Test Spectrum III (detail)](image)

Whilst, the results for Test Spectrum III fail to provide any more valuable information than the previous spectra—the outcomes reinforce the idea that veracity is potentially far too subjective to measure accurately. Indeed, it is possible the use of the spectrum weakens the assumption of veracity by directing the emphasis away from the possibly subjective interpretation of the photographs in question by the action of attempting to bestow a degree of objectivity on the interpretation of the images—an objectivity which is not there to begin with. If this is correct, it is clear that the normal act of evaluating photographs remains a subjective exercise. Nevertheless, the inconclusive results from the spectra do not end the discussion; as there are other aspects of the outcome to be evaluated.
5.5 The Comprehensive Survey

To counter any bias that may have crept into the test spectra, a far more comprehensive survey was conducted to test several variations of the spectrum using a significantly larger group of independent volunteer subjects. The methodology for this stage of the study is described in Chapter Three, whilst the survey questionnaire and its testing process, along with the raw data, is provided in Appendix B. However, an overview is given below in order to introduce the findings.

Following approval from the University Ethics Committee, a cohort of volunteer subjects from the university were asked a range of questions to determine their level of understanding of photography and its veracity, and to evaluate selected photographs for placement on a series of veracity spectra. For logistical reasons, the survey was undertaken in an audience participation style, rather than individually, and all information gathered was on an anonymous basis. Although anonymous, the survey gathered information regarding the age range, sex, and the level of visual literacy of the survey participants, the latter being determined by exposure to at least one or more design based or other courses teaching visual literacy at tertiary level.

The principal viewer survey was conducted using twelve sets of photographs encompassing each of the five identified genres used during the research (historic, photojournalism, portraiture, landscape, and fine art) in order to reflect aspects of the earlier spectra used in the preliminary development. Six of the landscape photographs employed in Test Spectrum III, for example, were used along with four additional images in that genre. The photographs were shown to participants in their designated genres and as mixed sets drawn from several genres in order to determine what other influences come into contention. Figure 5.16 shows the complete set of images at thumbnail size in order to provide the reader with an overview of the survey. The total number of respondents was 74, but the number of correctly completed questions dropped by up to 4 for some test questions. Several respondents did not complete Question Fourteen correctly (most likely due to insufficient explanations) and one respondent did not complete Question Four to Question Eight at all, again possibly due to a misunderstanding of what was required, or apathy. Gender was distributed approximately 40/60, with 30 males and 44 females.
Figure 5.16 The image sets used in the principal viewer survey
5.5.1 Initial findings

As to specific requirements within the survey, the aim of Question Four to Eight was to establish the respondents’ understanding of veracity and related terms, as well as their personal understanding of what constitutes reality, the external world and the relationship between those and photographs. Sixty-two respondents were identified as undertaking design related studies and these participants were assumed to have a high visual literacy developed through their participation in tertiary courses teaching visual awareness as an inherent part of the curriculum. The were two non-design students in the survey, plus ten students from the University of the Third Age (U3A). These mature-aged students (mainly retirees) were asked to participate on the basis of their advanced years and because their formative years occurred long before the digital era—thus these participants represent a body of people who have lived almost their entire lives in a analogue-based photographic environment. Thus, there was a total of 12 participants (16%) who were assumed to possess a level of visual literacy in common with that part of the general population who had never studied subjects that teach visual literacy specifically. Even so, the study revealed that visual literacy does not seem to have produced a bias away from a belief that photographs have a high veracity, since the small sample of non-design and U3A students did not significantly distorting the data.

As noted above, Questions Four and Six were designed to establish if respondents determine a difference in the two terms, or concepts—real world and external world. Results are almost identical, indicating that most respondents did not distinguish these terms as representing different states. Questions Seven and Eight ask the same question as each other (in rephrased form) but the respondents were given an additional choice for evaluation, following more detailed explanations of the definitions. This strategy was used to test whether any trend was apparent throughout the survey that was representational of the “common understanding” of photography’s veracity (as was identified in the retrospective survey discussed in Chapter Two). The answers to these latter Questions showed that most respondents (70 of 72) believe some photographs accurately depict the external world while some do not. This outcome strongly reflects the author’s earlier findings derived from the retrospective survey described in Chapter Two and Appendix A, where it was shown that an understanding of photographic veracity developed to this state of balanced acceptance (i.e., some do, some do not reflect the real world) then changed over time. Indeed, when the survey participants were given the option of a distinct photographic reality, these numbers change in a manner not anticipated, as described in the analysis following.

One respondent, a 26-35 year-old male design student was adamant that photography
does not depict the external world accurately and marked all such questions with a value of one (1), low veracity. Another respondent, an 18-25 year-old female design student felt compelled to note on the response sheet that black-and-white (or greyscale) is not seen naturally in the external world (which is in fact untrue). Five (5) respondents (4 design and 1 U3A student) allocated a value of 3 (verity) for Question Five, which sought a choice between veracity, verisimilitude or verity as a characteristic of photographs. Yet there were mixed results for Question Four and Six from these particular respondents in regard to whether photographs depict the real or external world accurately. However the vast majority (n=63, 85%) chose verisimilitude after definitions were provided. Thus, given the choice of the three terms and an explanation of the definitions as they appear in Chapter Three, most respondents chose verisimilitude as best describing the perceived truth value of photographs and their relationship with the external world. That is, the majority of respondents believed that photographs have an appearance of truth.

In the main body of the survey, from Question Nine to Question Twenty, participants were asked to evaluate the photographs displayed using a high quality digital projection system and to place the individual images on a spectrum according to a range of specific questions. The results of these placements produced a very clear “scatter-gun” effect. Some of the evaluation arrays were clustered, whilst some were highly dispersed. Even where respondents had acknowledged in earlier questions their belief in the existence of a certain level of photographic veracity inherent in conventional photographs, they still allocate a wide range of veracities (degrees of variation) for genre-based sets of photographs shown later in the survey. It cannot be known if this represents a misunderstanding of the questions, but the responses are assumed to accurately reflect the respondent’s understanding of photography, its veracity and the role these play in the recording of the external world.

Questions Nine to Thirteen ask the participants to allocate a numerical value indicative of the veracity of each photograph on a scale of 1 to 5 for each of 10 photographs over 5 genre sets—Historical, Photojournalism, Portraiture, Landscape and Fine Art. Even given the inclusion of photographic images of a highly questionable nature, such as the Cottingly fairies and Cat and I in Question Nine, the summary tables for these questions show a tendency towards the allocation of more ratings indicative of a higher overall level of attributed veracity by almost 1:2 (13.2% for level 1 up to 26.3% for level 5) and this is a significant trend also reflected in Question Fourteen to Eighteen (as shown later). Table 5.3 shows the distribution of veracity ratings on the Lickert scale (1=low veracity, 5=high veracity) for the 50 photographs tested.
Table 5.3 Overall veracity ratings for Questions Nine to Thirteen

<table>
<thead>
<tr>
<th>Attributed level of veracity</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total number of ratings per level</td>
<td>476</td>
<td>472</td>
<td>769</td>
</tr>
<tr>
<td>Overall percentage</td>
<td>13.2%</td>
<td>13.1%</td>
<td>21.6%</td>
</tr>
</tbody>
</table>

As can be seen, 52% of respondents attributed a higher than medium level of veracity to the photographs reviewed as opposed to 26.3% who attributing a lower than medium level of veracity to the images.

An extensive discussion of the breakdown and analysis of the responses to all the survey questions is provided in Appendix B, although the key aspects are summarised here so as to keep the Chapter focussed. Whilst the statistical data is of particular relevance, it is the ordering and placement (mapping) of the test photographs by the survey participants that allows us to gain a more comprehensive overview. In order to present the photographs in a sequential form, an averaging system was devised to allow the images in each question to be sorted according to the attributed veracity values and the photographs were then re-arranged so the results could be viewed in the order of veracity attributed to them by the test subjects. To do this, a total score for veracity was calculated by averaging the number of responses for values 4 and 5 (high veracity) from each set of photographs. This produced the order shown in Row A of Table B2 (Appendix B) for the set of photographs used in Question Nine. In a similar manner, a score for low veracity was calculated by averaging the number of responses for values 1 and 2 (low veracity) from each set of photographs. This gave a slightly different order as is shown in Row B. Subtracting the values of Row B from Row A provides a value that alleviates the potential for duplicated placements and thus provides the order shown as Row C in the same table. The presentation of data in this format gives the reader a pictorial display of how the images fell against each other on a Veracity Spectrum. The outcomes for Question Nine to Thirteen are shown below as Figure 5.17.

The consequences of averaging the highest and lowest veracity values is to tame any prominent scores (whether they are errant or not) and produces outcomes which may or may not be more representative of the respondent’s thoughts during the survey, as they throw up some unexpected results which might not otherwise occur. An example is Picture 11h (the high contrast portrait of two women), which shows no otherwise outstanding scores in its set. This image scored low for high veracity (4) but not significantly higher for low veracity (11), especially when compared to other photographs in the portrait set. However, the averaging calculations give a value of -8.5 against the highest in the set of 23.5 to place the image at the lowest value on the
veracity scale. Yet, this result is consistent with trends exhibited elsewhere in the data and is not entirely unexpected. This does not raise questions as to accuracy but rather as to what role or influence the calculations played in assessing the data.

Figure 5.17 Image order according to veracity arising from averaging the raw data and subtracting the values for low veracity from the values for high veracity for Questions Nine to Thirteen
In the responses for Questions Nine to Thirteen shown in the raw data, (in which sets of 10 photographs were evaluated) numbers greater than 35 (approximately 50%) are highlighted. Nevertheless, there is a diverse placement of results which fail to show any strong trends and, as can be seen in Section B.2 in the appendix, the highlighted (bold italic) data show some extremes of either high or low veracity. Four images from the test photographs are worth examining in detail (Figure 5.18), due to the unexpected results they generated amongst respondents. Picture 9c scored 44 (59%) which gives it a low veracity rating, even in light of the subject matter and the release of a recent film on the truth behind the picture. Photograph 13a (35 at 47%) is considered to possess slightly more veracity whereas picture 11c scores 38 (51%) for high veracity. The greatest response of 49 (66%) for Picture 9j indicates that only five more test subjects attributed that photograph a lower veracity rating than the Cottingly fairies photograph.

These are interesting results because of each photograph’s content/subject. Picture 9j is a double exposed photograph of a cat’s face superimposed on to that of a woman’s face and, since it is clearly not a record of something from the external world, it would be expected to score a low rating. Naturally, the twenty-first-century survey participants were not fooled by this image and responded accordingly rating it with a low veracity value. In contrast, Picture 9c—from the 1917 Cottingley fairies series; five photographs that proved very controversial when first shown and which were debated for many years later—is actually a ‘straight’ photograph which includes a foreground of fairies drawn on and cut out of paper. It was not expected that contemporary participants might be fooled by this photograph, as viewers were when it was first published (including Arthur Conan Doyle, who championed the collection), but it seems they were fooled enough to give it a low veracity rating. Picture 13a is also a ‘straight’ unmanipulated shot (of flowers seen through mottled glass) and shows accurately what appeared in the external world at the time of the exposure, yet the survey participants were challenged by this image as well—even the fact that it is a colour image and that
most participants would be familiar with mottled or steamed glass seems to have had little influenced on how these viewers responded. Interestingly, the picture that scored highest for possessing high veracity was a portrait (Picture 11c), the only coloured photograph in its set—and yet scored only 51% (see also Figure 5.16, the Portrait photo set). Although it can be extrapolated that coloured photographs, when compared to black-and-white images, are only sometimes regarded as having higher veracity because other influences appear to over-ride the chromatism of an image in favour of pictorial content, Picture 11c might be a case where a characteristic of photography (colour) could be more important than visual content, however, that is a long bow to draw on the basis of this study.

5.5.2 Summary of findings from Question Fourteen to Twenty

In order to avoid the possibility of test subjects tending to automatically presume the position of their responses within the range of Lickert items used in the questionnaire, Questions Fourteen to Twenty required the participants to order photographs on a spectrum using the letters a to e corresponding to individual photographs in sets of the same genre and from sets of mixed genre, with the numerical values on the scoring card presenting the values in the reverse order to those shown for Questions Nine to Thirteen. In addition, although fewer photographic images were used (five in each set as opposed to ten each in the first sets) intermediate levels of veracity were introduced to add a more refined level of choice. Figure 5.19 shows the results for Question Fourteen to Eighteen. Note that for comparative purposes, each set of five photographs is placed beneath the veracity ordered set from which it was originally derived (as shown in Figure 5.17).

Trying to speculate on why survey participants put a particular image where they did, or why—following averaging—an image appears in the place on the spectrum that it does is rife with difficulty because, as we have discussed earlier, one observer cannot know the mind of another observer. For instance it could be speculated that the image of the flag raising at Iwo Jima might fall at a low level of veracity for visually literate viewers—such as many of those surveyed—who know this is a photograph of a staged event taken the day after the actual flag raising took place, and it does fall at a low veracity in both arrays shown in Figure 5.19. Yet, why the image of Arab men entering a building would be judged as having a low veracity—particularly against several black-and-white images in the same set—and why it appears higher in the rankings in the second (later in time) array is surprising. Perhaps the analysis might be more constructive if the colour image of the Indian street scene—which has halved in value—is considered, because it shifts the order of the previous array. In the same way, we might question the black-and-white high contrast beachscape which has also...
Figure 5.19 Results for Question 14 to 18, where for comparison purposes, each set of photographs is placed beneath the ordered set from which it was originally derived.
changed value from one assessment to the other. Equally unexpected is the reversal of positions of the colour portrait and the black-and-white portrait of the child reaching upwards; these examples could be explained as arising from the use of averaged results. Whilst the response patterns were not consistent for this set of questions, the trend towards the overall attribution of high veracity remains evident when results are shown split into two sections around the midpoint to clarify the findings, with 56.7% of total ratings being for a higher veracity against 30% for lower veracity, as shown in Table 5.4.

<table>
<thead>
<tr>
<th>Attributed level of veracity</th>
<th>High</th>
<th>Med</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total number of ratings per level</strong></td>
<td>405</td>
<td>456</td>
<td>456</td>
</tr>
<tr>
<td><strong>Overall percentage</strong></td>
<td>13.5%</td>
<td>15.2%</td>
<td>15.2%</td>
</tr>
<tr>
<td>High</td>
<td>56.7%</td>
<td></td>
<td>30%</td>
</tr>
</tbody>
</table>

Interestingly, Questions Fourteen to Twenty clearly demonstrate the “scatter-gun” effect. Again, scores have been highlighted in the raw data (Appendix B) to show photographs that elicit a greater response than others. The highest responses for low and high veracity were:

- Q14 picture b low veracity 54% (approx) *Cottingly fairies* n= 40
- Q16 picture b high veracity 41% (approx) blue-toned portrait n= 30
- Q20 picture a low veracity 45% (approx) *Cat and I* n= 33

These three questions were the only instances where the responses approach close to 50% of the total response for a question. While the two photographs allocated low veracity follow trends measured in Question Nine to Thirteen and discussed in the previous paragraph, the third picture (Figure 5.20, the blue-toned portrait shown below) does not follow a trend suggested by picture 11c from the portrait set (coloured portrait) since, even though it is toned and not full-colour, the participants have rated it with a high veracity. From this, it is clear that decisions made regarding relative veracity are strongly influenced by the other photographs with which the comparisons must be made and that chromatism is not always the significant influence it was initially thought to be.
5.5.3 Putting the outcomes into perspective

It may seem unusual to address the definitional questions underpinning the photographic study only after the survey findings have been discussed. However, this approach has been taken because it is in the changing nature of the public’s perception of photography that some of the explanations for these findings can be found. A comparison of the ideas on veracity and the nature of photographs held prior to the widespread acceptance of digital imaging taken from the retrospective survey (outlined in Appendix A and discussed in Chapter Two) and those held by members of the post-digital era (2009 Survey) is enlightening. The comparison reveals both the similarities and the differences in the perception of veracity over time and suggests that a significant shift has taken place since the advent of digital imaging *per se.*

Tables 2.1 and 2.2 showed how the question of whether or not photographs accurately depict the external world and how reality is understood by the so-called “gatekeepers” (photographers, critics, commentators, etc.) and these are summarised below in Table 5.5. The Table also shows how the results from this study (2009) compare before and after the concept of the existence of a distinct photographic reality (based on more contemporary academic thinking) was introduced as an option in relation to Question Eight: “do photographs depict the external world accurately?”
Table 5.5 Photography’s role according to the gatekeepers and survey respondents — then and now

<table>
<thead>
<tr>
<th>Gatekeepers: 1839-2001</th>
<th>Photographs DO depict reality</th>
<th>Photographs DO NOT depict reality</th>
<th>SOME photographs depict reality</th>
<th>DISTINCT photographic reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totals (n=92)</td>
<td>37</td>
<td>18</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Percentage</td>
<td>40%</td>
<td>20%</td>
<td>15%</td>
<td>25%</td>
</tr>
</tbody>
</table>

2009 Survey Question 4: Photographs show the real world accurately

<table>
<thead>
<tr>
<th>Totals (n=74) No response = 1</th>
<th>15</th>
<th>22</th>
<th>36 (neutral)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage</td>
<td>20%</td>
<td>30%</td>
<td>48.6%</td>
</tr>
</tbody>
</table>

2009 Survey Question 8: Photographs show the real world accurately after explanation

<table>
<thead>
<tr>
<th>Total (n=74) No response = 2</th>
<th>1</th>
<th>1</th>
<th>42</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>56.7% 37.8%</td>
</tr>
</tbody>
</table>

It is important to note at this point that with regard to the ‘external world’ concept, it was only when given the choice of “some photographs do and some don’t depict the external world”, that the majority of participants in the survey moved from the highly concrete position that photographs either do or do not depict the external world accurately to a position of greater flexibility. Also, the concept of a ‘distinct photographic reality’ was only provided for the participants to assess for themselves after a brief explanation was given to them as to the nature of such a situation—i.e., that a reality might exist only in a photograph—and it is clear that such a position had not, until then, been a conscious part of their general world view. Clearly, this aspect of the contemporary academic debate had not yet permeated the thinking of the subjects tested in this study.

Even so, the majority of respondents indicated that they continued to believe that some photographs depict the external world accurately and some do not, whilst more than one-third accept the notion of a distinct photographic reality. Given that 62 of the 74 participants (83%) were students of a design course so were presumed to have a high level of visual literacy, it is interesting to note that only one respondent agreed with the statement that photographs do not depict the external world accurately. Although trends are clear for certain images and for general concepts (e.g. verisimilitude versus veracity, levels of perceived veracity, and so on) the wide range of responses makes it evident that the concept of inherent photographic veracity was not a clear-cut notion in the minds of the respondents. It is clear that the participants in this survey—including
the ones considered to possess a higher level of visual literacy—provided personal and individual responses that were more influenced by the pictorial content than by any particular characteristic of photography generally, or any preconceived concept of photography.

For these reasons, it would appear that the construction of any spectrum and the exercise of allocating positional values and using such a spectrum to plot photographs is valid for the individual and is conditional on the knowledge that photographs are initially placed arbitrarily, based on subjective evaluation, just as the early spectra used in the study were judged. For any one viewer, a collection of photographs can be ranked according to levels of perceived veracity and placed on a spectrum, and the results possess validity, but the results can be significantly different for another individual or group. As we can see, the idea of the possibility of developing a standardised spectrum for veracity has merit, but only qualified merit. Conclusions drawn from these findings in relation to the rest of the study are outlined in the following chapter, but there are still other influences at work affecting these issues that must be considered before a full and clear notion of veracity applied to photographs can be developed.

5.6 Extraneous factors and influence
The original aim behind the development of the test spectra was to use them to attempt to quantify both what the viewer is seeing and the level of veracity the photograph is assumed to possess in its own right. If, as this part of the study has demonstrated, veracity is of the viewer’s making, or deciding, then it is the individual viewer who must assign a value to the photograph’s veracity and this may vary from viewing session to viewing session. In daily life, it would be unusual for one viewer to directly compare their perceptions closely with another viewer’s response except, perhaps, in a domestic situation such as when viewing a family snapshot album. Aspects of this idea were discussed in Chapter Four, but beyond that level of discourse, there are other influences at play that affect the viewing process. Apart from the difficulty of applying values to photographs to quantify a position on a spectrum, there are several other aspects of exploring photographs and assessing levels of veracity that remain subject to debate and which influence how and why an image is placed. For example, it is the viewer, not the photographer, who supplies the narrative when a photograph is viewed. As discussed previously, the nature of the photographic processes employed to create the images is largely irrelevant to the viewer—it is the act of seeing that authorises the viewer to make the narrative their own. But whether or not a viewer accepts this role, or articulates it well, cannot be known by the photographer, or even another viewer standing beside the first. However, there are several influencing factors, some of the photographer’s making and some introduced by the viewer, that must be considered in
relation to this phase of the study.

5.6.1 Contextual influences

In the tests undertaken in this study, the first stage of a viewer’s response must be that they see and recognise the picture what the photograph represents. How easily and effectively this happens may subtly influence the subject’s subsequent decision(s) regarding the photograph’s intrinsic veracity and its final placement on the spectrum. Recognition, unlike response, is nominal because “it is possible to misrecognise something, to get it wrong” (Haugeland 1993:57). Once a viewer recognises something (which might not exist), an image forms in the brain (a response) which is “right”, such as the phenomenon of recognising a unicorn even though unicorns do not exist in the external world, or as imagining a green triangle even though a green triangle is not presently viewable. The mind of the viewer moves to find the simplest and most convenient solution to the visual dilemma in response to what in Gestalt psychology is known as closure (Bloomer 1976:49)—a subset of the Law of Pragnanz. This law is better known as the law of simplicity, which states: “the perceiver will organize his perception of the environment so that the environment appears as simple and as orderly as possible” (Weintraub and Walker 1968:12). However, there may be other constraints or influences that assist in correcting recognition that originate in other areas of the brain (other than the visual cortex) such as areas responsible for eye-position stimuli based on muscle tension that over-ride the initial response to certain visual stimuli that may cause confusion or disorientation. This is summed up as, “...‘you know one when you see one’. Recognition is essentially a skill” (Haugeland 1993:62). When recognition is tested with misleading visual stimuli, the subtlety of the image presented is a deciding factor in determining whether the picture can overcome the viewer’s power to reason.

Pre-knowledge, therefore, plays a major part in determining the outcome, because if the viewer can convince themselves they have seen this thing before, or something like it, they will categorise it as that thing (or something like it) and be happy with the result. If, however, there is no pre-knowledge of this visual stimuli for the viewer to rely on for categorisation then closure does not occur easily and a new category must be found by the mind of the viewer in order to facilitate closure—or a visual illusion is assumed. Whether this new category lasts long will be determined by a number of factors:

- how long the viewer looks at the visual stimuli to determine a better result,
- what thinking process goes into deciding what should replace the initial response if the resultant image is too uncomfortable for the viewer,
- how convincing the visual stimuli is at producing a logical outcome, and not a
conflicting one, nor a second, or subsequently conflicting ones,

- how abstract the subject in the picture appears,
- how au fait the viewer is with visual subject matter and analysis of such material, and so forth.

If the subject as shown in a photograph is not immediately ‘readerly’ (easy to identify) the viewer will be confused longer, or may never gain closure. Either way the viewer cannot be certain to any degree that what they see is a condition of an external world or a condition of their brain function. The reactions to, and responses drawn from, viewing may be in accord with a “standard-setting” stance for each viewer but may prove not to be consistent from one person to another. Thus, what one person sees of the external world may not correspond closely, if at all, with what a person standing next to them sees of the external world, as was discussed in Chapter Two. The key point is, however, that for any individual the ability to recognise the content of a photograph, the ease with which that recognition happens and the ability to attain effective closure where doubt initially occurs (often based on prior experience) will be a determinant in any final decision regarding the “truthfulness” of the photograph.

A second factor that must be considered in analysing the external influences on a viewer’s judgement of veracity is the situation in which two people (or all people) are influenced by a belief (or set of beliefs) that help determine their interpretation of the external world in a photograph. Since individual beliefs may be (at best) only slightly different for each viewer, it is entirely possible for any two persons not to know there is a difference in interpretation, although Dennett’s philosophical supposition (1978:17) that creatures that do have beliefs mostly hold true beliefs in order to have a chance of survival in evolutionary terms, is doubted by Fodor & Lepore (1993:71, 75). Evolutionary change in humans has not seemingly altered much during the time of the intellectual revolution (say, the last ten thousand years) except perhaps in brain function, as distinct from brain development. Even so, it is highly probable that all humans have false beliefs sometimes and some humans have false beliefs (in certain things) all the time. This especially applies to visual stimuli from the external world, partly because visual illusion is so easily achieved. If this situation applies to objects in the external world, and interpretations of the external world, it must equally apply to photographs and the interpretation of what is depicted in photographs. Thus, a viewers’s inherent belief will determine how much veracity is ascribed to a photograph, no matter how unmanipulated or accurate a visual record it might provide in the first instance.

This study did not test whether subjects were consistent in their placement of images on the spectrum over a period of time and thus the question as to whether or not
subjects interpret the same visual stimuli (in the form of the test photographs) in the same way each time remains unanswered. Fortunately, the literature provides some answers. Millikan (1993:115) argues that repeated exposure to the same visual stimuli generally evokes a similar response with each viewing. However, it also seems likely that each subsequent viewing of a photograph (the subject matter within does not change over time as the external world can) will have a subtly different effect on the viewer for three reasons: firstly, the subsequent viewing may reinforce an interpretation previously attributed to the image; secondly, based on subsequent experiences, it may alter the first outcome through familiarity with the image and, thirdly it may reduce the photograph’s intrinsic value as a viewed object. In addition, Atkins (1993) points out that if it is possible to imagine how things could be for another person—in other words, to adopt that person’s point of view (Atkins 1993:155 note 2)—then it is also possible to imagine that an individual can have different cognitive reactions to the same stimuli.

Finally, participation in the experiment and the experimental environment itself may have played a significant role in influencing viewer responses. Several influential factors can be suggested in this context. Knowledge of the aims of the test survey following the researcher’s introductory talk, the choice of photographs used for this study and their alignment on the initial spectra, may have all challenged the volunteers and opened their mind to actively question their concepts of understanding veracity. Subjects might have been expected to see one thing prior to the experiment but saw or experienced something different if their viewing processes were sufficiently challenged. As Gombrich puts it: “It is the power of expectation rather than the power of conceptual knowledge that molds what we see in life no less than in art” (Gombrich 2000:225). Yet, despite the viewer’s role in interpretation, or misinterpretation, the photographer still has input in the viewing process and interpretive process by deciding what is in the photograph in the first place. It is this influence on the observer that must be considered next.

5.6.2 The photographer’s influence
A detailed analysis of the photographer’s role in the photographic and conceptual process was provided earlier in this thesis. Given the difficulty of proving or disproving the influence of the photographer’s original intent (mainly because records are rarely available) no specific questions were asked to test for any influence deriving from the photographer’s choice of subject, composition and printing. However, it is worth reiterating at this point that, compared to painting, photography provides a limited choice of inputs in regards to many aspects of a photograph’s appearance. For example, all unmanipulated photographs are bound by the optical perspective provided by the
lens used and thus, due to the laws of optics, “every perspective picture represents its subject as it would from a particular point of view at a particular moment” (Galassi 1981:12). Photography usually offers no variation from this stricture, unless it is deliberately contrived to do so.

Consequently, the photographer never has a blank canvas, or even a choice of what perspective to use to depict the subject outside the parameters set by the physical configurations of the camera. Even so, the photographer always has at least four choices in setting up and composing a photograph, and these may have significant bearings on how the viewer may eventually interpret the photograph and what level of veracity they might ascribe to it:

1) the subject,
2) the (decisive) moment of exposure,
3) the viewpoint (including perspective—lens and camera-to-subject distance),
4) the scope of the picture (the cropping).

Each choice is a limiting factor in the final image and, at the same time is a deciding factor. Temporal moments can be denoted by, for instance, shadows which chance during a day and from day to day during the year; and by action (either animate or inanimate), whilst other choices like point of view and framing—can rob the subject of its physical integrity by overlap and cropping (Galassi 1981:16). These choices give the photographer some controlling influence over what the viewer sees and therefore how they might react to a photograph, although ideally a viewer should personally confront the subject in order to best experience the photograph.

Another choice available to the photographer is focus. While sharp focus is normally assumed to be a given in some part of most photographs, it is not essential. Lack of focus in photographs can be considered here as a simile for a broader understanding of lack of quality in the picture. The issue of how quality affects a viewer’s outlook as to veracity is relevant here because judging by the number of badly focused snapshots in any family album, and the poor quality images people regularly (and readily) accept from their low-end cameras, it is evident that quality does not always affect a viewer’s response to veracity (or is overlooked) when selecting photographs for inclusion in a personal or private collection. On the other hand, just how a contemporary viewer might consider photographs (other than their own) that exhibit lack of focus or other obvious faults, needs to be considered in this context.

Black suggests that “No generic narrative of the photograph’s provenance, no matter how detailed and accurate, can logically guarantee that photograph’s fidelity” (Black 1972:103) and this has a crucial bearing here because many early photographs could
well be described as little more than uniform grey blurs representing the original subject (Figures 4.4 for example)—yet the perception of high veracity was widespread in regard to many photographs from that era. In this context, the photographer’s intent is vital. If a painter intends to draw a horse and produces an object which is indistinguishable from a cow he has failed in his intention, and as Black notes “The notion of intention involves the notion of possible failure” (Black 1972:112). Nevertheless, the photographer’s original intentions may be thwarted due to any number of environmental, mechanical, chemical or physical factors beyond their personal control.

The key point that must be considered here is that, even with today’s technical possibilities, the photographer can choose to create out-of-focus, grey or blurry images as the desired outcome whereas at the beginning of photography there was less control over sharpness and tonal range, and less technical control possible overall. The amateur photographer working with non-digital imaging technology accepts poor results from low-end cameras or operator errors but can not retake the photograph—so must live with their set of prints. It must be remembered that blurry (not necessarily grey) is how some people see the external world (without optical correction eye glasses). Yet, even when the photograph is deliberately out-of-focus or blurry (such as Picture 13a, Figure 5.16) or suffers from technical quality defects there still remains a link between the object photographed and the subject seen in the photograph—there remains a connectivity, within a photograph, between the subject and the object. Nevertheless, even talking into account all of the above factors, the extent to which the photographer’s original intent is communicated to the viewer and the means and effectiveness by which that is achieved, is an area that is open to future investigation.

5.7 How viewers interpret photographs

From these brief observations and from the extensive descriptions of visual perception covered in Chapter Two, it is apparent that the way most viewers interpret any photographic images is highly subjective and is based extensively on their personal experience and individual sensory interpretations in both physical and psychological domains. Any assertion that a photograph is a true record of a real scene or event, or an untrue record, can never be evidenced with confidence. While a photograph can remind the viewer of a scene or event, and the accuracy of the memory may be corroborated by other viewers, a written or verbal statement of the truth of the scene or event is, in the end, no less conclusive than the photograph—and certainly no more conclusive. From the studies into how the mind works, and from the studies of brain function and visual perception reviewed in Chapter Two, comes the idea that the viewing process is a two-way communication. The most widely accepted notion is that the viewer, when looking at a photograph, interprets the image in a personal way depending on their
own experiences and knowledge, just as they perceive the external world. The idea predates recent studies into brain function which qualify and reinforce established theories. That the viewer’s mind is doing some of the work when viewing photographs is clearly pointed out by Coleman (1979) in reviewing Edward Weston’s *Shell, 1927*, (Figure 5.21):

> …a luminous study of a chambered nautilus shell… [which struck] …many viewers - including a large number of visually sophisticated artists and critics - as a highly erotic work; indeed according to apocryphal stories, it was censored on the occasion of at least one exhibit of Weston’s work, on the grounds that it was too sexually provocative.” (Coleman 1979:186-187)

Most contemporary observers might conclude, in regard to the supposedly sexually provocative nature of the picture, that this is a classic example of some viewers’ minds doing too much work! But it does show that viewers all too easily bring bias and prejudice to the viewing process. Closer examination reveals that the picture might actually show two shells, one inside the other, and this arrangement could add to the viewer’s impression of erotica. Even so, whilst this example may be atypical of most viewers and most photographs, it points to a commonality in photograph viewing and reinforces the notion that photograph viewing is highly subjective.

![Figure 5.21 Shell, 1927 by Edward Weston](image)

*Figure 5.21 Shell, 1927 by Edward Weston*
5.8  Response to results
In attempting to quantify veracity using a structured scale of values, it appears that an artificial line is inadvertently created—one that is a spectrum of dualistic opposition, where reality and illusion are potentially presented as the extremes of a continuum wherein any photograph may fall (by deliberate placement, or through considered categorisation). Yet the presentation of reality and illusion as opposing each other is a misleading concept given the duality of their nature. As we have seen throughout this study, reality and illusion are such intangible concepts that they:

- may intermingle;
- may be in constant alternation;
- may coexist; and
- may oppose one another some of the time but not all of the time.

All photographs have a before and after, a now and then, which is more readily available to the viewer, than it is, say, from painting or sculpture. But it is a matter of conjecture whether this evolves from the perceived level of veracity or contributes to the level of veracity. If there is not room to lower the level of veracity of photography overall, the question naturally arises as to whether there should there be more than one level of veracity for each photograph?

The key point is that notions of veracity come down to viewer interpretation of images and do not rely on characteristics of photographs or photography. As the responses to the test spectra showed, it often means that images are more likely to be perceived as realistic when the viewer is convinced that the picture shows an unmanipulated representation of a real world scene. The idea aligns closely with the literature discussed in Chapter Two, in particular with the findings presented by those authors investigating how humans see and perceive the external world. Yet the term ‘representation’ implies something less than an accurate depiction, so should it be applied to photographs at all? As we have seen, a photograph is of a reality which may not be as it seems. Barthes, for example, was adamant that photographs tell a truth. He argued that a photograph always records what is in front of a camera and thus “Every photograph is a certificate of presence” (Barthes 1981:80, 87). In a certain way this is correct, but not always; as it also depends on how the contents of the photograph are perceived by the observer. For instance, in so much as each of the elements of Rejlander’s Two Ways of Life (Figure 4.8) and Uelsmann’s many images (Figure 4.12, as one example) were never simultaneously in front of a lens to be captured, the final combinations as exhibited were never in front of a lens to be captured. While the examples cited seem obviously contrived, many other conventional photographs are not so obviously built from bits and pieces (Fading Away, Figure 2.20, for example) and viewers can be (and often are) deceived. In the same way, other influences may come to bear, such as confusion about
object size, especially if comparative clues are absent, or if the subject matter is in some way abstracted. When all other perceptual cues are eliminated, the viewer cannot know whether an object is small seen close up or large seen at a distance or if local colour is dark when viewed in bright light or light when viewed in dim light—in the end, the image the viewer deduces can only be what Gombrich calls, “a construction of the mind” (Gombrich 1972:31).

In the end, it must be concluded that using Veracity Spectra to accurately quantify truthfulness values for all photographs proved only marginally more precise than applying values on a subjective basis because, as has been shown, there are so many contributing factors influencing a viewer’s decision. Nevertheless, use of a dedicated spectrum can be useful to demonstrate trends when it comes to understanding photographic content and, to a lesser extent, context. The surveys associated with this study reinforce one of the key ideas arising from the literature review—that all perceptions are individual experiences. Whilst the majority of participants in this study can be considered visually literate viewers by the definitions of the study, and their range of responses to the questions and the manner in which they placed images on the various spectra indicates that there exist some patterns, unfortunately these do not provide consistent, nor predictable, results over the sample. While these outcomes indicate a lingering propensity towards a belief in high levels of veracity for conventional photographs there still remains approximately one in every three participants who indicate support for the opposing belief—that photographs, in fact, have inherently low levels of veracity.

Whilst a Veracity Spectrum can function as a tool for comparing images by allocating values based on standardised set of identifiable and measurable criteria, it also brings to light the considerable differences of experience and of opinion amongst viewers as to what those levels of veracity might be, or what they might mean, for any particular photograph. The following chapter brings together the wider findings of this study and draws a number of important conclusions about the complex relationship between photography and truth and the relevance this has for future directions in the study of photography.
Chapter Six

SUMMARY AND CONCLUSIONS

6.1 Results and findings
This study is not a reassessment of the veracity of digital images, nor is it a reassessment of the veracity of photographs in a post-digital age (although it did take place in that era). It is a reassessment of the persisting belief in a high veracity of photographs as they have always stood and which reflects backwards in time. It is a study for historians of photography, photography theorists, those who study the characteristics of photographs and students of photography generally. As a study, it is epistemologically-based, having to do with a broader reading of the technological aspects of photography and an assessment of our knowledge and cultural interpretations of photographs, and the physiological and psychological aspects of viewing photographs.

Through this study, it has become clear to the author that there is no stage in the development of photography where the medium should have earned the perceived high levels of veracity in relation to the depiction of the external world that it did. The early daguerreotypes, talbotypes and calotypes, and other production methods used in the late nineteenth-century created pictures that barely resemble any image of the external world typically received via human vision. This was not the case for the images projected by the camera obscura though. Those images do resemble the external world, they have colour and movement, and as humans see it, close to normal perspective, even if those images are, in some cases, represented upside down and often dimly. This situation suggests that early references to the high veracity of photographs were based on their appearance when they were compared with other two-dimensional picture forms rather than comparisons with objects in the external world—but even this claim cannot be sustained. Claims that the early photographs contained more detail than any painter could achieve at the time were clearly not true and in any case should only give photographs a level of veracity greater than ‘non-realistic’ paintings of the era. Unlike the highly naturalistic paintings of John Constable (Figure 2.18) and others, particularly Johann Erdmann Hummel (Figure 2.19 and 6.1), which pre-date the public
announcement of photography, early photographs were not coloured images so their
depiction of the external world was lacking at least in that regard. Additionally, the first
colour photographic images offered nothing in the way of accurate colour rendition of
the external world, and it was not until the late 1960s that colour photography easily
achieved anything like realistic accuracy—and then still only in a limited manner. So,
when all of the characteristics described in Chapter Two in relation to human vision
and perception are compared to and contrasted with the characteristics of photographs,
there can be found little evidence to support either historical notions about the source
of photography’s veracity or the continuing belief in its high levels.

Figure 6.1 The Granite Bowl in the Berlin Lustgarten (1831) Johann Erdmann Hummel

This study has compared photographs with painting and drawing, and photographs with
what is believed to be a prevalent view of the external world, as well as photographs
with photographs to inform the findings. Despite Maynard’s suggestion that there is
nothing in all of the writings on photographs that could provide an “insightful, principled
approach to photography centred on an account of photographs” (Maynard 1997:19),
this study, based on photographs as well as on the writings on photography, has
sought to make a useful contribution to the overall account of photography. As Marien
points out, “One of the key tasks of photographic studies is to analyze the notion of
photography itself…” (Marien 1997:xiii) and that is what this study does. As part of that
continuum, this study has looked at two aspects of photography long-held to co-exist
simultaneously—that photographs have high veracity or no more veracity than other two-dimensional representations; depending on a viewer’s beliefs. In the nineteenth-century, there was no questioning or systematic analysis of the inconsistencies and contradictions presented by these beliefs. The belief in photography’s high veracity, claimed and held by many but not by all, carried over into the twentieth-century and beyond.

As many political leaders and social commentators (Hitler 1926, Orwell 1970, Solzhenitsyn 1981, Hamilton 2003) have pointed out, the public is always ready to believe a lie; and the bigger the lie the more likely people are to accept it. The belief in traditional, silver-based photography’s veracity is not a political lie, although the continuing belief in its high veracity is akin to one, in as much as it is information perpetuated by those with a vested interest in supporting such a belief and those who have not thought adequately on the subject and thereby continue to propagate the idea. The acceptance (or otherwise) of different forms of philosophical definitions of reality has continually been encompassed by photography and in the way the public has thought of what photographs do to the world—as well as in the influence photography has had on their understanding of reality. Thus, photography has been a defining influence on modern thought. Lawson, for example, argued that “The camera… [dispenses] what we mistakenly take to be true. The photograph is the modern world” (Lawson 1981:45, italics added), whilst Marien, who sets the time for the full acceptance of photographic veracity to the last quarter of the twentieth-century, postulates that that is when “photography [came] to stand for not simply the mass media but the experience of mediated reality”. Before that time, photography “was trying perennially to free itself from being an index of the obvious…” (Marien 1997:xi). As an endgame though, people continue to believe what they want to believe with whatever encouragement and evidence they are presented with to support that belief: whether it be truth or a lie.

With those thoughts in mind the study sought reasons to explain why people believed what they did about photographs. For this part of the discussion, the main outcomes of this study can be broken down into two groupings: the meanings attributed to words and to what photographs are and do, and the philosophies that apply to various aspects of photography.

6.1.1 Meanings
As we have seen, definitions play a large part in assessing veracity and, for this reason, the words veracity, verisimilitude and verity were defined early in the study in an attempt to clarify the debate. In the same way, the multitude of words used to describe the actions taken to produce a photograph have been narrowed down to the most useful
one: record, a verb. Yet, even when we try to narrow down the boundaries that define the research question, this study has also shown that many characteristics of human perception throw doubt on the reliability of using photography to record the external world accurately, as this unreliability is compounded by the physical characteristics of photographs themselves. It is the human interpretation of the record that is problematic.

In reviewing the literature, one necessarily comes to the conclusion that many viewers (and commentators) actually want, or need, to believe in the veracity of conventional photographs although, as we have seen, there is considerable confusion over what is actually meant by that word. Orvell sums up this desire when he suggests that “the history of photography is the countless efforts to overcome limitations of the medium, to expand upon what a representation of reality might be” (Orvell 1989:78) and it is this fundamental need that seems to summarise the perceived desire for photographs to offer something they might not: that the effectiveness of the picture should be convincing enough—even if it isn’t true. Although Henry Peach Robinson’s assumption that “verisimilitude is as good as veracity” is not quite the same as Orvell’s observation that “verisimilitude was the goal though veracity was the claim” (Orvell 1989:86, 95)—both were typically accepted outcomes in the nineteenth-century—and both outcomes continued to be relevant well into the twenty-first-century. Significantly, the latter statement implies that photography might acceptably fall short of achieving verisimilitude and still claim to be representative of truth—a major problem if verisimilitude is the fall-back position when veracity fails.

In the end though, it was the photographs themselves that determined how people came to view the camera and photography. In the context of this study, this implies that people who want to attribute a high veracity for photographs bestow that characteristic upon it by taking that stance—regardless of the difference between veracity and verisimilitude (it is noteworthy that the latter word is not in common usage). Orvell suggests that it was a rising level of visual literacy amongst the general public that led to the formation of this sense of connection between photographs and their veracity—an awareness well established in the United States from the 1920s and possibly earlier, given the widespread influence of Alfred Stieglitz’s journal Camera Works (published between 1902-1917); and the extensive popularity of photography as a hobby and a profession in Europe.

Given the growing level of visual literacy throughout the twentieth-century, it may seem strange that the belief in the veracity of photographs per se has persisted into the twenty-first-century and into the digital age. Posing the question as to why there is still a “long-standing idea that [photographs] have a unique ability to ‘record’ the real
Despite a sustained academic critique of the myth of photographic realism since the 1970s, the contemporary British art historian Simon Faulkner (2008:103-104) seems to miss two key points that this study brings to light. Firstly, since the debate largely took place in academic circles and theoretical journals, the message was not (or rarely) heard by the wider community where the notion is more deeply embedded. Secondly, the commonplace idea that ‘photographic realism’ comes about as a direct result of photographing things—and is therefore not an illusion—reinforces the idea that any level of perceived high veracity of photographs is justified, even though, as we have seen, photographic realism and photographic reality are not the same as the sense of reality normally gained from the external world.

This study shows that a viewer’s interpretation of a photograph, therefore its meaning, can change with its usage and context. As photographs used in print regularly attest, especially in the tabloid newspapers, their interpretation is highly subjective and readily subject to misinterpretation, no matter how intentionally truthful the rendered photograph is to the original scene. The facial expression and posture of the subject can say a lot about a person that can be misconstrued if used out of context. The grinning face of a public figure captured at a celebration, when used under a headline announcing illicit sex, may make the subject appear unrepentant and guilty—whereas a sombre expression and down-trodden posture may make the subject appear guilty and contrite. Editors know this and select images, placement and captions accordingly because they alter a reader’s, or viewer’s, perception of the accompanying photograph and the textual information provided. The intrinsic truth in the photograph as originally captured, if any ever existed, is invariably lost and with it, any sense of meaning that might also influence our perceptions of reality.

6.1.2 On philosophies, perceptions and photographs
Many of the theorists and philosophers writing on photography have taken opposing positions as to the relationship between what a picture shows and what the world looks like. This study has argued for an idealist stance, however, in terms of general philosophy, whether humans perceive the external world as realists describe it or as idealists describe it is an issue that may never be resolved. Although an important consideration, it is peripheral to the question of how humans see photographs as opposed to how they see the external world. When viewing photographs, the same cues are used by the brain to produce identical or very similar messages as they would from the external world, but in the end human perception over-rides many factors arising from viewing photographs such as distortions resulting from the viewing angle, alterations in natural colour, and the flat shiny surface of the print.
The general theory of photographs is, amongst other things, about how photographs are used, how they are viewed, what their relationship is to other visual media and what level of veracity can be ascribed to them. This is different to photographic theory per se as it applies to dynamic ranges, spectral responses, emulsion structures, or processing techniques. Whether theories of photography—which are not about techniques or materials as Maynard (1997:3-16) demonstrates—are argued from

- a Marxist perspective (McCabe 1980, Burgin 1982:4-10);
- a Reaganist perspective (Vance 1999);
- a feminist perspective (Krauss 1984, Solomon-Godeau 1991);

or from any other perspective is only relevant, in the context of this work, if it does not cloud the discussion on photographs as signifiers, representations, or codes of some kind. As outlined in Chapters Two, Four and Five, photographs contain “a plurality of codes” (Burgin 1982:13) and thus the focus of any discussion about veracity seems always to come back to the inaccuracy of human perception—and that is a psychological or physiological consideration more so than a philosophical one.

Many other characteristics of photographs were considered during this study, and several—such as colour and the connectivity of subject to image—were found to be relevant in aiding or suggesting (and sometimes precluding) a perception of veracity in photographs. Importantly, some of these characteristics also suggested that there might be levels, or degrees of veracity inherent in photographs, as was tested extensively in the work described in Chapter Five. Some characteristics of photography were excluded from the study—such as the ability of certain film stocks to render visible the invisible using techniques like ultraviolet and infra-red recording—because these clearly do not aid in establishing veracity (since they record data beyond the range of normal human sensory abilities). These, and other photographic processes, continue to muddy the issue because, for example, infra-red photos are often published without indicating the nature of the film and how that alters the appearance of the external world. Additionally, some extreme cases of magnification are not available to the viewer in the external world, and the same is true for pictures made with telephoto lenses, so that the boundaries of replicating normal vision and perception are exceeded.

6.2 Conclusions about research questions

It was the hope of the Positivist thinkers of the nineteenth-century to move philosophy on to a scientific footing and, in so doing (amongst other things) to establish modern photography on a foundation of scientific truths (Marien 1997:152). Despite the failure of the Positivists to effectively achieve this objective, many authors have continued to assume that the high level of veracity ascribed to conventional photographs is fully warranted—but few have argued their case successfully. In this study, it was
hypothesised that photographs should be considered to have no more veracity than any other accurately rendered two-dimensional representation. If the scientific foundations of the understanding of human vision and brain function have changed from the time of the invention of photography, and there is no doubt they have, then it is time to relocate the position of photography and its veracity within a continuum that has brain function at one end, the characteristics of photography along the path, and psychological aspects of seeing at the other end. As has been shown, when we exclude the key determinants of psychological and perceptual factors, veracity in photography can only rely on two forms of concrete evidence:

- the connection of the object/subject by light rays to the photo-sensitive surface it records onto, to form the image, and
- provenance provided by a line of evidence that one thing is of the other and that no intentional manipulation has taken place. This is external to the photograph itself.

This study does not assume that there is one reality, but whether there is one reality or more is irrelevant, since the study is concerned with whether or not photographs depict the external world and, if they do: how well they do that. Reality and the external world—as we have discovered—are very different things and are uniquely interpreted. Thus, a definition of reality may be as basic as: an individual’s interpretation of the external world. As we have seen, for each individual there is an individual reality, although each reality might be an interpretation of the same external world. Each individual’s interpretation may be vaguely similar, it may share the same characteristics with some other person’s—it may differ only in how mere nanometers of visible light or millihertz of sound are interpreted or detected—but it also may be profoundly different. The crux of that argument is that we, as individual humans, can never know.

If reality is an individual’s interpretation of the external world then when that individual sees a photograph of the external world they will interpret the photographic image in a similar way to the way in which they interpret the external world—using the same symbols, signifiers and cues. Their description of the photographic image will match their description of the external world, in much the same way as a bystander who has learned certain words to describe their own perceived scenes will understand the description given by another observer but may not be seeing the same scene (or the same photographic image) in their own mind. That is because, while the language is the same, the perceptions, or mind-pictures, are different; and the perceptions or mind-pictures are different because they are based on a visual perception system which is interpretive, based on the viewer’s knowledge and experience of their own world and biased by the mind’s concept of the percepts; and which is constantly amending those
memories. In other words, every viewer filters everything they see through their own paradigms.

This study has also been concerned with whether the veracity of photographs arose by comparison with the external world or by comparison with paintings and drawings of the external world. On the basis of the literature supporting this study, this researcher takes the view that humans cannot even know if there is a difference between the two or not, a view illustrated by Wittgenstein's (1953) famous “duck/rabbit”: example and his consequent reasoning. As with the “duck/rabbit,” all visual perception is determined by the physiological and psychological component systems of the human body, functionally interacting and contributing to the overall visual perception process and thereby providing an outcome unique to the individual and inclusive of both learned and experienced activity. This is particularly relevant when we bear in mind that viewing photographs is a learned activity that starts at an early age in developed countries, usually in parallel with learning to ‘read’ other illustrative material, including line drawings and toned pictures.

That visual literacy is a learned function is important in helping us understand how veracity is ascribed. Chapter Two lists and describes those characteristics of photographs that preclude them from depicting the external world accurately and these were examined further in Chapters Four and Five. From the findings, it can be determined that the inherent veracity of a photograph can be considered to be no greater than the veracity of a well executed painting or drawing in its depiction of the external world. Perhaps by definition and by its very nature, creative photography implies a deliberate change to the external world in the exercise of creating the image whereas vernacular genre photography may be seen as making (or attempting to make) a more unmediated recording of the external world. Even in this context, the question “more correct than what, though?” remains unanswerable: more correct than a painting or drawing or as correct as the way in which the original observer saw the external world?, (if that is possible) and, if it is, how does the observer know? These questions still arise at the end of this study because the unique experience of human perception can never really be known.

As noted at the very beginning of this study, the primary focus of the research has been to examine the basis for the widespread attribution of veracity to photographs made in the conventional manner—that is, photographic images exposed on a film of silver-halide emulsion, processed in patent chemicals, then printed on paper-based material with silver-halide emulsions in a time-honoured manner. The dissertation has referred to digital images when necessary in order to clarify the different configurations of the
media and, when it was relevant, to distinguish between the two recording systems. However, as every reader will be acutely aware, the pace of technical change—even in the seven or so years that have passed during the course of this study—has seen significant advances in digital imaging technology, fully in accordance with Moore’s Law, to a point where conventional photographic processes have been almost entirely replaced by digital processes during the first decade of the twenty-first-century and the entire production process following image capture has moved into the hands of every photographer with a computer and an ink-jet printer. The “hands-off” aspect that once provided evidence of the inviolability of the photographic process is now well and truly a relic of the past, or nearly so (in Australia, for example, the supermarket chain, Big W and some other retail outlets still run film-processing facilities). For this reason, it would be natural to presume that digital images do not possess the same level of veracity in depicting the external world as photographs have claimed for 170 years because they are more easily manipulated in all stages of production, and viewers and practitioners are aware of this. By extension, unmanipulated digital images suffer from lack of credibility even if there is no visible difference in appearance between a print from a traditional photograph and a digital image print of the same scene.

Even if the latter argument is incorrect, the findings of this study suggest that the presumption that digital images automatically lack veracity when compared to conventional silver-halide photographs is at best tenuous, and that there is no reason to suggest that digital images have a lesser claim to veracity than conventional photographs, if traditional photographs have a low veracity. This is for two reasons: firstly, very few “snapshot” photographers have the desire, time, skills or technology to edit digital images with any degree of sophistication (beyond occasionally compensating for flash induced “red eye” or perhaps adjusting brightness and contrast to compensate for minor lighting issues) and secondly, because conventional photography has no grounds to make any claim to possessing veracity in the first place. It should be noted, however, that it was the advent of digital imaging which initially brought into question (within a wider audience) the veracity of photographs and conventional photography’s place in the visual media as a reliable source of information about the external world. Long before photography was invented, historians and scientists used paintings and drawings (as well as written accounts) to record and exchange information about the world and no team established for a journey of exploration was complete without at least one highly skilled scientific illustrator. Whilst many instances of gross inaccuracy can be identified (Albrecht Dürer’s 1515 *Rhinoceros* woodcut, for example) the illustrations of Sydney Parkinson, which later formed the basis for Sir Joseph Banks’ *Florilegium*, are still referred to today whilst *Gray’s Anatomy*, first published in 1858, still remains the principal textbook on human anatomy.
That photography supposedly provided a new level of objective detachment from the subject, in keeping with the empirical methodologies demanded by mid-nineteenth-century science, would have added greatly to its reputation for providing truthful evidence of the physical world. It was assumed that photographs more accurately depicted the external world because photography involves more mechanical, less interpretative skills, to produce a picture than painting or drawing involves. This study has investigated that particular role to ascertain whether photography deserves its claim to veracity, and concludes that the mechanical nature of photography did not provide any significant advantage that validated claims for greater veracity over the careful creation of a non-mechanical image. For photographs to demonstrate a high level of veracity, such as medical, scientific and forensic photographs, there needs to be an audit trail to demonstrate provenance. It is, therefore, the written word and related proof that aids a high level of veracity in such photographs—in much the same way as the diaries and journals of early explorers and the preserved specimens (that can still be seen today) inform the works of the *Florilegium* might—as opposed to inaccurate reports in newspaper stories such as those from the Crimean war. Very few photographs possess such provenance and, as Snyder (1980) attests, photographs are no more self-warranting than paintings or any other visual medium.

In other words, generally speaking, traditional photography does not deserve the high levels of veracity with which it has been imbued and, importantly, digital imaging should inherit from its forebear only that level of veracity, whatever it is determined to be. Audit trails—like those used in forensic photography—applied to digital images then become a benchmark by which to measure any higher levels of veracity claimed for pictures made in that medium for any purpose. The emphasis then comes to the picture to self-warrant via that audit trail.

Perhaps what this study shows is that reality itself is unknowable. What most people call reality is an interpretation of an external world that can be known only by inference. From the available information, it can be said that some photographs imitate the external world in such a way that the viewer compensates for any inconsistencies between what is in the photographic image and what may have been in the external world at the time the photograph was made. This is relevant in many instances, such as when viewers ignore and compensate for the angular presentation of a picture they view from a skewed position (viewpoint).

A photograph is an aid to memory, just as other things in the external world are aids to memory. The face of a stranger, a face seen for the first time in a photograph, is recognisable because it is based on a memory of many faces all with slightly altered
features and some with the characteristics of this individual—as distinct from any other individual, or on an “every-face”. Humans have a generic memory of face as well as individual memories of particular known faces. Yet, as Pinker notes: “Knowledge, too, throws up the paradox that knowers are acquainted with things that have never impinged upon them” (Pinker 1997:559, 565). Such is the case for all real objects in the external world (trees, animals, buildings) as well as imaginary things (unicorns, monsters, and so on). Thus, a particular thing may never have been experienced by the mind but, given age and experience, that mind will usually computate that thing and conclude something about it—in order to catalogue it for future reference. An illustration of this is the common experience of seeing a photograph of someone familiar (yourself or a close friend) and concluding that the picture “doesn’t look like” the person. This is a common-enough experience and on this basis it would be easy to conclude that some photographs depict reality accurately and others do not, for this is a widely held belief among photographers and amongst the subjects questioned during this survey—as outlined in Appendices A and B, summarised in Chapter Two and detailed in Chapter Five. Yet for logical consistency it must be said that no photograph depicts reality accurately, because all photographs share the same characteristics irrespective of subject matter; and thus it cannot be the subject matter that decides the issue because subject matter is of the external world not of the photograph and, as previously stated, that external world is only inferred by the mind.

To further illustrate the point that photographs are not accurate depictions of the external world we can use an analogy. Just as a house plan is a drawing symbolising a house, this study has shown that a photograph of objects in space is no less a set of symbols. Like a house plan, a photograph is to scale and contains points of reference, shapes and forms that represent objects in space. Of necessity, plans and symbols are simultaneously both generalised, and specific, as Shepard notes: “Because we are inherently restricted to a two-dimensional projection of the three-dimensional world… our representation of that world must be internally constructed on the information available in that projection”. Thus the brain is deducing information from signals received and “…this construction generally becomes veridical when… we are free to move about, thereby gaining different perspectives on the world” (Shepard 1990:213). This is why photographs cannot offer the same information about the world that actually being there does. Photographs are deemed an aid to memory and, to a large extent, the external world serves the same purpose: “In a more general way, the past survives into the present either in the form of memory of the past or in an objectified form where its origin is hidden” (Elster 1984:204). These objectified forms include written reports, photographs, paintings and all other visual media, songs, stories and similar spoken forms, all of which are interpretive—including photography.
Photographs remind the viewer of things they have seen before in the external world but they also show perspectives and scenes the viewer can never see in the external world, such as when a photograph is taken using a wide-angle or telephoto lens. For example, Figure 6.2 shows a scene that can only be seen through a telephoto lens. Apart from the photographer looking through the viewfinder of the camera, no other patron at the cricket ground that day saw this scene as it appears in the photograph. This illustrates the way in which a photograph captures a ‘slice’ of the external world in a single perspective not necessarily shared by others, but it also demonstrates that even though this is not a natural perspective for a viewer in the external world, it is a scene that the viewer is able to easily decipher. Such is the case for many photographs (see also Figure 6.3), and although we see the scene in the photograph differently from what we might have seen in the external world—and know the difference—we still continue to attribute to photography a high level of veracity. This was demonstrated in the viewer survey conducted for this study.

Figure 6.2 Australian slips fielders photographed with a telephoto lens.

Figure 6.3 House series #4 (n.d.) – Francesca Woodman
The survey showed that viewers typically place images on a Veracity Spectrum according to their own individual and personal interpretation of what an image is showing based on previous knowledge, sometimes of the specific photograph and sometimes more generally of the subject matter; and sometimes on misunderstanding. The survey also showed that the veracity value attributed at one point in time to a particular photograph by a viewer may alter at a later time, which leads to the conclusion that any notion of veracity as it applies to photographs is a fluid one.

Although photography never deserved, nor earned, the level of veracity it attracted, it nonetheless acquired it and maintains it to this day—even after digital photography and computer image rendering have almost entirely taken over the way in which photographs (and film) are produced—and that cannot be ignored. In an attempt to determine the basis on which an objective analysis of the veracity of photographs might be made, it has been shown in this study that a veracity spectrum based on impartial values cannot be sustained, even though it is frequently found necessary to assign some sort of truth-value to a photograph’s veracity. To address this issue, the spectrum was redesigned to evaluate certain criteria on a more subjective level and, as a result, it demonstrated that photographs can be assigned values on a continuum at the discretion of each individual viewer—as the viewers in the survey did. This allows comparisons to be made for individuals over time, or within groups. However, on analysis, it was found that even when this task was undertaken iteratively by a large number of viewers, only a small degree of consistency regarding placement on the spectrum could be identified and, unfortunately for the author’s original hypothesis, without a degree of agreement sufficient to produce a definitive scale of veracity. It is clear then, that photographs cannot be relied upon as an accurate representation of the real world, not because of the process itself (though there are issues inherent in this) but because of the weakest link in the chain—the viewers themselves.

6.3 Reflections

In the context of this study, it is not verbal legerdemain to argue for or against the veracity of photography by subtle definitions or in purely philosophical terms (Constructivism versus Monorealism, Physics versus Metaphysics, and so on). However, this study has shown that any reliance on using the characteristics of conventional photographs as a means of supporting an argument for inherent veracity is unsustainable. The three principal arguments supporting veracity currently put forward (philosophical, physiological and the physical nature of photographs) are not inseparable but, to some extent, each may stand alone—while together their combined weight has been instrumental in producing a compelling and widespread belief in photograph’s ability to accurately show the external world. Because studies into visual perception and brain
function have not always been integral to the study of photography, it became necessary in this project to bring together several branches of science and to synthesise and make that information available to readers in other fields—in this case: photographers, photography students, and other image-makers.

An amalgamation of the emerging knowledge relating to human perception that has occurred in recent years within the physiological and psychological domains—and which is instrumental in debunking the basis for photography’s perceived veracity—is long overdue. But it is the data available from recent studies into visual perception and brain function which allows a cogent argument to be now put regarding photography’s ability to depict reality; as claims to high veracity imply. Although many practitioners, photography commentators, critics, image-makers and other writers on photography have questioned the veracity of photographs in past years, few have gone so far as to claim that photographs can not depict reality, a position which, while not a principal aim of this study, became an inevitable (but unexpected) outcome.

As far as this study can ascertain there is no consistent or cohesive argument for the attribution of inherent veracity to photographs. Although veracity is something that has been assumed since the earliest days of photography, it was conferred without consideration as to the nature of photography or the consequence of bestowing such a claim of veracity. It seems that, to the Victorian mind, the mechanical nature of the camera’s action and the direct connectivity of the light from the object to the formation of the image were sufficient to form the resting-place for the belief that photography accurately depicts the external world. Further reinforcing this idea was the scientifically determined and thus repeatable level of control over the photochemical actions on sensitised emulsion and the consequently consistent results achieved in the development of images on film and paper. This deep-rooted belief, established from the very beginning of the technology, has been difficult—if not impossible—to challenge ever since.

More contemporary thinking, that digital images may change or distort reality more so than conventional photography and that traditional analogue photography records reality more accurately, is consequently based on a false premise since, as we have seen, even the most well-intended analogue photography does not always record reality accurately in the first place. Another intent of this study was to question whether photographs deserve any more veracity than paintings or drawings—and that too has been answered—surprisingly, they do not. Given that our visual perception of reality has such a tenuous a connection with the external world, photographs must have at least the same degree of connection to the external world as paintings and drawings have.
and, as a result, they should be regarded as possessing no more veracity than other any visual media can have. However, to claim on this basis that reality is an individual’s interpretation of the external world is not to say, as some mystical religions do, that reality is an illusion. Whether or not that is the case is not for this study to contemplate.

6.4 Directions and implications arising from loss of perceived veracity

It is not the aim of this study to condemn photography in any way. Photography is a powerful tool for recording visual information and it is a particularly effective and versatile medium for artistic expression. What this study does is to relocate the notion of any inherent veracity in photographic images to a place more compatible with all forms of pictorial representation. That this study has not established a definitive level of veracity to which a particular photograph, or photography generally, can rise or fall means that in so doing (or not doing) it leaves the level of veracity floating in somewhat of a void. The reasons laid out here are given as the best available explanation of ways in which photographs relate to the external world and how the viewer relates to the content of the photographs. How these arguments fare against future developments in the study of visual perception, brain function, and the understanding of the external world and photographs will be interesting to observe.

In the digital age one thing is inevitable: the demise of traditional photographic practice—certainly by the majority of practitioners. The traditional photographic industry is gradually dying, closing down; being bled to death by digital imaging. As demand decreases, film, both black-and-white and colour, will become rare, then expensive and eventually out of the reach of potential users. Black-and-white printing paper has already become expensive and difficult to obtain from small retailers (Hirsch 2008:xiii) whilst the Eastman Kodak Company announced in 2009 that it would discontinue manufacture of that stalwart of conventional colour photography, Kodachrome colour film. Minimum quantities on special order will become a common prerequisite for purchase. Staunch enthusiasts will keep some knowledge of traditional methods alive but eventually well-known practice will go the way of the daguerreotype and the Rawlins Oil Process. Any veracity attached to those methods will disappear as well—that is, if much veracity should have been attached to them in the first place. Time will tell if, with the disappearance of traditional photographic practice, the belief in the veracity of those photographs alters. Perhaps this study will accelerate the demise of that belief.

More likely, though, is that with reduced exposure to traditional photographs and the inevitable fading of perceptions about that medium, some digitally captured images with take on a mantle of veracity because if history shows us anything it is that things
repeat themselves. If the belief in high veracity for traditional photographs arose from a fundamental need for reliable evidence about the external world, the same need will always encompass the latest image recording technique—in the current case, digital imaging. However, given the findings of this study, it would be a travesty if digital picture assumed a mantle of high veracity when traditional photographs should never have done so in the first place. That photographic veracity is not self-evident has long been recognised in certain professional areas—for example, the need for corroborating evidence attached to digital images is common for medical and forensic images and the stringent requirements for this documentation have been set by these professions, via self-regulation, from the very beginning. The extent of this documentation has become even more thorough in recent years in order to help establish a certifiable level of authenticity for images created using digital image-capture technique.

6.5 Implications for future research
Two broad issues arise out of this study that are open for further discussion by a wider audience. One relates to the debate about whether photography as art is a sustainable argument or not, and the other impacts on the study of the history of photography, and history generally. In the debate about photographs as art, the case for the negative historically rested on the mechanical nature of the processes of production and this was also used to support the case for high veracity in photographs. If the case for high veracity fails on this count then the case against photography as art may also fail.

6.5.1 Photography as art
Whether it is still the case or not is a moot point (Balcomb 2001, Beckman 2004, Fried 2008), but the situation in the past was that the high veracity of photography—that characteristic which made pictures so lifelike, beginning with the premise that photographs depict reality in a way painting (and drawing) cannot, and that photography is too hands-off in its manufacture to be legitimate art—was one of the reasons used to argue that photographs could never be valued highly as works of art. However, with regard to veracity, to a large extent the belief that photographs cannot be art is no longer held by many people but to the extent that it still is, then high veracity plays a part in that belief. If this study should in some way lead to a widespread acceptance of the view, amongst practitioners of photography and users of photographs, that photographs do not depict reality in a way that is widely believed they do then there will develop a need to reassess the esteem of photographs, held in some quarters, as an art form. Although other factors also determine whether photography is art, if photographs do not depict reality or represent the external world in a substantial way then they have the same standing as paintings in that they are products of a creative intent—whether mechanical or manual—and the argument for photography’s ineligibility as high art
collapses. Therefore the implication from this study is that if the belief in high veracity is decreased in viewers’ minds, then one of the components is not working against photographs as high art and so the primary mitigating factor against a belief that photographs cannot be high art is multiplicity.

6.5.2 Photography and history
The second implications of this study relates to the future use of photographs and their application as historical tools, as used by both general historians and historians of photography specifically. Photography came into being due to a desire to fix the image produced by the camera obscura (action wanted) at a time when scientific knowledge allowed that goal to be achieved (action possible) such that the photographic process known today is both time and place specific (Dalhbom 1993:177-178). This allows photographs to show images of times passed, and things from the past. Historians use photographs to make statements about what they see in photographs and what they determine from what they see. However, what they see may, in part, be dependant on what people believe about the photographs being studied. If the veracity of all photographs is in future reduced, so might be the validity of statements derived from the study of photographs. The first question that future historians will need to ask themselves is: does this photograph actually show what it seems to show, and to what extent is the mind influencing what is being viewed? and, based on these answers they may then produce their findings from a more critical point of view.

That semiotic theory has already played a critical role in this process is understood, and professional historians routinely ask a range of questions about intent, cultural bias and the intentional or unintentional distortion of reality (see for example, Hales, 2005) in the photographs they examine. Nevertheless, the challenge for historians is twofold—the frequent lack of detailed, supporting background evidence for the photograph specifically and the physical, psychological and physiological determinants involved in a photograph’s capture, processing and viewing. Whether we like it or not, a whole new level of complexity is added to what is already a difficult task. As already discussed, in the medical, forensic, and legal professions, and in scientific fields generally, photographs are used with corroborating evidence to lend credence to the information gleaned from them. In the future, and in almost all applications, such rigorous standards will need to be applied to any photographic image from which any level of truth is expected to be derived. If the widespread, generalised belief in the high veracity of photographs has been found wanting, as this study suggests, then the employment of photographs in all arenas of study must be done with increased rigor concerning what is being depicted in the image. This applies equally to images made by digital capture, since this method of production will inevitably take up the high
veracity attributed to traditional photographs, if only to fill the void created as the latter become increasingly less common.

6.5.3 Future directions
From the findings of this study, certain aspects of photography’s veracity will need to be tested further in future studies (as described in Chapter Five). The spectra tested in this work were used in an attempt to quantify both what the viewer is seeing and the level of veracity the photograph is assumed to possess in its own right as a result of that process. The spectra developed in this study were intended to qualify degrees of veracity for individual photographs as they were seen by individual viewers, but the outcomes did so in a manner outside the expectations of this research. If veracity is of the viewer’s individual making, or deciding, then it is only the viewer who can assign a value to the level of veracity inherent in the photograph. As we saw, this seems to vary from viewing session to viewing session and results are unlikely to compare exactly with another viewer’s response—even if the different responses are close in value. One possibility is that a computer software package could be developed, utilising a dynamic display incorporating a comprehensive range of variables examined in this study, as shown in simplified form in Figure 6.4.

Working directly with an interactive interface would allow a viewer more flexibility in their decision-making and, when all parameters are addressed, they could see the image being examined move in response to the cumulative effect of the controlling sliders. Work with a collection of thoroughly corroborated photographs (ideally using existing forensic standards and appropriate documentation) created specifically for test purposes, future research could compare a wide range of viewers’ responses to the same set of photographs, and compare these against the individual and the test group at different times and under different circumstances. Whilst this would, in all possibility, reinforce the notion that veracity—as applied to photographs—is fluid and infinitely alterable it would, by allowing participants to work at their own pace and not have their decision-making restricted by time, provide much more consistent results.

A second level of study might also examine what happens when the entire collection of test photographs is considered as a whole. In this scenario, as individual images are rated, the whole suite of photographs may change their positions dynamically in an overview window. As test subjects see their image ratings affecting other images already placed on the spectrum they might also be inclined to contextually modify their decision making process. This, to a certain degree, would influence their final choice of position, and consequently the score for veracity for that image. The two sets of data are important in that they would help differentiate how viewers ascribe levels
of veracity to photographs as individual items or as part of a group or collection. This would have implications for both the day to day interpretation of unique images (such as newspaper photographs) and the analysis of historical or archival collections. The use of computer software would also allow the systematic analysis of raw data to be sped up and considerably refined. Subjects could participate in longitudinal studies and have their computer-generated test results displayed side-by-side for analysis.

Figure 6.4 Mock-up of computer screen for real-time veracity spectrum adjustments.

6.6 Conclusion
This study has explored the ways in which contemporary belief in the veracity of photographs has arisen and whether or not that belief could be in any way justified or sustained, especially given the rapid and overwhelming ascendancy of digital imaging. During the course of this study we have seen that, by its very nature, veracity in photographs is a fluid notion changing with time, viewer and circumstance or usage. Just as there continues to be unanswered questions about how the brain works, any conclusions drawn from current understanding of brain function and how that affects photograph-viewing can also only ever be speculative. For this reason alone, we must finally come to three conclusions. Firstly, the veracity of photographs as a representation of the external world cannot be determined because the sources of information of the external world that humans obtain is unreliable, especially when we consider the quality of visual information received. Secondly, although the veracity of photographs, when compared with other two-dimensional illustrations is greater due to the connectivity of the object to the nature of the photographic recording process, veracity continues to be dependant
on the content of the photograph and the way in which it relates not only to the
characteristic elements of the veracity spectrum, but to the desires and experiences
of the photographer, or viewer. Thirdly, it must always be realised that veracity is
an individual interpretation—for any photograph the level of veracity can always be
whatever the viewer wants or believes it to be.

In the case of photographs it is not *the* world that is shown, but *a* world. Humans can
only experience reality (the external world) indirectly through their senses—and then,
only as these are modified in interpretation by the brain. In our limited experience of
spacetime, every single moment of time is immediately behind, gone by the time it is
analysed and interpreted by the brain… although we like to believe that a photograph
captures and holds at least a moment stationary. Unfortunately, if human perceptions
of the external world cannot have high veracity, as is argued here, then neither can
photographs. What might be said is that photographs have reliability in accurately
showing a consistent *something* of the external world—but it is only a world as it is
captured and recorded in photographs. The alternative is that we redefine veracity to
mean something other than it is presently understood to be, but that solution would,
at best, be unintended Sophistry. In the end, this study is left without an adequate
definition of reality on which to build, without a means to accurately articulate veracity,
and with a multiplicity of categories with which to attempt to clarify the constants that
make up a photograph—but that is the nature of the issues outlined. The relationship
between reality and photography is as tenuous as the relationship between the external
world and what humans see.

While it can be said that photographs have veracity—high, low, or otherwise. In the
end, the outcome of this study provides a guide to understanding the many different
means of defining photographs and suggests that this should be done in future without
being hampered by a belief in an inherent high veracity. The study has found that
there is a relationship between a photograph and reality (the external world) and, if the
conclusions drawn here are correct, then it cannot be the only relationship. From this
reassessment, it can be argued that photography, generally, does not have high veracity,
certainly does not possess verity, and the best that can be said of any photograph is
that it may have about it an aura of verisimilitude. Veracity is not a characteristic of a
photograph, nor of photography, (although neither is verisimilitude nor verity)—it is a
characteristic of the viewer’s interpretation of an image. Yet veracity, as a characteristic,
has been attributed to photographs from the very invention of the process; wrongly.
REFERENCES


Abbott, Berenice (1951b) *It has to walk alone* in Lyons, Nathan (Ed) (1966) op cit

Arcuri, Russ (1999) Photo.net op cit

Adams, Ansel (1944) *A personal credo* in Lyons, Nathan (Ed) (1966) op cit


Arago, Dominique François (1839) *Report to the Commission of Chamber Deputies* French Chamber of Deputies July 3, 1839 in Trachtenberg A (Ed) (1980) op cit


Atkins, Kathleen (1993) *What is it like to be boring and myopic?* in Dahlbom B (Ed) (1993) op cit


Barthes, Roland (1977a) *The Photographic Message* in *Image—Music—Text* op cit

Barthes, Roland (1977b) *Rhetoric of the image* in Trachtenberg, A (Ed) (1980) op cit


Baudelaire, Charles (1862) *The modern public and photography* in Trachtenberg A (Ed) (1980) op cit


Benjamin, Walter (1934) *The author as producer* in Burgin, V (Ed) (1982) op cit


Black, Max (1972) *How do pictures represent?* in Gombrich *et al* (1972) op cit


Brugiere, Francis (1935-36) *Creative photography* in Lyons, N (Ed) (1966) op cit


Bucanan, Ian (2000) Now you see it... British Journal of Photography Millennium Issue 05.01.00 Timothy Benn Publishing Ltd, London

Bullock, Wynn (1962) Space and time in Lyons, N (Ed) (1966) op cit

Burrows, Paul (2002) What you see is what you want to see ProPhoto July vol 58 no 7 Horwitz Publications Pty Ltd, Sydney


Carothers, Steven & Roberts, Gail (1989a) Elements of acceptance in Carothers S & Roberts G (Eds) (1989) op cit


Clarke, WD (1863) *On photography as a fine art* The Photographic Journal, May 15:286-287


Coleman AD (1975a) *The autobiographical mode in photography* in Coleman AD (1996a) op cit

Coleman AD (1975b) *Hybridization: A photographic tradition* in Coleman AD (1996a) op cit

Coleman AD (1979) *The arrival of the explicit* in Coleman AD (1996a) op cit

Coleman AD (1980) *Context and control* in Coleman AD (1996a) op cit

Coleman AD (1981) *Silverplating the dandelion* in Coleman AD (1996a) op cit

Coleman AD (1983) *The photographic still life* in Coleman AD (1996a) op cit

Coleman AD (1985) *The hand with five fingers* in Coleman AD (1996a) op cit


Coleman AD (1996a) Tarnished Silver: After the Photo Boom. Midmarch Arts Press, New York

Coleman, AD (2009) *Streichen then, now, and again: Legacies of an icon*. Ag no. 57


Daguerre, Louis JM (1839) *Daguerreotype* in Trachtenberg A (Ed) (1980) op cit


Dahlbom, Bo (1993a) *Editor’s Introduction* in Dahlbom B (Ed) (1993) op cit

Dahlbom, Bo (1993b) *Mind is artificial* in Dahlbom B (Ed) (1993) op cit


Damasch, Hubert (1978) *Five notes on the phenomenology of the photographic image* in Tractenberg, A (Ed) (1980) op cit


Davis, Alan (2001) *Collected memories* ProPhoto vol56 no 6 June Horwitz Publication Pty Ltd Sydney

Davis G, Welch VL, Holmes A, Shepherd A. (2001) *Can attention select only a fixed number of objects at a time?* Perception vol 30 no 10 : 1227-48


De la Blanchere, Henri (1859) *L’Art du photographe.* Amyot Editeur, Paris

Demachy, Robert (1907) *On the straight print* in Lyons, N (Ed) (1966) op cit

Dennett, Daniel (1978) *Brainstorms.* Bradford Books and Hassocks, Sussex


Deregowski J. (1972) *Pictorial perception and culture.* Scientific American. 227 (5) 82-88.


De Zayas, Marius (1913) *Photography and photography and artistic-photography* in Trachtenberg, A (Ed) (1980) op cit


Durrer, Hans (2008a) *No context needed* Afterimage vol 36 no. 3 Nov/Dec


Dyker, Craig (1998) *True love, reality, photography and digital modeling*  

Eastlake, Lady Elizabeth (1857) *Photography* in Trachtenberg, A (Ed) (1980) op cit


Emerson, Peter Henry (1886) *Photography, a pictorial art* The Amateur Photographer 3 (March 26)

Emerson Peter Henry (1889a) *Hints on art* in Trachtenberg, A (Ed) 1980 op cit

Emerson, Peter Henry (1889b) Naturalistic Photography for Students. 1973 reprint Arno, New York

Emerson, Peter Henry (1899) *Science and art* in Lyons, N (Ed) (1966) op cit


Erkelens, CJ (2000) *Perceived direction during monocular viewing is based on signals of the viewing eye only* Vision Research 40 (18): 2411-2419


Farid, Hany (2009) Photo tampering throughout history  


www.utm.edu/research/iep/e/extworld.htm Accessed 23.01.2001

Fitzpatrick, David (2000) *Seeing beyond the receptive field in primary visual cortex*  
Current opinion in Neurobiology 10:438-443


255
University of Minnesota Press, Minneapolis

Fodor, Jerry & Lepore, Ernest (1993) Is intentional ascription intrinsically normative?
in Dahlbom B (Ed) (1993) op cit

Frank, Robert (1958) A statement in Lyons, N (Ed) (1966) op cit


Frizot, Michael (1991a) The lying camera in Photomontage. Thames and Hudson London


Ganis, William V (2009) String theories: Annegret Solau's transitional, fetishistic photocollages Afterimage January/February, vol 36 no.4

Georges, Zigi (2000) Large format, b&w or colour photography ~ so what? PHOTO-Graphy, vol 9 no6 Doug Spowart, Toowoomba


Gilbert C D (1996) Plasticity in visual perception and physiology Current Opinion in Neurobiology 6 (2) : 269-74


Golden, Martin (nd) *The photographer behind the badge: a look at a career in forensic photography* http://ww.apogeephoto.com/mag3-6/mag3-7fres… Accessed 31.03.2004


Gombrich, E H (1972) *The Mask and the Face* in Gombrich *et al* (1972) op cit


Greely, J (1999) Photo.net op cit

Green, Roy (1998a) *Viewpoint* The Photographic Journal vol 138 no 10 Royal Photographic Society, Bath

Green, Roy (1998b) *Photojournalism: past, present, future* The Photographic Journal vol 138 no 10 Royal Photographic Society, Bath


Gunthert, André (2008) *Digital imaging goes to war* Photographies,1:1,103—112


Hall-Duncan, Nancy (1979) Photographic Surrealism. Akron Arts Institute, Akron


Timothy Benn Publishing Ltd, London


Hartely, David (1749) Observations on Man, his Frame, his Duty, and his Expectations. In two parts. Leake and Frederick, Bath

Hashizume, Bryce (1999) Photo.net op cit


Ivins, William M. Jr (1953a) *New reports and new vision: the nineteenth century* in Trachtenberg, A (Ed) 1980) op cit


Jenkins, Dave (1999) *Photo.net* op cit


Kosslyn, SM, Sukel, KE & Bly BM (1999) *Squinting with the mind’s eye: effects of stimulus resolution on imaginal and perceptual comparisons* Mem Cognit Mar; 27 (2) : 276-87

Kozloff, Max (1979) Photography and Fascination. Addison House, New Hampshire

Kracauer, Siegfried (1960a) *Photography* in Tractenberg, A (Ed) (1980) op cit

Kracauer, Siegfried (1960b) *Theory of Film: the redemption of physical reality*. Oxford University Press, Oxford


*Lancet* (1856) 22 January


Lawson, Thomas (1981) *Last exit: painting* Artforum October:45


Lewis, Robert (n.d.) Frank Hurley: The man who made history. Study Guide, Film Finance Corporation, (Sydney) Australia


Mandelbaum, Maurice (1972) Preface in Gombrich et al (1972) op cit

Margolis, Eric (1988) Mining photographs: Unearthing the meaning of historical photos Radical History Review 40


Marr, David (1982) Vision. WH Freeman, San Francisco


Moholy-Nagy, Laszlo (1923) Light – a medium of plastic expression in Lyons, N (Ed) (1966) op cit


Morton, H J (1866) The Sister Arts The Philadelphia Photographer 3 (March)


Newton, William (1853) Address to the Photographic Society of London Journal of the Photographic Society 1 (March 3)


263


Peres, Michael (2001) *Letters to the Editor* Journal of Biocommunication vol 28 no 26 Biomedical Illustrators Association, USA


Poe, Edgar Allan (1840) *The Daguerreotype* in Trachtenberg, A (Ed) (1980) op cit


Prinz, Jesse (1993) *Towards a cognitive theory of pictorial representation*  


Ray, Man (1934) *The age of light* in Trachtenberg, A (Ed) (1980) op cit


Reichmann, Michael (2004) *ISO400 Colour Transparency Film* in The Luminous Landscape  


Robinson, Henry Peach (1892) *Paradoxes of art, science, and photography* in Lyons, N (Ed) (1966) op cit

Robinson, Henry Peach (1896) *Idealism, realism, expressionism* in Trachtenberg, A (Ed) (1980) op cit


Roh, Franz (1929) *Photo-Eye:76 photos of the period* (Literature of Photography). Ayer Co Pub

Roland P E & Gulyas B (1994) *Visual imagery and visual representation* Trends in Neuroscience 17 (7) : 281-7


Rosler, Martha (1991) *Image simulations, computer manipulations, some considerations*  
Ten-8 2(2) Digital Dialogues


Rubinstein, Daniel and Sluis, Katrina (2008) *A life more photographic* Photographies, 1:1, 9—28


Rusis M (2000) *The question of technique versus image and image versus technique* PHOTO-Graphy vol 9 no 6 Spowart, Toowoomba


Saxby, Graham (2001) *The Science of Imaging.* Institute of Physics, Bristol


Siegel, Arthur (1951) *Fifty years of documentary* in Lyons, N (Ed) (1966) op cit


Siskind, Aaron (1945) *The drama of objects* in Lyons, N (Ed) (1966) op cit


Sleep, Tony (1999) So what’s a Q60 and these tests www.halftone.co.uk/tech/filmscan/overview.htm Accessed 24.09.2004


Stieglitz, Alfred (1899) *Pictorial Photography* in Trachtenberg, A (Ed) (198) op cit


Strand, Paul (1923) *The art motive in photography* in Lyons, N (Ed) (1966) op cit


Talbot, William Henry Fox (1846) *A brief historical sketch of the invention of the art* Introduction to *The Pencil of Nature*. in Trachtenberg, A (Ed) (1980) op cit


Tarrant, Jon (2001a) *Do you know what is the ‘right colour’?* British Journal of Photography vol 148 no 7324 Timothy Benn Publishing Ltd, London

Tarrant, Jon (2001b) *The truth may or may not be out there* British Journal of Photography vol 148 no 7332 Timothy Benn Publishing Ltd, London


*The Age* (2002) *The speed of light - not quite as fast as we thought* 8 August
The Age Company Limited, Melbourne www.the.age.com.au Accessed 08.08.2002


Thorpe, Vanessa (2004) Shackleton’s expedition pictures were ‘faked’ The Observer, Sunday 22 August 2004 www.guardian.co.uk/2004/aug/ss/arts.artnews


van der Helm, P A (2000) *Simplicity versus likelihood in visual perception: from surprisals to precisals* Psychology Bulletin 126 (5) : 770-800


Wade, Nicholas J and Finger, Stanley (2001) *The eye as an optical instrument: from camera obscura to Helmholtz’s perspective* Perception 30(10) 1157-1177


Ward, David (2008) *Landscape Beyond* Ag No. 51 Spring


Weston, Edward (1930) *Photography – not pictorial* in Lyons, N (Ed) (1966) op cit

Weston, Edward (1932) *A contemporary means to creative expression* in Lyons, N (Ed) (1966) op cit


Willis, Anne-Marie (1988) *Picturing Australia: a history of photography*. Angus and Robertson, Sydney


Appendix A

FROM BEFORE DAGUERRE TO BEYOND DIGITAL:
AN HISTORICAL CHRONOLOGICAL OVERVIEW

This section is a record of comments, beliefs and understandings of some prominent practitioners of photography, and others, as to their notions of the accuracy of photography to be truthful as a representation of the external world. It is set out in chronological order to demonstrate any patterns in the shift of views that may take place over time. It is separated from the main body of the text for those readers interested in this amount of detail. The results of data collected and described in this section are summarised in tables at the end of this section and in Chapter Two of the thesis. This is, in essence, a ‘retrospective’ survey. The overview begins before the announcement of the invention of photography to establish that photography inherited some of its veracity from pre-existing processes and beliefs.

Before 1839
It was the Arabs “beginning in the 11th century” (Damisch 1978:289) who probably first used a constructed camera obscura to observe solar eclipses. Alhazen Ibn Al-Haytham (965-1040CE)—an Iraqui who lived in Cairo—wrote the first clear description and correct analysis of the camera obscura (Wade and Finger 2001, Kelley, Milone and Aveni 2005). In the seventeenth- and eighteenth-centuries the camera obscura was made small enough to be portable and was fitted with a lens at one end to give a brighter, sharper image on the ground glass at the opposite end. The image formed of the outside world gave the artist an image to trace and draw upon (literally) to reproduce the scene more correctly than was possible before the camera obscura—even when it was room-sized, first described in 1553, (Newhall 1982:9) like the one still extant in Edinburgh, Scotland. The instrument allowed even the unskilled to make images of the external world. The use of these cameras for making pictures was described by Giovanni Battista della Porta in 1589 (Snyder and Allen 1975:149). However, without artistic skills, the operator could not accurately reproduce the colours, textures and shading of the natural world.

The camera lucida, invented by Wollaston in 1807 provided another aid to drawing the external world but, again, required skill to render the subject well, as Talbot (1800-
1877) discovered on the shores of Lake Como. Concurrent with the development of these instruments was an increasing demand amongst the burgeoning middle class for images, particularly family portraits. Newhall (1982) indicates that the prevailing view at the time was that the images produced by the cameras obscura and lucida created a “fever for reality” and that the “craving for reality” (Newhall 1982:11) led the drive to fix the images of the camera obscura. These images and the belief that they were formations of reality, provided the seed from which grew the belief that the first photographs showed the same reality as the camera obscura. Yet the images on the ground glass screen of the camera obscura were not accurate renderings of the external world. Lenses concentrated the light vignetting the image and sometimes made the image brighter and colours more intense, and motion is seen on the screen as well (Snyder and Allen 1975:149). It seemed to be inconsequential to the viewers of the time that the blurry, soft focus, grey-and-white pictures on paper, or the shiny, hard-to-see daguerreotypes created when the image of the camera obscura was finally fixed appeared nothing like the external world they observed with their eyes. Even the fact that to view a daguerreotype properly requires careful alignment of picture surface and diffused light source seems not to have affected the prevailing belief.

It should be recalled here that photographically-realistic paintings were already being produced before the invention of photography proper. Before photography, the camera obscura allowed painters to reproduce the geometric perspectives, shapes and depths later displayed by photographs. From the fifteenth century, marked by the publication of Leon Battasta Alberti’s *On Painting* in 1435 (Galassi 1981:16), drawing and painting produced perspective pictures. For examples, *Townscapes* from 1470 (Figure A1) shows accurate linear perspective; Canaletto’s street scenes (Figure A2) from the mid-1700s, *Polishing the Granite Bowl for the Lustgarten* (Figure 2.19) by Johann Erdmann Hummel painted in 1831 and John Constable’s *Wivenhoe Park, Essex* (Figure 6.1) painted in 1816, all predate photography. The latter two are examples of photo-realistic paintings before that term was first used. It is also significant that these latter two paintings are in colour, whereas the first photographs were greyscale images (in today’s terminology). According to Gombrich (2000), Constable visited a diorama constructed by Daguerre in 1823 which Constable described as “very pleasing and has great illusion” (Gombrich 2000:xxxiv).

![Figure A1 An Ideal Townscape – circle of Piero della Francesca (c.1470)](image)

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In discussing the origins of art, Coleman (1975b) suggests …that all art [painting and drawing] is pre-photographic—by which I mean that photography is the culmination of the ancient human drive to evolve a versatile, easily practiced visual communication process, and that what we think of as the previous visual ‘art forms’ are nothing more than earlier, clumsier, less adaptable means to that end. (Coleman 1975b:160)

The concept of pre-photographic is not knew. Batchen (1997) describes the pre-photographic existence, amongst the “proto-photographers” (the developers of photographic processes), of a “desire to photograph” (Batchen 1997:50, 56-102, 182) dating from the late 1700s to 1839. Batchen (1997) and Cadava (1992) both suggest that there was never a time preceding photography, that “photography was in fact always already there” and that, for example, photosynthesis is but “an organic world of light writing” (Batchen 1997:182, 183, Livingston 2009). While this notion is attractive in a rhetorical sense, it is nonsense in a practical sense. Photography describes a specific set of actions and outcomes relating to the production of pictures by light and chemical action, the first of which was officially announced in Paris in 1839. The potential for the process dates (optically) from the Renaissance and (chemically) from 1727 (Batchen 1997:26, Newhall 1982:9-10) but the experiments to fix the action of light on chemically treated substrate did not culminate into anything useful until the mid-1820s (Bensusan 2002).

![Figure A2 The Campo San Stefano – Canaletto (mid 1700s)](image)

Photography, then, was an inevitable outcome of developments in painting and drawing which began at the time of, or before, the Italian Renaissance period. “Photography
was not a bastard left by science on the doorstep of art” as Galassi (1981:12) says, …but a legitimate child of the Western pictorial tradition. Perspective representation was something which painters had been developing and which photographers could not avoid. (Galassi 1981:18)

The oldest known photograph is by Nicephore Niepce made about 1824 (Bensusan 2002:11) and is a copy of a printed page; the next oldest known photograph and oldest extant photograph (Figure A3), taken a year or two later by the same photographer is a view from an upper window at his house at Le Gras (Kolbowski 1999:162, Bensusan 2002:11, Bainbridge 2002:5, Marien 2002:11). However the year 1839, and the announcement in France of Daguerre’s efforts, is taken as the introduction of photography.

![Figure A3 View from the window at Gras – Joseph Nicephore Niepce (c1826)](image)

[Top: original heliograph, bottom: gelatin silver print with watercolour (1952 Kodak Research Laboratory)]

1839

Daguerre (1839) calls his version of the fixed image an “imprint of nature” and says the daguerreotype “is not merely an instrument which serves to draw Nature; on the
contrary it is a chemical and physical process which gives her the power to reproduce herself” (Daguerre 1839:12). Arago (1839a) says this imaging process creates “…images drawn by nature’s most subtle pencil, the light ray…” (Arago 1839a:18). Both men see the creation of images by this method as having some connectedness with nature (read: reality) (Figure A4). Talbot also announced his method of fixing the image from a camera obscura in 1839.

Figure A4 Still Life – Louis Jacques Mandes Daguerre (1837)

1840

Frustration with his limited success in reproducing scenes with the cameras lucida and obscura led William Henry Fox Talbot to develop his method of fixing the images created on the camera obscura (Talbotype and calotype). He describes the image on the ground glass of the camera obscura as showing “…the inimitable beauty of the pictures of nature’s painting… (Talbot 1846:29) and that is what he tried to fix on a light sensitive emulsion. Yet to say that the blurry grey tone images which were subsequently produced (e.g. Figure A5) where like those images seen on the glass of the camera obscura is difficult to understand when the external world was seen in colour. Indeed, the daguerreotype reproduced fine detail of its subject, not always available to the unaided human eye. Many commentators of the time favourably compared the early photographs to paintings of the external world. For example, Edgar
Allen Poe (1809-1849), writing in 1840, said that the daguerreotype is “…infinitely more accurate in its representation than any painting…” and he expands his claim by adding that “…the variations in shade, and the gradations of both linear and aerial perspective are those of truth itself…” (Poe 1840:38). That the detail in some early photographic images was perceived to be more precise than anything painted is partly what led to the belief that photographs are accurate depictions of the external world.

After about 1853 the photographic paper-print process became popular. With the ability to reproduce copies of photographs, as distinct from the one-off daguerreotype, the demand for photographs increased (Trachtenberg 1980:91). This development also meant that the alignment of the image surface with a light source to correctly see the image, as was the case with daguerreotypes, was eliminated and photographs became very much easier to view. The removal of a difficult viewing condition may have added to the perception that photographs are accurate depictions of the external world.

McFall (2000) reports that, in the early 1850s, Berend and Diamond were consistently using photography in medicine. In 1855 Berend euphorically reveals his reaction to the development of photography: “Immediately I understood that now the method had been found which would make the long-perceived defects of limited, unrealistic images
impossible” (McFall 2000:12). Likewise, Diamond wrote in 1856 of photography, “that permanent records thus furnished are at once the most concise and the most comprehensive” (McFall 2000:12). Ironically, even in the twenty-first-century, medical artists are called upon to draw and paint medical illustrations that the camera cannot match for accuracy due to characteristics of photography; namely depth of field and focus limitations.

1857
Trachtenberg (1980) reports that Lady Elizabeth Eastlake (1809-1893), writing in 1857, “granted the photograph the position of the most truthful pictorial report of fact…” (Trachtenberg 1980:39) Lady Elizabeth herself indeed observes that the daguerreotype gave a representation which was “…exquisitely minute and clear in detail, capable of copying nature…”. She does add that photography “is yet subject to certain distortions and deficiencies” which she attributes to the quality of lenses and the shortcomings of the processes available at the time. She says that photography’s business is to “…give evidence of fact…” as only an “unreasoning machine…” can give (Eastlake 1857:47, 59, 66).

1858-1860s
Holmes (1859) says that “The very thing which an artist would leave out or render imperfectly, the photograph takes infinite care with, and so makes its illusion perfect” (Holmes 1859:79-80). Baudelaire (1862) “…considered men fools to believe in photographs as mirrors of physical fact”. He says that “poor madmen” believe that “…photography provides us with every desirable guarantee of exactitude” (Baudelaire 1862:83, 86), but he does not indicate why he thinks that, nor does he elucidate those characteristics of photographs, or human perception, or whatever it is, which drew him to that conclusion, so that if he is correct we do not know why. From comments like these, Sekula (1999) concludes that “In nineteenth-century writing on photography we repeatedly encounter the notion of the unmediated agency of nature” (Sekula 1999:86). He notes that writers, including Samuel Morse and William Henry Fox Talbot, “dismiss the human operator and argue for the direct agency of the sun” (Sekula 1999:86).

In 1858 Henry Peach Robinson (1830-1901) used combination printing to create scenes that never appeared in front of a camera—mostly subjects photographed as set-ups in a studio, as had Oscar Rejlander in 1857 (Newhall 1982). Robinson produced a photograph called *Fading Away* (1858) (Figure 2.20) which “…stirred critical attention…” (Trachtenberg 1980:91) and bought his work to public notice. Of his methods, Robinson (1896:96) says that some viewers see photographers as “mere mechanical realists” unable to produce interpretive pictures. Robinson himself
was a pictorialist and inspired many who followed him, but whether the viewing public thought his pictorialist images any less real than straight photographs is difficult to determine from available evidence. Robinson (1896) explains that “A pure unadulterated machine-made (man and instrument) photograph … is the most perfect specimen of realism the world could produce…” and believes that, before photography, no one could have conceived of a method to so accurately reproduce nature. Eventually, in the more than fifty years from the first photographs, Robinson believed that the viewing public “…got tired of the sameness of the exquisiteness of the photograph” and therefore were ready for the interpretive work of the pictorialists. This he attributed to the photograph leaving out the mystery of the external world. He says the viewer “…cannot stand too many facts; it is easy to get a surfeit of realities…” (Robinson 1896:96). Note the plural of reality.

Robinson (1892) reminds the reader that it is often said “that photography cannot be art because it has no capacity for lying”—lying about nature, lying about reality. Yet he disclaims this by adding that, “Although the saying is wrong as regards our art…” (Robinson 1892:83). He goes on to argue that …they who, looking perhaps only at their own limited experiments, say photography cannot lie, take a very narrow view and greatly underrate the capabilities of the art. All arts have their limits, and I admit that the limits of photography are narrow, but in good hands it can lie like a Trojan. (Robinson 1892:83)

but adds that: “…photography is only a humble liar; yet it is not the guileless innocent that some people suppose…” (Robinson 1892:84). Others, such as Jerry Uelsmann (1934- ), Moholy-Nagy (1895-1946), and John Heartfield (Helmut Herzfelde 1891-1968), have raised the status of photography to that of a more-than-humble liar. Robinson was not against altering a photograph. He describes that he once moved a clump of trees from the left side of a photograph to the right side by double printing to improve the composition because he “did not want a mere local view” (Robinson 1892:84).

Taking alteration a step further, Alexander Squire, a surgeon in England, wrote between 1864-66 noting that: “greater accuracy and more lifelike representations [are] obtained by means of photography of the disease coloured from life by one of the best artists…” (McFall 2000:13). Thus hand colouring of black-and-white photographs is used to obtain what this medical practitioner considers more accurate renditions of the external world.

1880s

Heilbrun (1991) documents a change to photography occurring about 1887 when amateur photographers were able to concentrate on “…content rather than technique…”
Emulsions that were easier to use had been introduced by the company that later came to be called Kodak. In his account, Heilbrun (1991) mentions Peter Henry Emerson’s (1856-1936) “…laborious attempts to prove scientifically that the photographer’s vision corresponds most closely to the vision of the human eye…” (Heilbrun 1991:unpaginated). Emerson’s ideas were based on the studies of light and vision by Helmholtz (1821-1894) in that he (Emerson) believed that photography would succeed as ‘High Art’ when the image on paper imitated the action of light on the retina, not merely the pigments of the subject (Marien 1997:149). Emerson (1886) argues that:

The human eye does not see nature exactly as she is, but sees instead a number of signs which represent nature, signs which the eye grows accustomed to, and which from habit we call nature herself. (Emerson 1886:139)

This notion is remarkable prescient given what has become known of such matters in recent times. Heilbrun (1991) believes that Emerson …was perfectly justified in insisting that photography could be something quite different from the mechanical, non-selective imitation of reality ([Emerson] was later to retract this opinion) to which his detractors sought to reduce it. (Heilbrun 1991:unpaginated)

For this reason, Emerson deplored the work of Robinson (Trachtenberg 1980:99) and was inspired by the impressionist painters. Trachtenberg also notes that “Emerson reasoned that human vision did not reflect the world in sharp focus…” (Trachtenberg 1980:99) and Emerson himself warns not to “mistake sharpness for truth” (Emerson 1889a:102). Ten years later, negating some of his early beliefs, Emerson (1899a) wrote that

The opticians were right from the mathematical standpoint, and I was right from the physiological and psychological standpoint, and so it was evident there were two truths to nature - the perspective or mathematical truth and the psychological or visual truth. (Emerson 1899a:60)

It is interesting to note that Emerson hints at more than one interpretation of the external world (“two truths to nature”) which is an idea more commonly expressed in recent times amongst quantum physicists.

George Davison (1856-1930) was a contemporary of Emerson who substituted a pinhole for his lens to get soft-focus pictures (Newhall 1982:145, Richardson 2002:unpaginated) which would have resulted in removing the depth-of-field effect from the photographs. Depth-of-field is an effect which human vision does not possess. Pinhole-camera photographs, on that score and when printed whole-frame so as they appear round, more closely resemble human vision than the traditional rectangular lens-produced pictures from a camera.

The differences of opinion held by the pictorialists and the impressionists still exercises
photographers today. But the differences are based on the debate about photography and its status as art, not the veracity of the photograph, which, again, emphasises the neglect of the topic at hand.

**1890s**
Prominent in this era was photographer Robert Demachy (1856-1938) who in 1894 (Newhall 1982:147) first showed his gum bichromate prints. Although not a new process, his was a simplified version which involved painting the emulsion for development, and because of this method the technique was eschewed by many photographers because it was too painterly and insufficiently photographic. Demachy also used the Rawlin's Oil Process (Demachy 1907:58). Demarchy’s photographs (for example, see Figures A6 and A7) show detail that many paintings do not achieve, but they resemble paintings in many other aspects. Demachy describes a “straight print’ as one with no local shading (referring to the photographic technique of dodging and burning in during print exposure), and normal development. He is more concerned with the nature of photography as art than its depiction of reality but he implies (Demachy 1907:56, 60) that photographs do not depict reality.

![Figure A6 untitled – Robert Demachy](image1)

*Figure A6 untitled – Robert Demachy  Figure A7 Struggle – Robert Demachy (1904)*

Stieglitz argues for the interpretative nature of photography. He says (Stieglitz 1899:118-119) that the contemporary verdict was that the production of photographs was purely mechanical. That is, despite the creative controls the photographers had over subject, pose, lighting, exposure, image development, choice of lens, plate and
camera, people generally supposed the photographic apparatus was not a pliant tool in the same way as was brush work on a paint-covered canvas.

1900s
On the subject of printing, Demachy differentiates between straight prints and a work of art. A straight print as he describes it, and as the term is understood to mean, is one made from a negative without any photographic manipulation. The exposure, development and printing are, without exception, to manufacturer’s specifications. Demachy, writing at a time when photographic material was not manufactured to today’s precise specifications, says that this sort of straight print cannot be regarded as a work of art. He suggests that “A work of art must be a transcription, not a copy, of nature” (Demachy 1907:56-57) thus implying that straight photographs are a true representation of reality but that this reality can be rendered artistically with manipulation of the image. Rosler (1991) and Lister (2000) point out that a straight photograph must be seen as one in which “artifice, construction and manipulation are avoided as a matter of principle” (Lister 2000:337). Yet it cannot mean “unmediated, uncrafted photograph” (Lister 2000:337) not shaped in any way by the photographer.

Photo-Secession, led by Alfred Stieglitz (1864-1946), a pictorialist, was the reaction against the impressionist trend. Heilbrun (1991) succinctly records the rise of Pictorialism from straight photography followed by the reaction against Pictorialism of the Photo-Secession Group in the USA. In tracing the history of Camera Work, the publication (1903-1917) devoted to photographs and ideas of aesthetics, Heilbrun (1991) praises Stieglitz for allowing, in his publication’s pages, wide ranging discussion on subjects including a question “…raised [as to] whether an element of fiction could be introduced into photography as it could into painting.” (Heilbrun 1991:unpaginated). Some photographers—Alfred Stieglitz, Frederick Henry Evans (1853-1943), Clarence Hudson White (1871-1925), Adolf de Meyer (1868-1949)—were purists and eschewed manipulation while their contemporaries—Frank Eugene (1865-1936), James Craig Anna (nd), Robert Demachy—“went so far as to scratch their negatives…” (Heilbrun 1991:unpaginated) and use brushwork.

“The pictorialists had unanimously rejected unadorned reality, viewing it as unartistic” (Heilbrun 1991:unpaginated) whereas the Photo-Secessionists and later the documentary photographers, photojournalists, etc. strived for more realism beginning with Stieglitz’s The Steerage (1907) which “…appeared to have regained that direct handle on reality…” (Heilbrun 1991:unpaginated). The synonymous use of the words reality and truth is evident from these quotations, as is their implied reference to the veracity of photographs. Also evident is a belief that realistic representation is
unartistic. The photography-as-art debate runs parallel with the depiction of reality debate throughout the history of photography.

Of the three positions photographers have taken on the relationship between photographs and reality: i) that they believe all photographs depict reality, or ii) that they believe some photographs depict reality while others don’t, or iii) that they believe photographs don’t depict reality, Lyons (1966) takes the first position.

Prior to the invention of photography, mechanical and optical devices (camera obscura, camera lucida, pantograph, etc.) were quite often employed to heighten the illusion and reality of events portrayed on the picture plane. (Lyons 1966:11)

Whether this was the case for all views of such images is not documented but could well depend on the viewer’s perceptions of reality based on the extant knowledge of the pre-1939 era, just as it is today. Lyons (1966) points out that “Natural truth and photography became synonymous…” and emphasises his point by quoting Emerson as saying that photography is “…a more or less correct reflection of nature” (Lyons 1966:11, 12).

In the first third of the 1900s, Lewis Hine (1874-1940) was making photographs of life in the United States and is particularly remembered for his documentary photographs exposing the exploitation of child labour. A contemporary of the members of the Photo-Secessionist movement, he came down firmly in support of the argument that photographs accurately depict reality although he does not single out photography as having more veracity than painting:

Whether it be a painting or a photograph, the picture is a symbol that brings one immediately into close touch with reality… In fact, it is often more effective than the reality would have been… (Hine 1909:109)

…but by using photographs instead of paintings or other three-dimensional representations, he appears to favour a higher veracity for photography.

The first colour photographic images existed from about 1861 when James Clerk Maxwell demonstrated three-colour projected lantern slides at the Royal Institute in London by mixing varying amounts of red, green and blue filtered light. Three negatives had previously been made by Thomas Sutton of a tartan ribbon through the same three filters used for projection. The resulting image was a fair resemblance of the original tartan colours. By 1892 Frederic E Ives had developed a devise (the Kromskop) which not only showed images made through this three-filter technique but did so stereoscopically—thus combining 3-D and colour in the photographic image (Newhall 1982:272). Similar methods were employed by Sergei Mikhailovich Prokudin-Gorskii (1863-1944), a Russian photographer for the Tsar. From 1909, over 2,700 glass plates exist of three-colour filtered negatives depicting the twilight years of
the Russian Empire that were subsequently shown by projection. Prokudin-Gorskii’s subject matter was mostly still life or people not moving but even so there is some colour fringing where the subject has moved between one of the three exposures needed, as plates and filters are changed. Colour photographs of this type had an effect on contemporary understanding of the veracity of the photograph generally but insufficient effect to render monochrome photographs short of veracity (Muir 2001).

1913
De Zayas (1913) calls photography “the plastic verification of a fact” as opposed to Art (read: painting) which is “the expression of the conception of an idea” (De Zayas 1913:125). He adds that “Art [painting] presents to us what we may call the emotional or intellectual truth; photography the material truth” (De Zayas 1913:125:129). He says that the photographer, in certain instances, can use “the camera as a means to penetrate the objective reality of facts…” (De Zayas 1913:125:130).

1920s
In support of the argument that photography accurately depicts the external world, Perl (1979) notes that: “Nineteenth-century photography had been an omnivorous experiment in sight: the camera was all-knowing, the ultimate arbiter of truth” (Perl 1979:5). He describes this scenario as the catalyst to set the mood for coming change brought about by Man Ray’s (Emmanuel Radnitsky 1890-1976) work. About which Ray is quoted as saying: “I do not photograph nature, I photograph my fantasy” (Perl 1979:5). Ray certainly shook conventional photography out of any complacency for depicting reality by producing montage images, solarised images, and Rayographs, which are his non-commercial oeuvre.

Ray is quoted as saying: “Photography is a marvellous explorer of aspects that our retina will never register” (Perl 1979:10), and if he only relates this to his Rayographs he is accurate in his assessment. It cannot be discerned from his writing if he would say the same thing about his straight commercial portrait or fashion work, but it might be extrapolated that, like Emerson, Ray is hinting at more than one truth to nature. Perl (1979) says: “…looking at the daguerreotype, we bear witness to the birth of photographic verisimilitude; looking at Man Ray’s photographs, we experience the rejection of that same photographic verisimilitude” (Perl 1979:12). So Perl is placing Man Ray at the heart of the change in beliefs about photography’s veracity and places the occurrence of that in the early 1920s. But as has been shown, with more yet to come, photography’s veracity was challenged before Ray’s time and since Ray’s time and is yet to be rejected totally by the public.
Ray, along with Moholy-Nagy, Christian Schad (1894-1982) and others using camera-
less photography, twisted the belief that photographs depict reality, or represented
truth or some other commonly-held belief, but their work was seen as separate from
mainstream photography and therefore the same rules and beliefs need not apply to
them. Thus the veracity of most photographs was maintained. Laszlo Moholy-Nagy
(1923) describes the nature of photography as being stagnant from the time of Daguerre
(1840s) but that modern artists (1920s) have changed that situation. He says that
Since the discovery of photography virtually nothing new has been found as far
as the principles and technique of the process are concerned. All innovations
are based on the aesthetic representative conceptions existing in Daguerre’s time
(1830) [sic], although these conceptions, i.e., the copying of nature by means of
the photographic camera and the mechanical reproduction of perspectives, have
been rendered obsolete by the work of modern artists. (Moholy-Nagy 1923:72)

That is until he (Moholy-Nagy) and his colleagues introduced the photomontage style
of image making as well as the photogram, assuming that is what he means by ‘modern
artists’. However, a reasonable deduction from Moholy-Nagy’s statement is that he
believed nature and reality to be synonymous.

Photograms are made, principally, by laying objects onto light sensitive surfaces,
usually photographic paper, and exposing the layout, commonly, to controlled light
from an enlarger, but any light source will do. The processed image consists of
variations in density along with shapes and forms, based on umbral and penumbral
shadows, to produce a visual array unavailable to the human eye in the external world
(Figure 4.10). Moholy-Nagy (1923) describes the photogram as creating a new, or
different, reality thus:
The photogram, or camera-less record of forms produced by light, which embodies
the unique nature of the photographic process, is the real key to photography.
It allows us to capture the patterned interplay of light on a sheet of sensitized
paper without recourse to any apparatus. The photogram opens up perspectives of
hitherto wholly unknown morphosis governed by optical laws peculiar to itself.
(Moholy-Nagy 1923:77)

Presumably he does not include darkrooms, light sources and processing material
when he refers to “apparatus” but is merely referring to cameras, enlargers (as they are
optional in the making of photograms) and other optical systems. In a similar edited
version of the article in a different publication, Moholy-Nagy (1969) describes why
photographs see differently to humans. He says:
…the photographic camera reproduces the purely optical image and therefore
shows the optically true distortions, deformations, foreshortenings, etc., whereas
the eye together with our intellectual experience, supplements perceived optical
phenomena by means of association and formally and spatially creates a
conceptual image. (Moholy-Nagy 1969:165)

Moholy-Nagy (1969) points out that photography viewing and film watching (cinema)
has an influence on the way people see the world but that “No plastic expression
can never be more than a residue of an experience” (Ray 1934:167), meaning that viewing a photograph (or seeing a movie) can never be as enriching as viewing the same subject for one’s self in the external world. It is not possible, however, to always do this and photographs (and film) are a useful substitute. It is important for the viewer to be aware of the difference between the two experiences.

Alexander Rodchenko (1928) wrote that: “One has to take different shots of the subject, from different points of view and different situations, as if one examined it in the round…” (Rodchenko 1928:167) as opposed to a single view. He says that history will only know an important figure (Lenin, for instance) from many photographs and snapshots of him, not from a single oil painting. This gives two insights into photography: the first is that the equivalent of walking around the subject photographically is required for the viewer to know the subject well, and second that (like many famous figures who predate photography and who are known only from paintings) many different photographs contribute to a better understanding of the person. But as Rodchenko also includes letters, journals and memoirs from associates as key components of knowing an historical figure (or anyone), he obviously feels photographs alone were not up to the task (Solomon-Godeau 1991:58).

In 1927, before he became the first director of the Museum of Modern Art in New York, Alfred Barr travelled to the Soviet Union where he met several artists—including Rodchenko (1891-1956) and Lissitzky (1890-1941)—both of whom had abandoned painting for photography. Their preference was for reporting over abstraction and disliked painting’s relationship to public ownership of property (in solid form and creative idea) which characterised the post-revolutionary thinking within the art community (Buchloh 1989:50, 53, 55). These artists believed in the objective veracity of photography over the subjectivity of painting. Of course, those Russian/Soviet painters who did not see things in this way—fact versus fiction—either abandoned painting altogether or emigrated to Western countries (Buchloh 1989:51).

1929

Art critic, Franz Roh says that “by a photograph we can gain a more accurate notion of the articles offered than by ever so suggestive a drawing” yet he realises that a “photograph is not mere print from nature, for it is (mechanically) a turning of all colour value…” (Roh 1929:157, 158) presumably, although he does not state it, into shades of grey. But it could also equally apply to the colours of the external world turning into patches of colour dye on paper, which is almost as unrelated to the visual image of the external world as are shades of grey.
Early 1930s

H. P. Lovecraft (1931) calls attention to photography’s veracity; while suggesting the use of photographs as evidence, he concedes that ‘…they will be doubted because of the great lengths to which clever fakery can be carried” (Lovecraft 1931:11). Also in that year, H G Wells (1931) suggests that, by the end of the nineteenth-century, painting was loosing the need for exact representation because photography was taking over that role with its circumstantial precision. Francis Brugiere (1880-1945) suggests that the circumstantial precision of photography is a characteristic that can be used for creativity. For Brugiere, realistic is an antonym for abstract. However, his most prophetic thought summarises the hypothesis of this study. He says: “A photograph has been said to look ‘…just like nature’, but no one has agreed just how nature looks; it may, therefore, be questioned whether a photograph really looks anything like nature” (Brugiere 1935-36:33). He reinforces his statement thus:

Some of the emulsions on plates and films are very rapid, some very slow, some sensitive to all colours of the spectrum, some rendering only a few of their supposed relative shades. So what is actually rendered on the negative is a variable quantity of nature based on the material used. (Brugiere 1935-36:34)

Brugiere likens a photograph to “a species of graph, representing nature, that may more or less resemble it” (Brugiere 1935-36:33).

Boxer (1999) quotes Roy Stryker, head of the Farm Security Administration, as telling Arthur Rothstein, one of his photographers, to “bend the truth” (Boxer 1999:4) by pointing his camera at the rural side of the state fair and not the urban tinge. Further “…Lincoln Kirstein said in 1938, ‘The candid camera is the greatest liar in the photographic family’” (Boxer 1999:4).

By the mid-1930s, in north America, Europe, Australia and other affluent countries where the means and the time was available, movie-going had become a regular part of many people’s entertainment. Panofsky (1959), Bazin (1967) and Cavell (1979) all point to movies as being representative of reality to a greater extent than still photographs.

Late 1930s

By 1930, Edward Weston, not content with previous explanations, introduces a new concept: that of super-reality.

The photographer’s power lies in his ability to re-create his subject in terms of its basic reality, and present this re-creation in such a form that the spectator feels that he is seeing not just a symbol for the object, but the thing itself revealed for the first time. Guided by the photographer’s selective understanding, the penetrating power of the camera-eye can be used to produce a heightened sense of reality – a kind of super realism that reveals the vital essences of things. (Weston 1930:154)

This again implies more than one reality; it implies realities of differing intensity. It also allows that, although photography re-creates the external world that most viewers
would concede is reality, the photograph transforms that reality into something which is influenced by the photographer. It may also be argued that the photographic process alters the original reality. Weston (1932) describes images which can sublimate things seen into things known, which he says leads to the fusion of inner and outer reality. More specifically he says: “A photograph may approximate reality, but cannot attain unqualified realism” (Weston 1932:158).

French essayist Paul Valery (1871-1945) described photography as “an objective process of illustration, mirroring physical facts” (Trachtenberg 1980:191). Trachtenberg himself, says writers (as painters had) could use photographs to guide their memory or imagination (Trachtenberg 1980:191). However, Valery seems to recognise that photographs and reality are not identical when he “…admired the altered perception of reality” (Trachtenberg 1980:191) which photography had given man and “praised the capacity of these images to contribute valuable information to man’s knowledge of the universe” (Trachtenberg 1980:191). Valery (1939) says that with the coming of photography, “Man’s way of seeing began to change, and even his way of living…” altered. People had their portraits done, scenes from around the world were available to show different cultures, important family events were recorded (marriages, baptisms, etc.), and photographic evidence became the norm: “…a snapshot was proof enough to demolish the testimony of some hundred people…” (Valery 1939:194, 196) who swore to a particular event having taken place. Despite that, he concedes that photographs are also used in the “art of lying” but that even so “photography laid down a real pictorial record of the social life”, which meant that “following in Balzac’s (1799-1850) footsteps, realism asserted itself in our literature [to replace the] romantic vision of beings and objects”. Valery quotes Brecht (1898-1956) as saying “that less than ever does a simple reproduction of reality express something about reality”. Valery sums up his article on the influence of photographs on writers and writing by quoting an unnamed source as saying “not he who is ignorant of writing but ignorant of photography will be the illiterate of the future” (Valery 1939:194-215).

It was in the thinking of the philosophers not the photographers that the distinction between the reality of the external world and the reality of the pictorial image was beginning to be clarified (See Chapter Two). The recalcitrance of the belief in photography’s veracity would linger in the public perception for many decades to follow. In the first one hundred years of photography, the perception amongst those already surveyed here (see Table 2.1 in Section 2.5.1, and Table A1 at the end of this appendix) shows seventy per cent supporting the notion that photography accurately depicts reality. But the seeds of doubt had been planted for a change in understanding and belief. At a time when the perceptions could possibly have changed quickly, one
photographer emerged whose influence on other photographers was disproportionate. The status quo was held.

1940
Ansel Adams (1902-1984) appears to use the word factual synonymously with real: He says “I am aware of the fact that most of these early photographs were made for factual purposes; there is little evidence of self-conscious art intention” (Adams 1944:29). Adams is a naturalist (from the title of P H Emerson’s book *Naturalistic Photography*), or purist, but is reacting against too much control advocated by other naturalist photographers when he says that:

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I use the legitimate controls of the medium only to augment the photographic effect. Purism, in the sense of rigid abstention from any control, is ridiculous; the logical controls of exposure, development and printing are essential in the revelation of photographic qualities. The correction of tonal deficiencies by dodging, and the elimination of obvious defects by spotting, are perfectly legitimate elements of the craft. As long as the final result of the procedure is photographic, it is entirely justified. (Adams 1944:30)
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Adams is no fan of the impressionists or the pictorialists and says: “…when a photograph has the ‘feel’ of an etching or a lithograph, or any other medium it is questionable—just as questionable as a painting that is photographic in character” (Adams 1944:30). Presumably he was not an admirer of Photo-realism painting either.

By 1967 Adams is quoted as saying “I suppose with black and white the photographer can make really great departures from reality” (Ruis 2000:4), indicating a shift in opinion. If we consider Adams’ aversion to colour photography, this means he thinks colour photography is conducive to producing images depicting reality accurately from which black-and-white is the great departure. As a teacher of photography, a mass-producer and marketer of pictures, and as, by example, an influence on practising photographers, Ansel Adams’ views would carry more weight than those of his contemporaries.

Up to 1945
In an interview with Australian photographer Athol Shmith (1914-1990) and comments about his work, Crombie (1989) gives an insight into what Shmith believed photography to be. In the interview Shmith comments on the change from orthochromatic to panchromatic film. Of panchromatic film he notes that

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It was quite an improvement as it was sensitive to the whole colour spectrum and opened up a new sphere aesthetically for photographers because they could show things that they had always wanted to photograph but couldn’t. (Crombie 1989:18)
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The reference to orthochromatic film indicates that for all of the period before the
introduction of panchromatic emulsions, photographs showed a particular, peculiar, rendering of the colours of the external world in the black-and-white tonality of photographs. This particular rendering (orthochromatic) of the external world was the only known one at the time so the viewer had no point of comparison. After the introduction of panchromatic emulsions a new particular rendering was on offer, but it was no more correct or accurate than the previous emulsions. If the black-and-whiteness of the images did not convince the viewer that photographs did not accurately depict the external world, then they may also have ignored the distortion to the tonality produced by either the panchromatic or the orthochromatic film emulsion.

Crombie’s writing contains a useful description of Pictorialism as “…images often resembling popular contemporary prints and drawings, both in their soft focus appearance and in their choice of essentially nostalgic subject matter” (Crombie 1989:32). She notes that, as a reaction against Pictorialism, New Photography rejected Pictorialism as outmoded and inappropriate to the modern age and [photographers] were instead producing sharp focus, closely cropped photographs, often taken at disorienting angles or from alarming vantage points. (Crombie 1989:34)

By the time of the Second World War “Artists began to portray everyday experiences in a factual, realistic manner, reliant on the then widely held belief in the camera’s ability to reveal the truth” (Crombie 1989:40). In relation to Shmith’s work, Crombie points to the change in attitude and public perception that cameras once were truthful but over time became untruthful—not for anything the camera did, but because of a change in public perception. Yet it must be said that Shmith is a serious photographer who has obviously given thought to this matter whereas the general public has not done so. Crombie says that Shmith only produced a small number of documentary photographs unlike his contemporaries Max Dupain (1911-1992) and David Moore (1927-2003). “Instead, he generally utilised the new interest in realism to give an unexpected edge to his fashion work” (Crombie 1989:40) but whether it is Shmith or Crombie who interprets realism in the work is not stated. Shmith also used montage in some of his work (Crombie 1989:42-43, for example: Figures A8 and A9).
Aaron Siskind (1903-1991) is quoted as saying that “…the emphasis of meaning has shifted—shifted from what the world looks like to what we feel about the world and what we want the world to mean” (Lyons 1966:15). Siskind advises the reader that the photographer should “…permit the subject to speak for itself and in its own way” and suggests that “…it is socially useful that we agree on the function of objects” (Siskind 1945:96).

It is also socially functional that we agree on the appearance of objects and that we share (if only for communication between humans) a belief in a common external world, or at least the terminology for that world. The way humans are educated reflects this: they are told the names of what they see in front of them rarely knowing that what they see may not be exactly what their teacher (parent, peer, etc.) is seeing. Siskind says: “There are, I suppose, many ways of getting at reality” (Siskind 1945:96) which is different to supposing there are many realities. However, Paul Strand says of the post-pictorialist era of naturalist photography that this style of photography is: “…nearer the truth than all the so-called pictorialism…” (Strand 1923:147).

1948

If truth equates to reality, as many commentators seem to suggest, then W. Eugene Smith (1918-1978) thinks there is more than one reality when he says: “…truth being ‘many things to many people’” and talks about photojournalists setting up, rearranging and stage directing stories to “…bring pictorial and editorial coherency to the pictures”
and believes that this is ethical when “…this is done for the purpose of a better translation of the spirit of the actuality.” (Smith 1948:104, 105). Actuality is assumed here to equate to reality but truth seems to take on new meaning, or at least a back seat.

1951

Siegel (1951) succinctly surveys three major periods of photography’s history:

From 1839 to about 1885, the photographer tried to record the face of the world in an objective way… [and] …was satisfied with his record of surface appearances and felt no need to search beneath that surface with his camera. From 1885 to about 1918, the great photographic movements, particularly the Photo-Secession, concerned themselves with the super-imposition of the photographer’s personality over the subject matter in terms of stylistic mannerisms. From 1918 to the present [1951], … sincere photographers became aware of deeper implications. They consciously explored beneath the surface chaos of man’s world to discover the relationships and significance of outer appearances. (Siegel 1951:88-89)

He ignores the rise of pictorialism in the 1890s but highlights a change in approach by some photographers which, in turn, implies a change in the perception of reality, or the possibility of more than one reality—a surface reality with hidden truths beneath the surface (assuming reality and truth are synonymous in this context).

For Berenice Abbott (1898-1991), photography allowed a “realistic image [of nature] offered by the lens” and for her, realistic means accurate in that photography is an accurate representation of nature. She uses the term likenesses to describe portraits of young soldiers of the Civil War and ‘realistic ‘speaking likenesses’…” in a way which indicates that that was the terminology of the day (American Civil War, 1861-1865). She condemns those practitioners of pictorial photography who imitated painting techniques: “Thus photography was torn from its moorings, the whole essence of which is realism” (Abbott 1951b:15, 19). She says that “Photography cannot ignore the great challenge to reveal and celebrate reality” (Abbott 1951a:23). In 1951, at the time of Abbott’s writing, there was in the United States a continuing backlash against impressionism and pictorialism as photographic styles. Many naturalist photographers (as Adams, Abbott and others became known) believed that the first photographs showed unadulterated reality.

A cycle was completed. From 1869, when Henry Peach Robinson first published his book entitled Pictorial Photography describing his techniques, the naturalist photographers were succeeded by the pictorialists. Then as a reaction against that style came the impressionists using oils and paints and brush work to change the surface and texture of the images, who took composition from painting, used Grecian urns and columns as props, and in similar ways imitated painting. Then another reactionary group, the so-called ‘purist’ photographers such as Abbott eschewed this ideal and wanted photography to only look like photography. Abbott also uses the word
documentary synonymously with real as in “I have yet to see a fine photograph which is not a good document” (Abbott 1951b:21).

1952

To some extent 1952 was a significant year for photography in that Henri Cartier-Bresson’s (1908-2004) book *The Decisive Moment* was published. The title and the implication from it gave the impression that photography recorded a decisive moment from time and space. This belief amongst photographers reinforced in the public’s mind the high veracity of photography in so far as what the camera could do (photographically) the painter could not. On what photography does with the external world, Cartier-Bresson (1952) says:

> Our task is to perceive reality, almost simultaneously recording it in the sketchbook which is our camera. We must neither try to manipulate reality while we are shooting, nor must we manipulate the results in the darkroom. (Cartier-Bresson 1952:44)

This implies that he believes the camera can record reality but that, in the hands of photographers, the reality can be manipulated (changed), and that this is not a good thing. He implies two realities when he explains that: “There is subject in all that takes place in the world, as well as in our personal universe” and later, that “Through facts, however, we can reach an understanding of the laws that govern them, and be better able to select the essential ones which communicate reality”. However, in describing his method of composing a photograph he says: “What the eye does is to find and focus on the particular subject within the mass of reality; what the camera does is simply to register upon film the decision made by the eye” (Cartier-Bresson 1952:45, 46). By mass of reality we can infer the external world, and he is implying that this is what is recorded on film. In the end, the conclusion can be drawn that Cartier-Bresson believes there is only one reality, but that it can be manipulated to an extent which implies another, or others. But the manipulation should render the finished photograph (print) accurately to the original scene or the photographer’s intent:

> During the process of enlarging, it is essential to re-create the values and mood of the time the picture was taken; or even to modify the print so as to bring it into line with the intentions of the photographer at the moment he shot it. (Cartier-Bresson 1952:50)

It might be construed from these passages that there are internal inconsistencies in Cartier-Bresson’s understanding if we construe that he believes that the photographer’s intention at the time of shooting should be to re-create the values and mood of the scene in the finished print, and this is done by manipulating the image. Yet in so doing, for the purpose of accuracy, this is not manipulation because the word ‘manipulate’ has negative connotations, whereas the word ‘modify’ doesn’t bear the same negativity.
Alternatively, from the same era, Minor White (1963) argues that: 

…most of us see what we wish to see in a photograph, or anything else – not what is actually present. … So we can say that the photograph invariably functions as a mirror of at least some part of the viewer. (White 1963:172-73)

This suggests that the viewer participates in the viewing process by bringing to the image they process in their viewing system something which is not present in the photograph. Meanwhile, Ivins (1953) describes that which photography became with the negative-positive process as “the making of exactly repeatable pictorial statements about the shapes and surfaces of things.” He says that, with early daguerreotypes and talbotypes and calotypes, viewers did not appreciate or understand exactly what was “taking place under, and especially in, their eyes” (Ivins 1953a:217). He describes how the camera shows the external world differently from the human eye because the lens cannot ignore the geometrical perspective of central projection and section. He notes that the photograph has taught the public to see the photographic image as the norm. He warns that while “the photograph enslaved a preponderant proportion of the population to the photographic version of natural forms” (Ivins 1953a:227), it opened up a visual feast of pictures of objects in the external world which many people would never see for themselves in such detail, including paintings and other works of art.

1958

The photographic style known as realism, which takes naturalism a step further by usually using more squalid subject matter, is described by photographer Robert Frank (1924-). His statement points to the difference between the external world and the world of the mind, but Frank is ambiguous when he describes his version of reality:

Black and white are the colors of photography. To me, they symbolize the alternatives of hope and despair to which mankind is forever subjected. Most of my photographs are of people; they are seen simply, as through the eyes of the man in the street. There is one thing the photographs must contain, the humanity of the moment. This kind of photography is realism. But realism is not enough—there has to be vision, and the two together can make a good photograph. It is difficult to describe this thin line where matter ends and mind begins. (Frank 1958:66)

The steps from naturism through purism to realism are not as delineated as the step from pictorialism through impressionism to photo-secessionism because for the former the boundaries are less defined. Therefore the differences of opinion as to the ability of each style to depict the external world more accurately than the others is confusing. In trying to categorise their own work as different from their predecessors and their contemporaries, some photographers, writing about their own work and their beliefs, are equally confusing, and in their verbosity their thoughts are not clear. This is best demonstrated by Wynn Bullock and, more so, by Ponce and Diane Arbus below.
In the late 1950s, German-born American film critic, Siegfried Kracauer (1889-1966), wrote an essay on photography (and cinema) and its depiction of reality which, because of its significance and extent, will be dealt with here in detail. Kracauer (1960a and 1960b) starts with a review of the attitudes of viewers to early photographs saying there was “general agreement that photography reproduces nature with a fidelity ‘equal to nature itself’…” (Kracauer 1960a:246). One of the reasons for this belief was that the photographer did not have the painter’s “freedom to dispose of existing shapes and spatial interrelationships for the sake of inner vision.” Nor does the photographer have the freedom to clean up those parts of the visual array in the external world which were captured on film (plates) that distracted from the image, at least not without resort to retouching. (This occurred, for example, when Henry P. Robinson moved trees from one side of the picture to the other for reasons of aesthetics. See above: section covering 1858-1860s) The reality supposedly depicted in photographs is reinforced when early photography reveals that the way people walk and the way animals move is different from the way those movements have been depicted in paintings previously (in work produced by Muybridge and others). Kracauer says that even Charles Darwin (The Expression of the Emotions in Man and Animal, 1872) preferred photographs to engravings because of their accuracy in conveying facial expressions. In Darwin’s time engravings were based on photographic images but were usually produced with reduced detail, so it is not surprising that he preferred original photographs. Many practitioners of photography believed that it was the predisposition of photographs to show reality that prevented it from being regarded as an art form. Practitioners started to make their photographs resemble paintings, as has been described above. Others felt that photography’s strength lay in its ability to depict reality so accurately that it either did not need to be regarded as an art form, or that the medium was an art form anyway and did not need qualification. Kracauer explains that “as far back as 1843, daguerreotypists renounced camera explorations of reality for the sake of soft-focus pictures”. This famous controversy, Kracauer says, “raged in the second half of the nineteenth century, with no clear cut solution” and it “rested upon the belief common to both schools of thought—that photographs were copies of nature” (Kracauer 1960a:249). Unintentionally, Kracauer gives an adequate definition for digital imaging as “hybrid genres drawing on photography” (Kracauer 1960a:256). He also suggests that this definition might apply to photograms and rayographs, and possibly even to photomontage, as they might better be described as “special genres of the graphic arts” (Kracauer 1960a:262).

1962

In his own writing, Wynn Bullock (1902-1972) explains that he believes he is aware of a fourth dimension of the three-dimensional world perceived by senses of the mind.
He argues that for paintings and photographs only the three-dimensional world is depicted (Bullock 1962:37). Bullock’s differentiation between reality and photographs is summed up in his statement: “I wish to destroy the object reality and create the reality of the world of light” (Bullock 1962:40). This implies that the external world is transformed in the photographic process, and thus he sees the two as different along the lines that the photograph is part of the world of objects whilst the image is different from reality. In the same time-frame, Damisch (1978) suggests that the only connection between the external world and the photographic image is “the very trace of an object or a scene”, and that the belief that a photographic image retains something of the reality from which it was obtained “is the constitutive deception of the photographic image” (Damisch 1978:288, 289).

Insofar as early photography was influenced by contemporary painting, in its turn photography influences the painting of the times. The influence of one medium on the other is bilateral. Yet Cavell (1979) postulates that “photography eventually affected (some) painting, but only when painting had already affected itself and was good and ready” (Cavell 1979:43). For example, the impressionist painters were given impetus to move away from the photo-realism of scenes painted via the camera obscura. Later photography paved the way for the cubists and other abstract painters to move away from the perspective shown in photographs. While commenting on what photography does to the external world in regards to its depiction of reality, cinema critic Andre Bazin (1967) alludes to the influence that photography had on painting:

…photography ranks high in order of surrealist creativity because it produces an image that is a reality of nature, namely, an hallucination that is also a fact. The fact that surrealist painting combines tricks of visual deception with meticulous attention to detail substantiates this.
So photography is clearly the most important event in the history of plastic arts. Simultaneously a liberation and an accomplishment, it has freed Western painting, once and for all, from its obsession with realism and allowed it to recover its aesthetic autonomy. (Bazin 1967:243)

This follows after Bazin (1967) mentions that the quarrel over realism (in painting) comes from the confusion of the artist having to either give the impression of reality on the one hand or some exact replica of reality in fine detail on the other. The latter is supposedly what photography does best which freed the painter to do the former. Bazin also likens photography to “the lesser art” (Bazin 1967:244) of moulding death masks and says that: “One might consider photography in this sense as a molding, the taking of an impression, by the manipulation of light” (Bazin 1967:244). Kracauer (1960a) describes Marcel Duchamp (1887-1968) as influenced by stroboscopic and multiple exposure high speed photographs when he painted *Nude descending the staircase* (Figure A10) in 1912 (Kracauer 1960a:252). Of course while the Duchamp painting does, and photographs may, show human movement in multiple-exposure this way, neither actually shows the external world the way humans see it; they both
merely give the impression of walking down stairs which serves to remind humans of what they see.

Figure A10 Nude descending the Staircase No. 2 (1912) - Marcel Duchamp

When Kracauer (1960a) observes that,

Throughout the history of photography there is on one side a tendency towards realism culminating in records of nature, and on the other a formative tendency aiming at artistic creation. (Kracauer 1960a:255)

he may be suggesting that if there is any creative input to the process of making a photograph then it ceases to be merely a record of nature, but this is by degrees of difference. If this view is to be accepted, as it is by many photographers, critics and commentators, then maybe the understanding of definitions is the point to be made. Perhaps the definition of a realistic photograph, and if it is the same thing: a photograph of reality, is merely the straight photograph of whatever is in front of the camera at the time the exposure is made, processed to the manufacturer’s instruction and shown in printed form as accurately to real life as possible. This notion seems to fit with many commentators’ view of photographic realism. Photographs see the external world the way they do and the viewer has learnt to call that image “the external world” even though it is not the external world they (the viewer) themselves see. While this does account for all those variables that constitute the photographic process and thrust it towards image, it is that very process which mitigates against photographic veracity.
In addition, the distinction between photographs that are records of nature and those that are artistic creations seems frivolous, even perhaps demeaning. A painting by someone with no ability to create lifelike images or the ability to create unlifelike images is no barrier to acceptability as a work of art. Indeed many acclaimed abstract paintings fall into this latter category. The same idea can be extended to photographs. A family snapshot is no barrier to acceptability as a work of art just because the photographer had no artistic intent when the photograph was taken. Intent may be irrelevant to the artistic process. The whole concept of photography being, or not being, art merely because artistic intent is missing from the process is meaningless when a gallery hangs snapshots as pictures in an exhibition. It could be argued that a photographer’s intent should not be over-ridden by a curator’s intent. If a photograph was never intended as a work of art (for example, Bellocq’s photographs of prostitutes), is it valid for it to be made so by someone else (Lee Friedlander)? Photographs produced automatically by a self-timed surveillance camera and processed at the high street mini-lab are no less art if hung in a gallery and claimed to be art, than any other photograph. They may not be to every viewer’s liking, but most exhibitions of art have that characteristic: as Kracauer (1960a) says “it falls to the spectator to do the structuring” (Kracauer 1960a:259). Newhall appreciated aerial reconnaissance photographs for their artistic nature despite their being made automatically by machine (Kracauer 1960a:259). However Kracauer (1960a) confuses the issue when he argues that photographs do not just copy nature but metamorphose it by transferring three-dimensional phenomena to the plane, severing their ties with the surroundings, and substituting black, gray, and white for the given colour schemes. (Kracauer 1960a:259)

This is the basic change which photography has always made to nature, so that the image in the photograph is different from the image of the external world. This is the point most often missed when photographers and others claim that photographs accurately depict the external world. Yet, as Kracauer points out: this is “the way in which we take cognizance of visible reality” (Kracauer 1960a:259).

Kracauer (1960a) cites four affinities for photography:

1) “photography has an outspoken affinity with unstaged reality.” That is, it records the minute detail of a scene indiscriminately;
2) “photography tends to stress the fortuitous.” In other words, snapshots record random events, but “photographs of the compositional, inventions of nature or man-made reality are quite another thing”;
3) “photography tends to suggest endlessness.” Fragments are presented of a whole which the viewer assumes;
4) “the medium has an affinity for the indeterminate...” (Kracauer 1960a:263, 264)

Photographs, in this sense, leave the viewer guessing or wondering about more than is revealed in the picture.
Late 1960s

Of Manuel Alvarez Bravo’s (1902-2002) photographs presented during the 1968 Olympic Games in Mexico City, Ponce (1968) notes that they are vehicles...through which an inner reality appears. This reality is not found in the objects, but is revealed to us by relating the objects, not only one to the other as a completed unity, but also in an open unity that takes them somewhere beyond themselves, to an area between their reality and the technique that transforms that reality. (Ponce 1968: unpaginated)

By ascribing to Bravo the role that “As an artist, his true aim is to find the ideal reality…” Ponce argues in relation to Bravo, photography’s ability to be an accurate record of the external world. In the course of two pages, Ponce offers the reader many references to reality, for example: inner reality, ideal reality, immediate reality, another reality, supreme reality, and the other side of reality (Ponce 1968). In so doing it would seem that he is placing Alvarez Bravo’s photographs into a category of alternate realities, surely contradictory in its very essence. It seems that many authors want to relate their thoughts on photography’s relationship with reality. Yet in this article (as with Arbus 1972, see below) the ideas are often too complex for the writer to express clearly. These are not Alvarez Bravo’s thoughts on the subject but those of the critic, obviously an admirer. Ponce quotes Diego Rivera, a Mexican painter, as saying that Alvarez Bravo produces photographs that are “so faithful to reality…” (Ponce 1968: unpaginated) that we must assume that Ponce is keen to have readers believe these viewers accept that what they see in Alvarez Bravo’s photographs is an accurate image of what they see in reality.

Also commenting on Alvarez Bravo’s work, albeit later in time, Coleman (1987) makes the interesting general observation that:

Viewers of photographs may tend to generalize from them—sometimes at the photographer’s instigation, often independently, and always at their own risk. But one of photography’s unique functions is to describe particulars. (Coleman 1987: 8)

Of Alvarez Bravo’s work, he argues that this: “…aspect of the medium is essential to Alvarez Bravos, for he uses photography as a probe, an incisive tool for uncovering the heart of the culture” (Coleman 1987: 8). However, uncovering the heart of a culture is not the same as depicting reality insofar as culture is not an object of the external world so much as a participatory event. Coleman mentions: “…the medium’s transitive capacities—the exploitable difference between what is in front of the lens and what the combination of camera and film will or can be made to register” (Coleman 1987: 10) suggesting manipulation of reality and truth in photographs by the process itself.

Georges posits that, at the turn of the twentieth century there was a “…prevailing wind blowing against colour photography…” amongst some fine art photographers, contrasting with the public’s seeking of “…colour to increase illusion of reality…”.
Of Ansel Adams’ work, he says “Adams thought colour made people think they were seeing reality… whereas b&w was more abstract and not likely to be confused with reality” (Georges 2000:10).

1970s

Diane Arbus is arguably one of the influential photographers of the 1960s and 1970s so from her thoughts on photography, can anything be gleamed which may relate to this study. She seems to share the common belief that photographs can depict a reality but that some photographs can distort either reality or the facts of a scene (if those two are different). Her views are valid because of the esteem in which she is held by many admirers of her work.

The source of Diane Arbus’ (1972) comments—her first monograph, is based on tape recorded spoken word and is more suited to that delivery style than to reading the published version. How articulate Arbus’ thoughts are is difficult to ascertain. For instance, she says:

I mean if you scrutinize reality closely enough, if in some way you really, really get to it, it becomes fantastic. You know it really is totally fantastic that we look like this and you sometimes see that very clearly in a photograph. (Arbus 1972:2)

It is difficult to know whether i) she believes that all photographs clearly show reality or that only some photographs show it, or whether ii) she means that photographs are able to capture the essences of a person (similar to Barthes’ search). Alternatively, she could be articulating a very difficult notion in the clearest way possible. If that is the case, then a thorough inspection of her words is necessary.

Arbus says: “There are an awful lot of people in the world and it’s going to be terribly hard to photograph all of them, so if I photograph some kind of generalized human being, everybody’ll recognise it” (Arbus 1972:2). That someone would even think of setting themselves the task of photographing everyone in the world is difficult to believe, yet her thoughts about a single everyperson to represent any particular person fits with a cognitive system in the brain function where the image brought to mind of a particular person is based on a general everyperson in memory. It is almost certain however that Arbus did not know of this theory of recognition and her comments are merely incidental, and not prophetic.

Following from the above quote, Arbus’ teacher Lisette Model (1901-1983), later made it clear to Arbus “that the more specific you are, the more general it’ll be” (Arbus 1972:2). If those two statements are opposed, the resulting photograph using either approach could only offer the truth to a viewer according to that viewer’s understanding of either statement. Or Arbus may be inarticulate in her spoken word! More specifically, Arbus (1972) says: “Sometimes I can see a photograph … and I think, that’s not the
way it is… there’s something wrong.” So perhaps she does believe that all photographs do not depict reality. Perhaps it is her lack of ability to express clear ideas, perhaps it is an insightfulness easily missed, but it is difficult to determine exactly what she means when she says of her childhood: “I was confirmed in a sense of unreality which I could only feel as unreality” and “The world seemed to me to belong to the world.” More clearly she says: “I could learn things but they never seemed to be my experiences.” She differentiates the effect photographs had on her that film (movies) didn’t have. She could put aside the fact that a film image was controlled by a director and camera operator, etc. yet with photographs she could not put aside the fact that a photographer was influencing the subject matter of the image (Arbus 1972:3, 5, 6).

She mentions graininess as a photographic characteristic and comments on texture and the effect of strobe light (Arbus 1972:8, 9) so she was aware that the photographic process offered characteristics which the external world did not offer the viewer, but whether this was conscious or not cannot be known. This is the case for most viewers. She says: “…you don’t put into a photograph what’s going to come out. Or, vice versa, what comes out is not what you put in” which could means you cannot always pre-visualise the resultant image, or that the viewer does not readily get the photographed intent. Then, she says: “For me the subject of the picture is always more important than the picture” implying the two are different (which they are) but suggesting she was more concerned for her subject matter than for the photographs she was making. In view of the subject matter she used, and in light of later criticism of her use of such subject matter (particularly mentally disabled people), that seems like an untrue statement. But given the paradoxes she has already brought to bear perhaps it is dangerous to be too specific with her words. Finally, she says: “…there are things which nobody would see unless I photographed them” (Arbus 1972:14-15), a situation she shares with every photographer ever.

While it may be difficult for some readers to follow Arbus’ argument, others might find in her words the key to unlocking the mysteries of understanding reality, the external world, and the photographic representation of these. If so, her thoughts should not be overlooked.

1974

Nineteen-seventy-four is a pivotal year in the debate about how photographs mesh with reality. Arnheim published an article in Critical Inquiry on the nature of photography which he claimed (probably correctly, if erroneously) supported a majority view that photographs accurately depicted the external world. He says that photographs have “an authenticity from which painting is barred from birth” because “…the fundamental
peculiarity of the photographic medium” is that “the physical objects themselves print their image by means of the optical and chemical action of light.” Therefore, Arnheim concludes, “these mechanical deposits of light” which are only partially “made and controlled by man” are the “manifest presence of authentic physical reality” (Arnheim 1974:155-159). This series of statements clearly articulates a view still prevalent amongst many people, both in 1974 and still today.

However, Snyder and Allen (1975) develop a comprehensive argument against Arnheim (1974). Their assessment of the relationship between photographs and reality is that although “it is the light reflected by the objects and refracted by the lens which is the agent in the process, … the camera can manipulate the reflected light to create an infinite number of images” which are “crafted, not natural, things” (Snyder and Allen 1975:151). They compare the vision of the camera with the vision of the viewer by describing the photographic process, thus

A photograph shows us “what we would have seen” at a certain moment in time, from a certain vantage point if we kept our head immobile and closed one eye and if we saw with the equivalent of a 150mm or 24mm lens and if we saw things in Agfacolour or in Tri-X developed in D-76 and printed on Kodabromide #3 paper. (Snyder and Allen 1975:152)

As a summary of what the camera sees which the viewer does not, this represents as concise a description as is currently extant. It pinpoints those features of a photograph—colour or black-and-white—which make viewing a photograph different from viewing a scene in the external world, and which most of the commentators up to this point in time have missed.

There is, however, some qualification in that Snyder and Allen concede that “certain photographs are ‘natural’ or ‘objective’ even though it was obvious that they showed things which we never had seen and never were likely to see” (Snyder and Allen 1975:157). They acknowledge that “although we did not see blurred horses or a blurred background or horses frozen in midstride as we watched the horserace, there is a causal explanation for all of these – they are the inevitable outcome of the facts of the situation” (Snyder and Allen 1975:157). This surrenders much ground to the believers in an accurate truth in photography.

Another aspect to consider is that, in photography, the subject of a photograph is usually, but not always, an object of the external world. That is, as Snyder and Allen (1975) say, “…this horse isn’t invented by some artist: this is a picture of a real horse” (Snyder and Allen 1975:163). However to say that a photograph shows an object of the external world is not the same as saying that what a viewer sees in a photograph is the same as what that viewer sees in the external world. Thus, in 1975, the main theme of the debate may be synthesised thus:
Stated in the most general terms, the modern position is that in photography there are certain necessary connections between a photograph and its ‘real life’ original which simply do not (perhaps cannot) exist in the “traditional” arts. (Snyder and Allen 1975:145)

Snyder and Allen argue that “photographs are not really representations at all” but that, because of the machine used in their production, they are “practical realizations of the general artistic ideals of objectivity and detachment” which painting cannot share. The use of a machine, the reaction of sensitised surfaces to light and the chemical processes, along with the physical laws that govern the light from the subject and the light through the lens “are viewed as the decisive differences” (Snyder and Allen 1975:145) which photography has over other art forms. Yet the differences are not sufficient to confer photography a greater veracity than the other art forms.

Following on from Arnheim (1974) and Snyder and Allen (1975), the issue of the representation or otherwise of photographs is taken up by Scruton (1981), Wicks (1989), and King (1992) and also Barthes and has been discussed in Section 2.4.9.1. Here, the survey of photography’s veracity is continued.

Coleman is one commentator (gatekeeper) who questions photography’s veracity extensively. Contrasting other’s views to his own, Coleman (1975a) says: “Arthur Freed has gone so far as to say that he’d trust the accuracy of one of his images over his own recollection of the event” (Coleman 1975a:133) which demonstrates that before 1975 Freed believed that the photograph of the event is better than his memory of the event and further shows that he believes the veracity of the photographic image. Coleman (1975b) warns his readers of the danger of trusting photographs: “However misplaced and dangerous, our culturally imbued trust in photographs as the most accurate system of visual description available remains strong” (Coleman 1975b:158).

Another influential commentator of the era, Sontag calls the object in a photograph “something stencilled off the real…” (Sontag 1977:154) while Cavell (1971) states emphatically that photographs depict reality, and in 1979 in a revised edition of his work he repeats his claims extensively (Cavell 1979:192-199). There is still, in the mid-1970s a widely held view supporting photography’s high veracity.

By this time in the history of photography, beginning gradually after World War II, another category is emerging. Commentators are referring to what might be termed a photographic reality. This photographic reality supposedly differs from the perceived reality of the external world in a visual sense, but is not so divergent as to be too unrealistic. It is the reality of the external world as photographed.
1980s

Coleman mentions that there is still, among viewers of photographs, in 1980 at least, a “child-like faith in [photographic] veracity.” He is one of the first full-time photography critics to be regularly published in the United states, and is in a good position to know what he is talking about, and the time-frame establishes the photographic image’s persisting high veracity to that era. He goes on to say that because of that perceived high veracity it is easy “to tamper with reality” (Coleman 1980:14) using photographs as evidence (proof).

Following on from others who claim that objects imprint themselves in the photographic process, Krauss (1981) describes photographs as “a kind of deposit of the real itself.” (Krauss 1981:112)

It is the order of the natural world that imprints itself on the photographic emulsion and subsequently on the photographic print. This quality of transfer or trace gives to the photograph its documentary status, its undeniable veracity. But at the same time this veracity is beyond the reach of those possible internal adjustments which are the necessary property of language. The connective tissue binding the objects contained by the photograph is that of the world itself, rather than that of a cultural system. (Krauss 1981:211-212)

Australian photographer, Max Dupain recalls that Damien Parer’s (1912-1944, Australian wartime photographer and film-maker) favourite quote was “Grierson’s assessment of the photographic document: ‘… The creative treatment of actuality’…” (Dupain 1986:12). Grierson (1898-1972) was a British documentary film-maker who influenced still documentary photographers. To have remembered the quote, Dupain may share belief in that description of photography. If so, it suggests that he believed that photographs are not exact replicas of the external world. This is reinforced in the description for Norfolk Island Seascape 1985, of which Dupain (1986) says:

My only feeling is that colour photography has made this [scene] too real. It does not have the latitude of interpretation like black and white photographs, and in my view mere mechanical depiction is inadequate. (Dupain 1986:139)

Cartier-Bresson (1987) describes the instrument of photography (camera) as a “recording machine” and makes a distinction between “…‘manufactured’ or staged photography…” (Cartier-Bresson 1987: unpaginated) and what he himself does, elsewhere described as documentary photography (Newhall 1982:235), which places it into the “depicting reality” category… (Cartier-Bresson 1987:unpaginated).

Coleman (1985) observes that Social historians of the far future will find it astonishing that, in a culture producing billions of photographs annually, much of the population still believes that cameras take pictures, that photographs don’t lie, that seeing is believing. These are ideas of which photo students are effectively disabused by their second semester of coursework. They’re ideas of which an entire culture could be disabused by a wide-spread emphasis on media education. (Coleman 1985:77)
In the five year period between two of his own articles (1980 to 1985) Coleman (1985) has qualified his belief that photographic veracity is widespread for all viewers, by eliminating (many) photography students from that category. Nevertheless he maintains that the wider population still holds the belief that photographic images have veracity above and beyond that of other media.

Likewise, Newhall (1982) holds the view that photographs are true records of the external world, yet describes several examples where this is not the case such as with retouching in 1855 (Newhall 1982:69) and with Henry Peach Robinson’s work (c.1858) (Newhall 1982:76). He says there exists a “…fundamental belief in the authenticity of photographs…” (Newhall 1982:84); he also maintains that documentary photography is work which holds truth of reality (Newhall 1982:235). The 1982 edition of Newhall’s work is a continuation of the history of photography first published in 1949 (Phillips 1982:24). It is based on the images of, rather than the techniques of, photography. Recently it has become a much criticised history of photography (particularly by Phillips 1982:19, 25, Coleman 1987, Solomon-Godeau 1994:8, 284 note 7, and Price and Wells 2000:46) for its selectivity of photographers; only those whose work is owned by the Museum of Modern Art in New York (MoMA). It is, nevertheless, an influential work and the views expressed by Newhall will influence readers, amongst whom will be photographers, students of photography, and other gatekeepers. In this 1982 edition, there is no change to the author’s views on photography’s veracity expressed thirty years previously, to take account of any changes in people’s general belief in the veracity of photographs.

A corporation annual report designer, Arnold Saks, is quoted by Squiers (1985) as saying: “There’s an honesty about black and white, a reality, … Black and white is the only reality”, to which Squiers adds: “Most of all, black and white has a crisp steely authority that color can’t touch…” (Squiers 1985:209). Squiers observes: “… the reality you see in these [corporate annual report] pictures is the reality the company wants you to see” (Squiers 1985:213) indicating that it is not only an inaccurate rendering of the external world, it is a contrived external world most likely one favouring the activities of the company with which the viewer is presented.

Around the same time, Richard Avedon (1985) claims, in relation to his own photography, that

A portrait is not a likeness. The moment an emotion or fact is transformed into a photograph, it is no longer a fact but an opinion… All photographs are accurate. None of them is the truth. (Avedon 1985:unpaginated)

The distinction between accuracy and truth is not defined by Avedon (1985) but
seems to imply that interpretation (in the case of portraits, of the sitter’s character) is part of the photographic process. The portrait, in this case, is not a likeness but the photographer’s opinion of what or who constitutes the sitter. Avedon feels that this is accurate because it is a photograph, yet is not the truth; perhaps he means the whole truth. Bolton (1987) raises the issue that, in many situations, the photographer is in a position of power over the sitter which can lead to “the privileged represent[ing of] the reality of another class” (Bolton 1987:264). Of course, the converse is true in other situations where the photographer is reliant on payment for their portrait service, from those who can afford it, and where customer satisfaction becomes a matter to consider. In this case, the customer is the privileged one and the photographer lives the reality of another class.

Kaufman (1989) describes early photography as an “inexpensive means of recording the appearance of persons, topographical views…” (Kaufman 1989:1) and implies a subtle difference between recording the external world on film and the viewer’s interpretation of the view by referring to recording the appearance. He describes photography as being like painting:

...though it is indeed a mechanical recording process, photography is a picture-making process as well. Moreover, the appreciation of photographs requires a pictorial sensibility that shares much which the appreciation of paintings and graphic arts. (Kaufman 1989:1-2)

Like painters, photographers begin with a blank film and must add content. They must decide on subject matter, location, direction, position, composition, shutter duration, and so on; all to be considered as part of creative input. In a volume of creative photographs, Carothers and Roberts (1989) asked photographers to describe the relationship between photography and reality. The following is the photographers’ response to the question:

Ruth Bernhard: ‘Photography is reality. [wherein] The reality we humans know is only what we are able to perceive with our human senses.’
Judy Dater: ‘Photography can create the ‘illusion’ of reality, make people believe they are seeing some ‘real truth’.’
Andreas Feininger: ‘Photography is the best mirror of reality we have… [but] can distort reality…”
Sandi Fellman: ‘Historically and culturally, we have come to accept photographic rendition as reality.”
Tom McCartney: ‘Certainly a color [sic] photograph can be made to mimic reality with uncanny accuracy…”
Sheila Metzner: ‘The photograph has its own reality.”
Joel Meyerowitz: “A photograph is not separate from reality. It is made in the moment and is of the moment. Later while we hold and scan a print in our hands that moment inserts itself back into the flow of what we call the present.”
Duane Michals: “…the most important parts of reality are invisible.”
Arnold Newman: “It is only an ‘illusion of reality’.”
Olivia Parker: “The photograph is a transformation after reality.”
Eva Rubinstein: “…what… is reality?”
Jerry Uelsmann: “A symbiotic relationship exists between photography and reality.”
Cole Weston: “With photography you can express the essence of reality.”

Of the twelve photographers cited from this collection (Carothers & Roberts 1989:30-34), only one photographer believes photographs do depict reality, while none say that photographs do not depict reality. The rest support the, by now, more widely held belief in the existence of some sort of photographic reality—as yet not clearly defined.

In a reprinted 1986 essay, Solomon-Godeau (1991) says that we “now take for granted that the camera produces representations—iconic signs—translating the actual into the pictorial” (Solomon-Godeau 1991:169). But the we she refers to is more likely to be those, like herself, writing on photography’s history, or critics and other gatekeepers more so than the general public. She says that, while photographs are accepted in courts of law as evidence, advertising and fashion photographs have belied the “universal belief in the camera’s truth…” (Solomon-Godeau 1991:169) but the contradiction in the essay is that the theme is documentary photography, not advertising or fashion photography. Yet as Solomon-Godeau points out, all straight photographs are somewhat documentary.

By the time of the sesquicentenary of photography (celebrated globally in 1989) only twenty-five percent of the gatekeepers sampled believe photography depicts reality accurately (see Table 2.2 in Section 2.5.1 and tables at the end of this appendix).

**Early 1990s**
By the beginning of the 1990s, computer generated imaging was available to domestic consumers via desktop personal computers powerful enough to drive the imaging software (Abode PhotoShop V.3, for example) needed to alter images substantially. Digital photography, while still in its infancy, was beginning to be more widely used by both professional and amateur photographers. The line between what was photographic and what was some other image-creating media was becoming blurred. Digital imaging made photomontage easier, and more seamless, than it had ever been. Works were created which purported to be photographs but which were not.
In 1991, writing on photomontage, Michael Frizot (1991a) a photographic critic laments: “there is no real definition of photomontage, it is basically a practice which includes photography as one of the materials of the composite image…” (Frizot 1991a: unpaginated). Photographs, or photomechanical reproductions of photographs, can be cut and pasted together, negatives (or transparencies) can be sandwiched and printed together, or negatives (or transparencies) can be printed over one another on the same paper; this is photomontage in its various processes. Frizot says of Heartfield’s (1891-1968) work, specifically: “his photomontages picture a fictional reality, but one no more improbable for that…” (Frizot 1991a: unpaginated). Of early montage generally, he argues that it “seeks to add elements which do not exist in reality” (Frizot 1991b: unpaginated).

In the same article, on one hand, he claims that “The success of photomontage… lies in … its truth-content derived from photographic realism.” (Frizot 1991a: unpaginated) while on the other hand that

A manufactured image with its components on display, each claiming its own objective reality, photomontage raised the question of artistic and photographic deception. It reorganized the traditional visual sense and destroyed the trust built up by almost a century of plain, straightforward, pure photography. (Frizot 1991a: unpaginated)

Thus, he is suggesting that the photomontage image relies on the perceived veracity of photography to claim veracity of its own. Yet while each of the component pieces used in the montage may have objective reality, the total is a photographic deception and has destroyed photography’s veracity. At most, photomontage may, generally, have weakened photography’s perceived veracity but it is likely that viewers merely placed it in a category separate from all other photography so that most photography maintains its high level of veracity while photomontage has none.

Frizot also makes the point that “Art is not made extraordinary by reality, reality becomes extraordinary through art” and that “Belief in the truth of the artistic gesture lies in the imaginary realism of the lie represented” (Frizot 1991a: unpaginated). The viewer, then is the interpreter of truth, and is the one to establish how accurately an image represents reality.

On other types of reality, Frizot notes that photography was responsible for an amount of controversy because of “the scandal surrounding the proliferation of ‘real nudes’ which certain contemporaries found far too realistic.” He concedes that “The principle of photomontage was always that of creating a ‘dreamed’ image, impossible to stage in reality, and thus to subvert real vision with a white lie” (Frizot 1991b: unpaginated).

At the same time as Frizot is writing, Artist David Hockney (1937- ) believed
photography was losing its veracity. He says that for the full 150 years of photography, photographs held a special place amongst pictures because viewers “…believe that at one point in time and space, something similar to what was in the picture had been in front of the camera” (Sheff 1991:76).

1995

With computers influencing both the production of images and the viewer’s reaction to images, Kac (1995) summarises the gamut of influences that photography endures. In a clear development of painting’s aspiration to truth and veracity, photography first attempted to fix images as seen in nature. The camera obscura, used by painters for centuries, became the photographer’s essential tool. In the next stage, photographers tried to capture different moments of an action. Muybridge’s analysis of motion and Marey’s chronophotography paved the way for cinema. As a consequence, Edison and the Lumière brothers showed that images representing motion could not only be recorded as stills but set to motion themselves, allowing us to see representations of the recorded event as a temporal flux. Much later, video technology instantiated the recording, eliminating the temporal gap between the action and its playing back and, therefore, reinforcing the congruity between the representation and the reference. More recently, personal computers seem to have demolished photography’s truth ambition by allowing anyone to manipulate photographic images and to easily recombine them in any desired way. If photography forced painting to redefine its direction in the beginning and middle of the nineteenth century, today computers have a similar impact on photography. (Kac 1995:2)

It is about this time that the special photographic reality many photographers believed photographs represent gives way to a wider belief amongst practitioners of image-making that photographs do not depict reality. Yet traditional photographs seem to hold their high veracity.

1997

Batchen (1997) takes the view that photographs are not representative of the external world. He says “…a photograph of something has generally been held to be proof of that thing’s being, even if not of its truth”. He qualifies this statement by saying “…I am suggesting that the production of any and every photograph involves intervention and manipulation… After all, what else is photography, other than the manipulation of light levels, exposure times, chemical concentrations, tonal ranges, and so on?” (Batchen 1997:212-213).

Ortenzi (1997) takes a similar view but is more definitive, saying: “Photography has always been considered a reproduction of reality and has held a special place in society for that reason” (Ortenzi 1997:1). In discussing digital images in this context, Ortenzi refers to them as “photorealistic images” thus signifying a difference between traditional photographs and digital images. He says that “…photography is more of a construction or mimic of reality than a copy of reality and is thus dependent on the
tools and intentions of the reconstructors for veracity.” Again, here is the use of the term reality but it is difficult to determine whether Ortenzi is referring to the external world or to the subject of the picture. And, of course, the veracity of the photograph, may be dependent on the viewer, not “the tools and intentions of the reconstructor”, keeping in mind that the reconstructor or photographer is also a viewer—usually the first—one of the photograph. Of digital images, Ortenzi also argues that they share “the language of image-meaning with both photography and other image making methods” (Ortenzi 1997:1).

1998
Marc Riboud (1923-), a Magnum photojournalist, told an interviewer that “photography is the witness of our time, the witness of reality”. On emotions raised by photographs, he says: “If one wants to create an image, the brush and the paint still communicates the sensitivity of the human being better [than photographs]”. While on digital imaging generally, and particularly conventional photographers compared with digital images, he adds: “So far… the resulting image is not something that moves me” (Green 1998b:470). So, while Riboud indicates that digital images do not possess the ability to move him emotionally in the same way conventional photographs do, he is implying a difference between the two media. That he perceives a difference between the media is this regard may mean he perceives a difference in the way the two media witness reality.

Similarly, former British Journal of Photography editor, Chris Dickie says: “The significance of photography is in its ability to document, to record what has been, and that’s a principal reason why photography is important”. In so saying, presumably, Dickie is not implying that photography can record events which have already happened (what has been) but that it can show a viewer an event which has happened prior to the viewer seeing the photograph. He goes on to say that photojournalists rely on high integrity attaching to their images because that is where their (the photojournalist’s) reputation lie; they hope that photography’s high veracity is maintained so as their honesty as reporters is upheld. Dickie credits photojournalists with a “mission to inform, to report events that will form the basis of history in years to come…” (Dickie 1999a:11). There is no doubt that photographs have been, and are being, used to write history, and that many people believe that photographs are reliable sources of historical information, and to some extent they are right, but to what extent might never be known.

Luciana and Watts take the view that photographers can “portray a variety of more personal realities” (Luciana & Watts 1999:12), and that those realities can
extend the “photograph beyond its manifestation as an analogue of reality” with “enhanced photography [but that], …the truth value of a conventional photograph is undeniable…” (Luciana & Watts 1999:13). Hence, even as recently as 1999, there is still a belief, in some people’s minds, in this case authors on photography, that conventional photographs tell the truth, that is: they accurately depict the external world. To emphasise the point that the general public may still perceive black-and-white photography as truly representing the external world, in 1999

...a South American country has opted to broadcast news of its civil war in black-and-white. This being done in the stated belief that monochrome images of dramatic news events carry greater impact than their colour equivalents. (Dickie 1999b:9)

Perhaps the stated belief of the decision-maker in this case is not true (for political reasons) and the black-and-white broadcasts are actually made to reduce the impact of images of the civil war atrocities. In either case there is still the perception that photographs (in this case, television images) depict the external world in credible accuracy.

2000

Morrell calls for the clarification of photography’s veracity, saying that “the conventions of scientific macro-lens photography are dedicated to truth” and “even the idea of truth in photography is a fiction that demands to be exposed” (Morrell 2000:unpaginated). Similarly, Tarrant (2000b) questions the widely held belief in photography’s veracity, observing that

...blindly believing that [photographs] can ever be totally accurate is sheer folly. The… difficulty lies in the trend towards relying on photography as a means of reliable identification. Passport pictures are notorious for their disparity with real life. (Tarrant 2000b:9)

In a world where photo-ID cards are becoming very widely used, Tarrant’s (2000b) reference to “the trend towards” this is more likely to be the established norm today. As Tarrant argues, the belief that photographs (passport photographs, for example) provide accurate proof when used in this way is because “…these applications are based on the belief that the camera is absolute, and that its recording can be used to make important decisions when compared with real life” (Tarrant 2000b:9). He expands the idea by adding that “…the implication is that if there is a mismatch, then it is reality that is wrong. Similarly, if there is apparent agreement, then the association must be genuine – even if in truth it isn’t” (Tarrant 2000b:9). It may be that Tarrant is hedging his bets using terms like totally accurate, or he may be merely reflecting a perceived, or known, majority view amongst his readership that photographs can sometimes show reality and truth and sometimes not. But he clearly makes the point that the camera can and does lie. The inference from Tarrant’s words is that the veracity (high or low) resides
in the photograph not with the viewer. In a subsequent article discussing the need for digitally manipulated images reproduced in the news media to have “…an indicator that would signal that an image had been either manipulated or not…” he says that “…this test alone would not be sufficient to define truth or falsehood” (Tarrant 2000c:11).

If we consider that no photograph represent an absolute truth, then whether a picture is labelled as having been manipulated or not is irrelevant when there is no “sanctity of the image as captured” (Tarrant 2000c:11). But whether an image has veracity or not should be insufficient to argue against the use of indicators in the press revealing the manipulation of images. If indicators were mandatory in the popular press to indicate manipulated images, the general public may persist in perceiving a high veracity for unmarked photographs. It is the advent of digital imaging, and the subsequent increase in the number of manipulated images published, and the cleverness and concealment of the manipulations and changes to the image, which aroused the interest that lead to this reappraisal of the veracity of photographs by this researcher.

Yet while Tarrant (2000b) disregards photography’s veracity (in photo-ID, at least) he still believes there is a real life to which photographic images can be compared. He signifies the idea that when a mismatch is detected it is “reality that is wrong” (Tarrant 2000b:9) as a widely held view among the general public—users of photo-ID cards. This implies he believes that there is a commonality in peoples’ interpretation of the external world.

2001

If, for the sake of the argument, it is presumed that post-digital photographers have questioned the veracity of photographs to some extent in light of manipulated digital images being readily available to most people in some form, then it is interesting to observe that some people whose work intently involves photographs and other visual images should eschew a disbelief in photography’s high veracity. A senior archivist at the National Park Service in Washington, USA, Diane Vogt-O’Connor (2001) says that photographs have a reputation for veracity, whether justly or not, which “Lead to photographs being used as evidence in legal cases, publications, and exhibitions” (Vogt-O’Connor 2001:unpaginated). She also notes that because of that reputation, photographs have been used to “prove the existence of the non-existent” (Vogt-O’Connor 2001:unpaginated), such as nineteenth-century photographs of fairies and ghosts and twentieth-century photographs of the Loch Ness monster. She points out that photography’s historians, indeed perhaps, most historians, scientists and students of material culture are interested in the artifactual value of photographs. They can analyse the material the photograph is produced on, can determine the process (for
example: gum bichromate print, silver halide emulsion, the presence of whiteners after 1955), know the format or film size, and so on, all of which helps to determine dates, attributes and other characteristics of photographs. While none of these verify the subject matter of the picture, nevertheless they influence the historian’s, scientist’s or student’s discussions about the content of the pictures. Vogt-O’Connor’s (2001) main argument is that the sort of information available from an actual photograph (a physical print or transparency) may not be available from digital images. But that is to confuse digital images (and digitised pictures of photographs) with photographs (see also Mitchell 1992).

Vogt-O’Connor’s (2001) comment on photographs proving “the existence of the non-existent” should not go unchallenged, and is relevant to a discussion on photography’s veracity because such pictures rely on the perceived high veracity of photographs for their own authenticity. The famous fairy photographs (for example, Figure 4.9) of Elsie Wright and Frances Griffiths are a good example of the perceived veracity of photography being exploited to ‘prove’ the existence of the non-existent. As Crawley (2000:71) discovered, and one of the photographers later confessed, these were pictures of cut-out fairies propped up in the garden by two young girls. So to some extent the photographs were of objects in the external world and they were photographs of fairies. The ploy was (unintentionally) to exploit people’s susceptibility (their parents’ initially) in the belief that all photographs show the truth.

If photographs of the Loch Ness monster are not deliberately faked then they do depict objects in the external world. Whether the objects depicted are otters, wave formations, logs or monster dinosaurs is for others to determine. But again the public’s belief that photographs show a reality truthfully is being exploited to convince them that it is the Loch Ness monster in the photograph. The argument here is that even if the object depicted is what the photographer says it is, the photograph should have no more veracity than any other visual medium in showing its subject truthfully and accurately. Vogt-O’Connor, then, regards photographs as having veracity whether they deserve it or not.

In a similar vein, Daugherty (2001) believes that “Because photography is so evocative of reality it can be an extremely powerful tool for portraying visions of the surreal” (Daugherty 2001:unpaginated). This view is reminiscent of Vogt-O’Connor’s (2001) comment about nineteenth- and twentieth-century photographs of fairies and monsters. Another action word for photographs, evoke, can be added to the list of what photographs are alleged to do: i.e. represent, show, depict, mirror, etc.
To extend the understanding of what photographs do with the external world, Pearson (2001) observes that although photographs show something that was, perhaps, once present in front of the camera, it is already past; a past moment. She questions the veracity of photography when she says: “The myth that a photograph is an accurate representation of reality has unbelievably remained unchallenged until these days of digital imaging”. She points out that manipulation of traditional photographic images in “…the skilled hand of the photographer. … Akin to the skilled hand of the painter…” (Pearson 2001:2) has been happening since the dawn of photography. Porter (2001) makes an equally valid point when she says “…there is no precise language for how we interpret what we see.” Of photography, she says: “Historically photography has been used to accurately render light, color, depth, and shadow, in order to capture an image of ‘reality’ as we recognize it in two dimensions”. The qualifying phrase “as we recognize it in two dimensions” seems to apply to reality, which brings into question the belief that photography accurately renders light colour, depth and shadow. Porter says her work “suspends photographic reality” (Porter 2001:1) and, if her technique is truly photographic as she implies it is, then her work is unique in that she is photographing the external world as it cannot be seen by the unaided human eye. Part of her technique is to allow more light to accumulate on the film by using long exposure times, thus utilising a photographic characteristic unavailable in other media (Figure A11).

![Figure A 11 Two images by Bonnie Porter of coloured lights](image)

It would seem that Porter is a Realist exploiting the perceived veracity of photography to confuse, baffle, trick, confound, or allow her audience to question visual perception and their beliefs in reality (perhaps all five). Porter uses photography as her tool to achieve her goal because she sees photography as having an indexical relationship with the subject.
On the subject of recording tools used in anthropology and ethnography studies, Banks (1995) ensures the student that …while film, video and photography do stand in an indexical relationship to that which they represent they are still representations of reality, not a direct encoding of it. (Banks 1995:unpaginated)

The issues of photographs as representations were explored in Chapter Two. Yet there is a link between the representational aspect and the technical aspect. Dyker (1998), for example, suggests that “Photography has freed the artist [read: painter] from the need to show images as representation, the photograph is more accurate and is a faster medium” (Dyker 1998:2), and further, he argues that …the photograph has an inherent way of recording through color, size, depth and so on that gives it its own unique portrayal of what we see. In this way a photograph does not actually record reality but rather it records reality in the best way that its own technologies will allow. We have now accepted this kind of imagery as reality. (Dyker 1998:2)

As is shown elsewhere in this study, many definitions of reality have been suggested. Dyker offers some more: actual reality, best reality, and accepted reality. These might all be categorised as photographic reality and let that term mean any reality pertaining to photographs. Although Dyker’s view is becoming more widely accepted—post-digital—it may not be correct. To support his argument, Dyker quotes US photographer Garry Winogrand (1928-1984) as saying: “I photograph to find out what something will look like photographed” (Dyker 1998:4). Dyker’s interpretation that photography records reality “the best way its technology will allow” echoes the thoughts of Porter who said photography records reality the way “we recognize it in two dimensions” (Porter 2001:1).

Dyker opines that cameras are sold as “…a kind of weapon [used] to capture reality…” and that “we now feel that we must confirm reality by having a photograph of it” (Dyker 1998:3-4). Add to the above list: captured reality and confirmed reality. (As an aside, note the macho language of photography. For digital image-making the term capture an image replaces the photographic equivalent shoot a picture yet it still retains the hunter implication, or a “vocabulary of mastery, possession, appropriation, and aggression”, as Solomon-Godeau 1991:181 terms it).

First published in 2001 and repeated in the 2002 paperback edition is Batchen’s (2002) observation of portraiture as an “indexical guarantor of the veracity of the appearance of the person being portrayed” (Batchen 2002:62). Batchen also claims that photographs rely on the presence of the original object to imprint itself on the light-sensitive emulsion, and that if the object doesn’t look in the photograph like it does in the external world “Reality may have been transcribed, manipulated, or
enhanced, but photography does not cast doubt on reality’s actual existence” (Batchen 2002:139). That Batchen’s (2002) views are extant with Tarrant’s (2000b) views is a situation that indicates the misunderstandings inherent in this subject. It is possible for opposing views to be held, but not both correctly.

Indications that photography’s veracity is not well understood even in the twenty-first century, or is believed to be something it isn’t, come from examples such as comments by O’Hagan (2001) who, in describing photomontage work says “[w]e know it’s not quite right [in appearance because incongruous elements have been bought together] but somehow it has a kind of veracity” (O’Hagan 2001:20). This type of statement might be explained by the suggestion that manipulated images gain veracity from unmanipulated photographs.

2002
Similarly, in contrast to Vogt-O’Connor’s (2001) view, Paul Burrows, editor of ProPhoto Magazine, claims “There is no greater myth than the assertion that the camera cannot lie.” He says “the public perception of photography’s sanctity” (Burrows 2002:5) is exploited whenever a photograph is presented as representing a subject as something it is not. He points out that, in creative photography where the distortion of reality might be the raison d’etre, the viewer accepts that the camera is lying, yet, where a photograph looks credible, the viewer’s natural response is to assume the credibility.

In the years between 2002, when the literature for this study was first reviewed, and the date of publication (2009), there has been no significant shift in the views outlined thus far and the data from the viewer survey shown in Appendix B confirms this. The same patterns of belief, or not, in the accuracy, truthfulness and perceived high veracity for photographs apply. However, in recent times Elgar (2004), Williams (2004), Mavor (2007), Faulkner (2008), Miles (2008) and Clayfield (2009) have all expressed doubt, or are sceptical, about photography possessing high levels of veracity.

So, in summarising the thoughts and beliefs of the diverse range of practitioners and commentators outlined above, a synthesis of the views of the gatekeepers is presented in the following table.
Table A1 Photography’s role according to the gatekeepers detailed

<table>
<thead>
<tr>
<th>Gatekeeper</th>
<th>Photographs DO depict reality</th>
<th>Photographs DO NOT depict reality</th>
<th>SOME photographs depict reality</th>
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<tbody>
<tr>
<td>Daguerre (1839)</td>
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<tr>
<td>Arago (1839a)</td>
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<td>Poe (1840)</td>
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<td>Talbot (1846)</td>
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<td>Berend (1855) (in McFall 2000)</td>
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<td>Diamond (1856) (in McFall 2000)</td>
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<td>Eastlake (1857)</td>
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<td>Holmes (1859)</td>
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<td>Morse (in Sekula 1999)</td>
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<td>Baudelaire</td>
<td>1862a</td>
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<td>Squire (1864-66) (in McFall 2000)</td>
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<td>1889aa</td>
<td>1899a</td>
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<td>Robinson (1892, 1896)</td>
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<tr>
<td>Stieglitz (1899)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demachy (1907)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hine (1909)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>De Zayas (1913)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moholy-Nagy (1923)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rodchenko (1928)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lissitzky (1920s) (in Buchloh 1989)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roh (1929)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E Weston (1930)</td>
<td>1930a</td>
<td>1932a</td>
<td></td>
</tr>
<tr>
<td>Wells (1931)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bruguier (1935)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kirstein (1938) (in Boxer 1999)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Valery (1939)</td>
<td>a</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[n = 26\]

<table>
<thead>
<tr>
<th>Centenary Sub totals</th>
<th>21</th>
<th>6</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage (rounded)</td>
<td>70%</td>
<td>20%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Where commentators have changed their views on this subject, the date of publication is included.
The table is broken here to indicate the first 100 years of photography. The significance of the first break, the centennial of photography, in this table is that column 4 (Distinct photographic reality) is unfilled until the following period.

<table>
<thead>
<tr>
<th>Gatekeeper</th>
<th>Photographs DO depict reality</th>
<th>Photographs DO NOT depict reality</th>
<th>SOME photographs depict reality</th>
<th>Distinct photographic reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams (1944, 1967)</td>
<td>1944 ✓</td>
<td></td>
<td>1967 ✓</td>
<td></td>
</tr>
<tr>
<td>Siskind (1945)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strand (1947)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smith (1948)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Siegel (1951)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abbott (1951)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cartier-Bresson (1952)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Ivins (1953)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Frank (1958)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panofsky (1959)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kracauer (1960a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullock (1962)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damisch (1963)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>White (1963)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lyons (1966)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bazin (1967)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Ponce (1968)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cavell (1971, 1979)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arbus (1972)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arnheim (1974)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coleman (1975-1987)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snyder &amp; Allen (1975)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sontag (1977)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perl (1979)</td>
<td>most ✓</td>
<td></td>
<td>Man Ray’s ✓</td>
<td></td>
</tr>
<tr>
<td>Krauss (1981)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newhall (1982)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Saks (in Squiers 1985) & ✓ &  
Avedon (1985) & ✓ &  
Dupain (1986) & ✓ &  
Bolton (1987) & ✓ &  
Bernhard (1989)* & ✓ &  
Dater (1989)* & ✓ &  
Feininger (1989)* & ✓ &  
Fellman (1989)* & ✓ &  
McCartney (1989)* & ✓ &  
Metzner (1989)* & ✓ &  
Meyerowitz (1989)* & ✓ &  
Michals (1989)* & ✓ &  
Newman (1989)* & ✓ &  
Parker (1989)* & ✓ &  
Uelsmann (1989)* & ✓ &  
C Weston (1989)* & ✓ &  
Kaufman (1989) &  &  
Crombie (1989) &  &  

* in Crothers & Roberts  

<table>
<thead>
<tr>
<th>Sesquicentenary Sub totals</th>
<th>13</th>
<th>5</th>
<th>8</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage (rounded)</td>
<td>25%</td>
<td>10%</td>
<td>20%</td>
<td>45%</td>
</tr>
</tbody>
</table>

The significance of this break in the Table is the celebration of 150 years of photography that occurred globally, and included postage stamps from many countries depicting the influence of photography generally. It also marks the widespread availability of digital image-making facilities on the domestic market.
<table>
<thead>
<tr>
<th>Gatekeeper</th>
<th>Photographs DO depict reality</th>
<th>Photographs DO NOT depict reality</th>
<th>SOME photographs depict reality</th>
<th>Distinct photographic reality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frizot (1991)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hockney (in Sheff 1991)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kac (1995)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ortenzi (1997)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyker (1998)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riboud (in Green 1998b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luciana &amp; Watts (1999)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morrell (2000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tarrant (2000b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crawley (2000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vogt-O’Connor (2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daugherty (2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson (2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Porter (2001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burrows (2002)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n = 17

Sub totals | 3 | 8 | 2 | 4 |

15% 49% 12% 24%

Totals (n = 92) | 36 | 19 | 13 | 24 |

Percentage (rounded) | 40% | 20% | 15% | 25% |
Appendix B

SURVEY

A survey was conducted to test the Veracity Spectrum. A cohort of university students, some of whom had a higher understanding of the topics being discussed than the others, were asked questions about their age, gender and understanding of photography’s role in recording reality, the external world and about photography’s veracity. They were also requested to rank viewed images in terms of their perceived veracity. The survey was granted approval number HREC: (S/08/177) by the Human Research Ethics Committee of the University of the Sunshine Coast.

Several photographs, other than those already used in this study were included for use in the survey questions. Table B1 lists the picture code used in the questions with the figure numbers for the study.

<table>
<thead>
<tr>
<th>Table B1 Figure numbers for survey questions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Historical</strong></td>
</tr>
<tr>
<td>a  2.20  b  2.15  c  4.8  d  4.7  e  2.24</td>
</tr>
<tr>
<td>f  4.2  g  2.17  h  2.16  i  2.30  j  2.10</td>
</tr>
<tr>
<td><strong>Photojournalism</strong></td>
</tr>
<tr>
<td>a  B6  b  B3  c  2.22  d  B8  e  4.6</td>
</tr>
<tr>
<td>f  B1  g  B7  h  B4  i  B2  j  B5</td>
</tr>
<tr>
<td><strong>Portrait</strong></td>
</tr>
<tr>
<td>a  B9  b  B10  c  B11  d  B12  e  B13</td>
</tr>
<tr>
<td>f  B14  g  B15  h  B16  i  B17  j  B18</td>
</tr>
<tr>
<td><strong>Landscape</strong></td>
</tr>
<tr>
<td>a  B19  b  5.9  c  B20  d  B21  e  5.8</td>
</tr>
<tr>
<td>f  5.14  g  5.13  h  5.11  i  5.12  j  B22</td>
</tr>
<tr>
<td><strong>Fine art</strong></td>
</tr>
<tr>
<td>a  B23  b  B24  c  B25  d  B26  e  B27</td>
</tr>
<tr>
<td>f  B28  g  B29  h  B30  i  B31  j  B32</td>
</tr>
</tbody>
</table>

The questions are set out below. The responses to the questionnaire follow the questions. From the responses, the findings are analysed.
B.1 QUESTIONS

Survey response form - Reassessing the Veracity of Photographs

Q1. Age range
18-25  26-35  36-45  46-55  56+
1      2      3      4    5

Q2. Gender
M  F
1  2

Q3. Course
Design  non-design  U3A
Student  student  student
1    2       3

Q4. Photographs show the real world accurately.

disagree  disagree  neutral  agree  agree
strongly       strongly
1        2        3       4        5

Definitions:

Veracity = having the characteristics of truth
Verisimilitude = having the appearance of truth
Verity = quality of being true, in accordance with fact or reality

Where:
Veracity and verisimilitude can be explained with the analogy of two accused bank robbers.

The first accused person (veracity) is guilty of the crime because they actually committed it; whereas,

while the second person (verisimilitude) has the appearance of guilt and a past criminal record for bank robbery, they are not guilty because they did not commit the crime.

Verity then, using the same analogy, is the robber (veracity) confessing to, and being convicted of, the crime (confirmed truth).

As applied to photography:
Veracity = photographs have the characteristics of truth
Verisimilitude = photographs have the appearance of truth
Verity = photographs are true, in accordance with fact or reality
Q5. Which characteristic applies to photographs.

<table>
<thead>
<tr>
<th>veracity</th>
<th>verisimilitude</th>
<th>verity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Q6. Photographs depict the external world accurately.

<table>
<thead>
<tr>
<th>disagree strongly</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>agree strongly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Q7. Photographs depict the external world accurately.

<table>
<thead>
<tr>
<th>no</th>
<th>some do</th>
<th>yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Explanation:
Around the 1940s, some photographers and other commentators began to talk about a special or distinct photographic reality because they were not comfortable with simple ‘yes’ or ‘no’ responses to the question.

Q8. Photographs depict the external world accurately.

<table>
<thead>
<tr>
<th>no</th>
<th>some do, special photographic reality</th>
<th>yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Evaluating photographs
Give a value for each image from the scale (5 – 1) shown.

Q9
Historical

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>medium</td>
<td>low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9a</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9b</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9c</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9d</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9e</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Q10
Photojournalism

<table>
<thead>
<tr>
<th></th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>high</td>
<td>medium</td>
<td>low</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10a</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10b</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10c</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10d</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10e</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Q11

**Portraiture**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Q12

**Landscape**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

326
Arrange the following sets of photographs in a “veracity” order: Place the letters ‘a’ to ‘e’ on the spectrum, as you please, in the order you think the photographs represent the real world.

\[\begin{array}{cccccc}
\text{high} & \text{medium} & \text{low} \\
13a & 1 & 2 & 3 & 4 & 5 \\
13b & 1 & 2 & 3 & 4 & 5 \\
13c & 1 & 2 & 3 & 4 & 5 \\
13d & 1 & 2 & 3 & 4 & 5 \\
13e & 1 & 2 & 3 & 4 & 5 \\
13f & 1 & 2 & 3 & 4 & 5 \\
13g & 1 & 2 & 3 & 4 & 5 \\
13h & 1 & 2 & 3 & 4 & 5 \\
13i & 1 & 2 & 3 & 4 & 5 \\
13j & 1 & 2 & 3 & 4 & 5 \\
\end{array}\]

\[
\begin{array}{cccc}
d & a & c & b & e \\
\end{array}
\]

Where:

- high = accurately
- medium = accurately
- low = not accurately
Q 20

<table>
<thead>
<tr>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>= accurately</td>
<td>= not accurately</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Below the results are shown, mostly in table form for clarity.
### B.2 RESPONSES

Total number of participants = 74. Not all questions were attempted by all participants.

#### Q1 Age range

<table>
<thead>
<tr>
<th>Age</th>
<th>18-25</th>
<th>26-35</th>
<th>36-45</th>
<th>46-55</th>
<th>56+</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>43</td>
<td>7</td>
<td>5</td>
<td>10</td>
<td>9</td>
</tr>
</tbody>
</table>

#### Q2 Gender

male = 30  
female = 44  

#### Q3 Course

<table>
<thead>
<tr>
<th>Course</th>
<th>Design student</th>
<th>Non-design student</th>
<th>U3A</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>62</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Q4 Photographs show the real world accurately

<table>
<thead>
<tr>
<th>Response</th>
<th>Disagree strongly</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Agree strongly</th>
<th>No response</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>4</td>
<td>18</td>
<td>36</td>
<td>15</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Q5 Which characteristic applies to photographs?

<table>
<thead>
<tr>
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#### Q6 Photographs depict the external world accurately

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EXPLANATION GIVEN OF NEW TERMS…

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Totals from each column in Q14 to Q20

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Summary Tables

Summary of totals of Q9 to Q13 (as shown above)

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Combined summary totals from Q9 to Q13
(wherein, from both column 1s we get 268+208=476 etc.)
from the Table above, condensed into one set, with percentages.

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Summary of totals from Q14 to Q20 (with percentages and combined percentages from each half—to 99.95% the remaining 0.05% being lost in the rounding up)

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</tbody>
</table>

The numerical values shown as raw data do not enlighten the reader as fully as do the percentages shown in the Summary Tables and the ratios derived from them indicating a 2:1 favouring for higher veracity in photographs.

On the following page, selected results from the above data are shown in graph form to determine whether a graphic representation would indicate trends or clarify the data. Five images from the set for Question Nine and five images from the set for Question Twelve have been plotted. As can be clearly seen, although there are directional trends—downwards left to right for Question Nine and upwards left to right for Question Twelve—there are also plot-points outside the general array. Further plotting—all ten images from each set—only confused the matter so was discontinued.
Graph 1 Responses to Q9

Picture 9c is given the most low scores (44 responses for level 1, low veracity) even though the photograph is a ‘straight’ photograph—9a, b and d are all manipulated images made up of composite parts. The subject matter (fairies) must influence the viewer’s interpretation of veracity if they don’t know the circumstances of the recording process. It also scores the least responses for veracity level 4 (1 response).

Graph 2 Responses to Q12
In the sample for Graph 2, 12b gets the highest veracity rating probably because it is in colour, but only at a veracity level of 4 out of 5. Pictures 12b and c fail to follow the trend of increasing veracity that the other three pictures follow as these (12b and c) finish below their penultimate point.

These graphs show that for each photograph there is a zig-zag patterned derived from the results, except for 9d which follows a more-or-less straight path. What this tells us is that there is no substantially consistent or predictable pattern that can be allotted to a picture when individual viewers are assessing the images for veracity.

Finally, an averaging systems was devised to allow a pictorial array of veracity values to be applied to photographs so the results could be shown in visual form. A score for veracity was calculated by averaging the number of responses for values 4 and 5 (high) from each set of photographs. This gave an order shown in Table B2 as Row A for the set of photographs used in Question Nine. Then a score for low veracity was calculated by averaging the number of responses for values 1 and 2 (low veracity) from each set of photographs. This gave a slightly different order as is shown in Table B2 as Row B. Therefore, Row B was subtracted from Row A to provide a value that alleviated potential duplicated placements, and thus provided the order shown as Row C in Table B2. A sample placement of photographs is shown beneath Table B2 with the numerical values that were calculated for Row C to determine the order. The presentation of data in this format gives the reader a pictorial display of how the images fell against each other on a Veracity Spectrum.

Table B2 shows the order for responses to high and low veracity to Question 9 and a pictorial array of how the values present.

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<th>h</th>
<th>g</th>
<th>f</th>
<th>e</th>
<th>i</th>
<th>b</th>
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<th>j</th>
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<td>b</td>
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<td>c</td>
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<tr>
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<td>e</td>
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<td>d</td>
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<td>c</td>
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</tbody>
</table>

This system of calculation was then applied to the responses for all sets of photographs in Questions Ten to Thirteen and the results are shown in Table B3 with numerical values and the ranked order the images consequently take on a Veracity Spectrum. A
The visual array of the ranked order arising from these calculations is shown as Figure B 33.

Table B3 Numerical values from averaging high (A) and low (B) veracity responses, and the differences (C) and the ranked order of photographs used in the survey, Q9-13

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The values for Photograph 1021 and Photograph 12f (Row C, Q12) both fell at 12.5 but, as a consequence, Photograph 1021 was placed higher in the ranking because that picture scored 20 for high veracity against 19.5 for 12f while both scored 7.5 for low veracity. Similarly for Photographs 13d and 13e, which both scored 18.0 in Row C, Photograph 13d was placed higher in the ranking because it achieved a level of 25.5 against 22.5 for high veracity and 7.5 against 4.5 for low veracity. The same applies to 18d and 18e from Question Eighteen shown in Table B4, where 18d is place higher in...
the array because it scored higher for veracity at upper and lower levels. These three pairings are the only duplicate values arising from the calculations to achieve Row C. The pictorial array for this data is shown below as Figure B33. The same evaluation system was then applied to responses for Question Fourteen to Question Eighteen, and the results are shown as Table B4, and a visual array as Figure B34.

Table B4 Numerical values from averaging high (A) and low (B) veracity responses, and the differences (C) and the ranked order of photographs used in the survey, Q14-18

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<tr>
<td>Values</td>
<td>12.5</td>
<td>12.5</td>
<td>11.5</td>
<td>5.0</td>
<td>-2.5</td>
</tr>
</tbody>
</table>
The results averaged from responses to Question Fourteen to Question Eighteen are more refined than those for Questions Nine to Thirteen because the participants had a less finite range from which to choose the placement of images and also because the data is allocated over a wider range, with intermediate increments of 0.5 included in the assessment. The responses for Question Nineteen and Twenty have not been averaged or shown in visual form because the sets consist of mixed genre and side by side comparisons cannot be demonstrated with previous responses, therefore this analysis of data would add no value to the survey other than as described above.

The consequence of averaging the highest and lowest veracity values is to tame any prominent scores (whether they are errant or not) and produce, arguably, bland outcomes which may or may not be more representative of the respondent’s thoughts during the survey, and also they throw up some unexpected results which might not otherwise occur. An example is Picture 11h (portrait of two women), which shows no otherwise outstanding scores in its set. This image scored low for high veracity (4) but not significantly higher for low veracity (11), especially compared to other photographs in the Portrait set. However, the averaging calculations give a value of -8.5 against the highest in the set of 23.5 to place the image at the lowest value on the veracity scale. Yet, this result is consistent with trends exhibited elsewhere in the data and is not unexpected so does not raise questions as to accuracy but rather as to what role calculations play in assessing these data.

Trying to speculate on why survey participants put a particular image where they did, or why—following averaging—an image appears in the place on the spectrum it does is rife with difficulty because one observer cannot know the mind of another observer. For instance it could be speculated that the image of the flag raising at Iwo Jima might fall at a low level of veracity for visual literate viewers—such as many of those surveyed—who know this is a photograph of a staged event taken the day after the actual flag raising took place, and it does fall at a low veracity in both arrays shown in Figure B34. Yet, why the image of Arab men entering a building would be judged as having a low veracity—particularly against several black-and-white images in the same set—and why it appears higher in the rankings in the second (later in time) array is surprising. Perhaps the analysis might be more constructive if the colour image of the Indian street scene—which has halved in value—is considered, because it shifts the order of the previous array. In the same way, we might question the black-and-white high contrast beachscape which has also changed value from one assessment to the other. Equally unexpected is the reversal of positions of the colour portrait and the black-and-white portrait of the child reaching upwards; these examples could be explained as arising from the use of averaged results.
Figure B33 The Veracity Spectra arising from averaging the raw data and subtracting the value for low veracity from the value for high veracity for Question 9 to Question 13

Figure B33 shows, in visual form, the layout of pictures when the values derived from survey participant responses for high and low veracity are averaged and then the values for low veracity subtracted from the values for high veracity to provide a uniform calculation. This is one method of showing how the respondents rated the photographs against each other in each set during the first presentation of images in the survey.
Figure B34 Veracity spectra with placement of images at different stages during the survey where (from top to bottom) Q9 is shown with Q14, Q10 with Q15, Q11 with Q16, Q12 with Q17 and Q13 with Q18.

Figure B34 shows a comparison between the placement of images as seen in Figure B33 against the placement of the second, fewer, set of images shown to participants for Question Fourteen to Eighteen. This array demonstrates that although there is consistency in the responses in many cases, there are variations in the values allocated at different times during the survey, resulting in some of the images occurring in different order. Various interpretations of the data will produce different results, for example by placing pictures using the averaged values for high veracity, or the averaged values for low veracity will render variations on the placements shown. The findings and conclusions drawn from this survey are summarised in Chapter Five.