Becoming Digital:

The Challenges of Archiving Digital Photographs

by

Karen Rae Simonson

A Thesis submitted to the Faculty of Graduate Studies
of
The University of Manitoba
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MASTER OF ARTS

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Abstract

Digital photography has recently become one of society's important means of recording. For this reason it has also become a potential archival record of great significance. However, as of yet, few born-digital (defined in opposition to "made digital" or "digitized" photographs, which are created by scanning analogue sources), photographs have been acquired by archives. Furthermore, few seem likely to be acquired in the immediate future. While there has been considerable attention given in archival literature to conventional photography and archives, as well as to textual electronic records and archives, little has been written about digital photography. This thesis addresses this archival challenge and aims to encourage a more active and informed archival response to digital photography. It does so by describing key features of born-digital photographs from an archival perspective and in light of the evolution of photography, and by stressing the need in archival management to understand the purposes behind the creation of digital photographs, or their functional context of creation.

The thesis draws on information gleaned from a survey questionnaire submitted to archivists in order to assess better archival activities with digital photographs. It attempts to stimulate further development of this aspect of archival work with a practical proposal for preservation of digital photographs generated in personal life.

Acknowledgements

To my father (1946-2001), who would have been proud.

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Introduction

In recent years the cost of obtaining a digital camera has plummeted. Consequently, more and more institutions use these cameras to do their work and an increasing number of people use them to record family gatherings, weddings, trips and other events. Few users likely give much thought to the preservation issues involved in ensuring that they will be able to view these images over the long term.

As born-digital photographs replace traditional photographs, archivists need to address the problems and opportunities that this new medium presents. As yet, few have shown much interest in the subject. Over the last twenty years, an increasing literature on photography and archives has been written, and even with that, the amount is not as vast as on other archival topics. It pales in comparison to subjects such as appraisal and textual electronic records. Even key archival research projects that have dealt with electronic records have, for the most part, ignored born-digital photographs. This presents a number of problems when trying to write a thesis, as there is not much to consult and use for guidance. As a result, this thesis is, in many ways, a preliminary work, using available archival and related literature, as well as a survey questionnaire which was responded to by twenty-five archivists from six countries. The thesis aims to enable further exploration of this topic. More questions are raised than answers and solutions provided but that is also the case with electronic records in general.

First, I would like to clarify the subject of this thesis. Digital photographs fall into two groups: digitized photographs and born-digital photographs. The former are those photographs whose image is in paper form, and which are then scanned to create an

electronic version of the image. For these images, the original image will still remain, and the electronic image is simply a copy.

A born-digital photograph is created electronically, by a digital camera, a web cam - even with mobile phones. These images have no negative. They are rarely printed, and if they are printed, most of the original information is lost. They are created instantaneously, and available immediately. They are created in abundance, viewed regularly through email, wallpaper and screensaver, or forgotten amongst the countless files on a computer. All these facets of digital photography reflect and amplify our culture's addiction to instant gratification: the substitution of spontaneity for careful composition; the elimination of the gap between the taking and enjoyment of a photograph; the replacement of careful and loving reproduction by immediate transfer by email, CD and website. These born-digital photographs are the focus of this thesis.

Chapter one will present a brief history of the key developments in the history of photography. My analysis shows that photography has been a constantly evolving medium. The computer revolutionized the written word, and archivists are starting to deal with the challenges this presents. Photography and digital photography are similar. By understanding more of the history of photography, digital photography can be seen and best handled by archivists in relation to this ever-changing visual record.

Chapter two explores some of the challenges that digital photographs present to the traditional archival view of records, which stresses that records must be authentic and reliable evidence of the actions of their creators. While such characteristics of records remain important, the ease of manipulation of digital photographs raises questions about what these concepts mean in the computer age. If these concepts are applied too rigidly,

and digital photographs are thus deemed not to be of archival quality or value, much visual history would be lost. As with many traditional photographs, archivists need to look at the purposes behind the creation of digital photographs (or the functions they were made to perform), as that will help clarify the nature of the evidence they convey. To understand photographs as fully as possible, it is not enough to focus strictly on their subject content. Their context of creation must be examined as well.

Chapter three combines an analysis of current practice with digital photographs in archives with an innovative proposition for archival acquisition and description of private record born-digital photographs. A survey was undertaken in the spring of 2005, asking archivists about their institutions' work with digital photographs. As the results showed that very little is occurring, this chapter contains a suggestion to help acquire private born-digital photographs. It is hoped that this idea will stimulate further discussion and action. Government digital photographs have a still poor but better chance of ending up in archives than personal ones, as government records are scheduled to ensure that important documents are not lost or destroyed. Such measures are usually outlined in legislation for each jurisdiction. Private records are not subject to such measures, and therefore are more susceptible to deletion or loss. Archivists need to develop methods to ensure that the rich visual history documented in such private sources is available in future.

There is an impending crisis in the acquisition of computerized personal and organizational photographs, and we are in serious jeopardy of losing a significant part of our heritage. I hope that this thesis can provide inspiration and guidance to archivists looking for ways to avert this.

Chapter 1

Silicon and Silver Nitrate:

A Comparison of Digital and Traditional Photography

The digital photograph is a new means of recording visual images. However, it is part of a history of instantaneous visual recording that goes back to the 1820s. By examining the history of photography as a whole, digital photography can be seen as simply a next step in this history of visual recording. I explore how digital photography came to be, and the ways in which it extends and departs from the traditions of chemical photography. Only by understanding the way in which traditional photography has been used and archived can we prepare to deal with born-digital photographs. By understanding the similarities and differences between the two types of photography, we can anticipate the challenges archivists will face in acquiring and retaining digital images.

Given society's increasing dependence on computers, it was only a matter of time before this technology would affect the photographic process. Advances in photographic techniques have resulted from attempts to make the image clearer and crisper and the process itself faster. This constant effort to make the photographic image better brought about progress in capturing images. Digital photography is the next step in this continuously evolving means of visual representation. With digital photography, "the new technology is helping us, forcing us, to redefine our relationship to the photograph, just as 150 years ago painting was redefined from a medium that emphasized visual verisimilitude to one that explored subjective human consciousness and the vagaries of

perception."[1] Photography has undergone changes and refinements since the introduction of the daguerreotype in 1839. Many of the changes that occurred as photography evolved are paralleled in the development of digital photography. Digital photography has had a relatively short history of about thirty years. It has evolved rapidly, much more quickly in some respects than traditional photography but computer-based images do pose their own unique problems. There are advantages, namely in the control the photographer-creator has over the images and messages to be conveyed.

Digital photography, more appropriately electronic imaging, finds its beginnings in the 1960s. At that time, the American National Aeronautics and Space Administration (NASA) used electronic analogue computers to produce and enhance images.[2] Before long, the technology was also being used for archeology, medical sciences and military surveillance: "light, measured by sensors, [could] produce images of buried cities, brain cells, DNA structure, or hidden military installations."[3] Computers did not become "digital" until around 1979. William J. Mitchell succinctly states the difference between analogue and digital – analogue is continuous and digital discrete: "Rolling down a ramp is continuous motion, but walking down stairs is a sequence of discrete steps – you can count the number of steps, but not the number of levels on the ramp."[4] The computer industry was further revolutionized in the early 1980s with the introduction of the microchip, which allowed smaller and less expensive computers to be made for a wider

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[1] Fred Ritchin, *In Our Own Image: The Coming Revolution in Photography.* (New York: Aperture Foundation, Inc., 1990), 143.
[2] Naomi Rosenblum, *A World History of Photography* (3rd edition) (New York: Abbeville Press, 1997), 630.
[3] *Ibid.*
[4] William J. Mitchell, *The Reconfigured Eye: Visual Truth in the Post-Photographic Era* (Cambridge: The MIT Press, 2001), 4.

public.[5] It did not take long for the industry to use these new inventions for the creation of digital images. Sony demonstrated the first commercially available electronic still camera in 1982.[6] This camera was not in fact digital; rather it was a magnetic video camera, and was called Mavica;[7] the images were actually analogue images. Soon, however, through the combined efforts of Apple Computers and Kodak, the first truly digital camera was introduced, the QuickTake.[8] The technology was nevertheless still fairly crude and image quality did not yet compare to that of conventional film-based photography. It would take years before digital cameras were accessible to the wider public.

Digital cameras were introduced to the public market in 1990. This type of camera was "analogous to a conventional camera only in that it records images of external reality."[9] The digital cameras were, however, created to have the "feel" of conventional cameras. The image, while still based on a light reaction, differed greatly from film-based photography. In the traditional camera, a chemically-treated film is exposed to light, which creates an instantaneous reaction, reproducing the image to which it was exposed. With further chemical treatment, the film is developed, and prints are made, most often these days by an external source. Control of these latter steps is usually in the hands of the photofinishing companies.

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[5] Rosenblum, *A World History of Photography*, 630.
[6] *Ibid.*
[7] Steven Greenberg, *The Complete Idiot's Guide to Digital Photography* (Second Edition) (Indianapolis: Alpha Books, 2002), 8.
[8] *Ibid.*, 9.
[9] Rosenblum, *A World History of Photography*, 631.

While the digital camera may resemble a traditional camera, it "more closely resembles a video camera or a scanner."[10] Like the traditional camera, the lens works to refract light, though not onto film; digital cameras have specialized computer chips. This chip, known as an image sensor, responds to the light that enters the camera, and the response is electronic, not chemical:

> The sensor is composed of a layer of silicon covered with a grid of square electrodes. The silicon is rife with negatively charged particles, or *electrons*. When light passes through the electrodes, it sends the electrons scattering. Voltage applied to the electrodes attracts the free electrons into clusters called *photosites*. Stronger light and higher voltage at a specific electrode translates to more electrons per site. A digital converter counts the electrons at each site and sends the data out to the logic board for processing. The electrons are then released back into the silicon and the image sensor is ready to use all over again.[11]

This entire process takes longer than traditional photography. Whereas a traditional camera can take a photograph in as little as 1/8000 of a second, the digital process can take up to a second or more.[12] As well, the image sensors are not as sensitive to light as film is.[13]

Given the relative newness of digital photography, the quality of image has advanced quite rapidly. A digital photograph is the result of groupings of pixels, short for *picture element*, the "basic building block of every image."[14] Today's digital cameras are able to capture many more pixels than digital cameras a few short years ago.[15] The more pixels you have, the better the quality of the photograph. If a digital photograph is 1,536

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[10] Deke McClelland and Katrin Eismann, *Real World Digital Photography: Industrial Strength Techniques* (Berkeley: Peachpit Press, 1999), 39.
[11] *Ibid.*, 47.
[12] *Ibid.*, 47-48.
[13] Greenberg, *The Complete Idiot's Guide to Digital Photography*, 13.
[14] Julie Adair King, *Digital Photography for Dummies* (Fourth Edition) (Indianapolis: Wiley Publishing Inc., 2002), 327.
[15] *Ibid.*, 74.

pixels wide and 1,024 pixels tall, in total the photograph will be composed of 1,572,864 pixels.[16] By comparison, a standard 35mm film photograph is estimated to have a resolution of about six million pixels.[17] Thus the number of pixels directly influences the quality of the image, which affects the size of the image file, as does colour.

Colour has become an expected feature of photographs. The early forms of photograph were primarily two-tone, black and white, with the intervening shades. Colour was gradually introduced through tinting. It was not until 1903 when Auguste and Louis Lumière patented the autochrome process that colour plates became a viable option. Even then, it was not until 1935 that Kodak introduced Kodachrome film. In the 1940s Agfa, Kodak and Ansco introduced new types of colour film.

Digital photographs, like other electronic records, result from the combination of 0s and 1s. A black and white image can be represented much more easily, a "0" indicating black, and "1" white.[18] For such an image, one bit, a "0" or a "1", equates to one pixel. For a grayscale digital photograph, there are eight bits per pixel. In the late 1980s, the use of eight bits per pixel for colour created the possibility of 256 colours. While this may seem like a lot, our eyes are able to distinguish millions of colours.[19] An image with only 256 seems quite garish, and not representative of what is seen. Thus, more colours were needed. This was accomplished through the adoption of RGB, the standard colour model for digital images, whereby all colours are created by mixing red,

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[16] McClelland and Eismann, *Real World Digital Photography*, 49.
[17] *Ibid.*, 50.
[18] *Ibid.*, 66.
[19] *Ibid.*, 68.

green and blue light.[20] However, most images are more complex than this. By the mid 1990s, advances in digital imaging technology made possible over 16 million colours.[21]

The number of pixels influences the size of the file to be stored. A greater number of pixels means a larger file; more colours also create a larger file. Most digital cameras compress the images, so that the image size is reduced by eliminating some image data.[22] One of the most common compression formats is JPEG, the abbreviation of Joint Photographic Experts Group. This mode "makes an image smaller by reorganizing its pixels so they can be expressed using less data. All the pixels are still there, but they're modified so they take up less space on disk."[23] Compression eliminates or reorganizes some of the redundant data, combining it, so that the file may be a smaller size. Some of the image quality is lost through compression. However, the advantage of compression is that more space is freed to store other images.

Once the digital photograph is taken, it cannot stay on the image sensor; it must be transferred to some sort of storage medium. While film is its own recorder of the image and storage medium, digital images are transferred to another form, which is often called a memory card. These are little disks that are inserted into the camera to record the image. Once the images are transferred to a more permanent storage medium, like a hard drive, floppy disk or CD, memory cards can be reused.

When storing digital images, enough information must be provided so that the images can be retrieved at a later date. Some cameras offer the possibility that metadata, or information about the image, can be stored with the image. However, at present,

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[20] King, *Digital Photography for Dummies*, 328.
[21] Rosenblum, *A World History of Photography*, 630.
[22] King, *Digital Photography for Dummies*, 324.
[23] McClelland and Eismann, *Real World Digital Photography*, 62.

metadata for digital photographs usually only comprises "such information as the aperture, shutter speed, exposure compensation, and other camera settings."[24] It may also include the date and time when the photograph was taken, but no other information, about the subject matter of the photograph or who took it and for what reason, is recorded. While the limited amount of metadata now captured is useful, this information is often lost when the image is edited. Improvements in metadata would have numerous benefits, allowing for much richer information about the image to be recorded. The addition of some form of audit trail, a record of changes to a document, would also be beneficial. Such metadata information would be especially useful when a born-digital photograph is being considered for archival acquisition. However, such advances have yet to be made with digital photography, and this lack of information is problematic from an archival perspective. Digital camera companies and software designers should look into the valuable information that could be recorded through the further development of metadata specifications for digital photography. This will be a key prerequisite for archiving digital photographs.

Historian of photography Gisèle Freund states: "All inventions are the result of experimentation and discovery on one hand, and society's needs on the other."[25] The anticipation of society's need and the cultivation of such desire drive product advances and marketing. The widespread use of digital photography is the result of such business acumen. Kodak, involved in the development of digital photography from the start, offers numerous types of cameras designed for specific needs.[26] Other camera companies have

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[24] King, *Digital Photography for Dummies*, 92.
[25] Gisèle Freund, *Photography and Society* (Boston: David R. Godine, 1980), 23.
[26] Interesting to note, Kodak, the company that was responsible for the mass use of cameras in the late nineteenth century, recently stopped sales of film-based cameras – there was no longer a market to support

also thrown their hats into the ring. The cameras offer different resolutions, different storage media, different accessories, different levels of complexity. Now even mobile phones have the ability to take digital photographs. Consumers need to be aware of these distinctions to be able to choose a camera that best suits their needs. The abundance of beginners' manuals and magazines attests to the popularity of digital photography and consumer demand for more knowledge about digital photography. The popular *The Complete Idiot's Guide* and the *For Dummies* series have both published books dealing with digital photography. They lay out the basics for the consumer interested in investing in a digital camera: the advantages of digital photography; what should be known when looking for a camera; how the cameras work; the ways in which digital photographs are stored (i.e. compression); the various in-camera storage media and computer-based storage media; the necessity of properly cataloguing digital photographs; guidance in editing digital photographs, such as colour adjustment, removing unwanted parts of images, and rotating the image; and advice on the different printers available. Consumer knowledge of digital photography is based partly on this available information, partly on information the camera and computer companies make available, and partly on personal experience.

Our increased dependence on computer technology is a main reason for the widespread embrace of digital photography. This presents one of the many advantages of digital over traditional photography: the ease and simplicity of distribution of digital photographs over email and the Internet. One of Kodak's models illustrated this. Kodak's EasyShare system invites the consumer to "Discover a new world of digital photography,

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production of traditional cameras. "Kodak to halt production of APS cameras," *globeandmail.com*, Tuesday, January 13, 2004.

all from the palm of your hand;" the Kodak Easyshare-One zoom digital camera is "more than an amazing digital camera, it's a brand new way to take up to 1,500 memories wherever you go, and share them with everyone you know."[27] All one needs to do is "Shoot (easy-to-use cameras)," "Touch (one button simple)," and "Share (beautiful pictures)."[28] As society became ever more connected through the Internet and email, it was only a matter of time before photographs would be transmitted electronically. Society demanded, and camera companies answered, or perhaps more accurately, anticipated the demand. Society demanded better quality pictures and cheaper cameras, and the camera companies are continuing to strive to meet these expectations. For those who continue to use traditional film cameras, many film developing companies, such as Wal-Mart and London Drugs, offer the option of having the images stored on CD, as well as having prints made, because electronic copies are in such high demand.

While digital photography offers various advantages over traditional photography, there are some disadvantages as well. The digital camera's dependence on the computer restricts its use to those able to afford and use such technology. A digital camera and the photographs it produces are much more effective with a high-end computer. Thus, since a traditional camera does not require such equipment, the acquisition of a computer is often an additional financial investment in the production of quality digital photographs beyond the purchase of the camera itself.

The ability to manipulate images is perhaps one of the biggest issues of concern with digital photography. For some, it is an advantage; for others it is a major worry. From the earliest days of photography, photographers have manipulated the images they

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[27] Kodak website, Kodak Easyshare System, http://www.kodak.com/eknec/PageQuerier.jhtml?pq-path=9/19/37&pq-locale=en_US , accessed April 14, 2006.
[28] *Ibid.*

produce in one way or another. Merely by choosing one subject or one angle over another, the photographer is influencing the photograph, asserting an interpretation or representation of what will be seen in the image. When first introduced, the daguerreotype was thought by some to be an exact representation of what was before them. Reacting to demand for it, manufacturers have developed increasingly simplified software to manipulate digital photographs. The beginners' manuals even provide test software, so that a potential buyer can try out the product before purchasing it. The manuals also provide step-by-step guidance on the ways a digital photograph can be edited, whether by changing lighting so objects appear in proper light, brightening the colours, and re-centring the photograph, or by going as far as adding or removing individual objects (one guide suggests that "With a little skill, you can even add Uncle Harry into the family photo even though he arrived late"[29]).

While the ability to manipulate an image has been a feature of photography since its early days, it has never been as easy as it is with digital photographs. The software to do so is often provided with the purchase of a digital camera, indicating an assumption that a digital photograph will be altered in some way. As a result, a digital photograph must always be looked at with some scepticism. As a record of fact, its truthfulness is always to some extent in question. As a record of society, the manipulations and ability to change a digital photograph become part of its societal context; any alteration can be seen as a reflection of the broader society which imposes an increased demand for higher quality, and a desire to achieve the "perfect" picture, even if this requires some manipulation. Society's conventional assumptions about photographs are brought into question with digital photography, although if we consider that photographs have never

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[29] Greenberg, *The Complete Idiot's Guide to Digital Photography*, 11.

actually reflected fully "reality" and "truth," despite what may be believed, digital photography may also still find a place as a record of some truth.

Digital photography is the latest and most radical step in this evolutionary process. Digital photographs share characteristics with many of the different photographic processes that have evolved over the years. There is an effort to make digital photography seem similar to traditional, film-based photography; nevertheless, as the basic *Digital Photography for Dummies* quips: "A digital camera may look and feel like your old film camera, but underneath the surface, it's a far cry from your father's Kodak Brownie."[30]

Digital photography mimics traditional photography, while at the same time presenting a new way to view the world. In the preface to *Real World Digital Photography*, Alex Gerard states that digital photography "offers the chance to create new, richer, and more flexible models for human interaction in a globalized, information-based society."[31] Digital images, whether born-digital or digitized, allow for almost effortless communication, with the transferring of images via email and the Internet. People and places no longer seem as far away as they once did.

Photography originated in the first half of the nineteenth century. Industrial changes were revolutionizing European and North American society and creating an expanding middle class. As Naomi Rosenblum, another historian of photography, articulates, with the diminishing power of the church and higher classes, this new middle class was becoming a more influential force for art:

> Less schooled in aesthetic matters than the aristocrats, this group preferred immediately comprehensible images of a variety of diverting subjects. To

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[30] King, *Digital Photography for Dummies*, 18.
[31] McClelland and Eismann, *Real World Digital Photography*, xiii.

supply the popular demand for such works, engravings and (after 1820) lithographs portraying anecdotal scenes, landscapes, familiar structures, and exotic monuments were published as illustrations in inexpensive periodicals and made available in portfolios and individually without texts. When the photograph arrived on the scene, it slipped comfortably into place, both literally and figuratively, among these graphic images designed to satisfy middle-class cravings for instructive and entertaining pictures.[32]

Thus a new social climate welcomed this new process, or more specifically new processes, as photography underwent numerous changes over the course of its first fifty years. Today's social climate, increasingly computer-based, has welcomed the computer-based digital photograph. The proliferation of digital image making and receiving is in many ways as bourgeois and unsophisticated in contrast to traditional film as traditional film was to nineteenth century painting. Thus the idea that society was ripe for embracing photography is just as relevant for digital photography; digital photography is creeping in and replacing the traditional photographic form. Again the middle class is in many ways the target of the new digital photographic technologies, as users of digital photography must be affluent enough to afford the cameras and accompanying technological requirements, such as computers, printers. While in the long run digital photography may in fact be less expensive than traditional photography, the initial financial output remains relatively high in comparison to an inexpensive 35mm camera and a roll of film.

The evolution of photography has been somewhat complex and not entirely sequential. One of the first important experimentations with photography came in the 1820s when Joseph Nicéphore Niépce, inspired by lithography, made advances with a "primitive photographic process" using the *camera obscura*, the forerunner to the photographic camera whereby an image is projected upside down through a pinpoint light

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[32] Rosenblum, *A World History of Photography*, 16.

source, and various chemical trials.[33] He described his process as heliography, or "sun writing." He soon entered a partnership with Louis Jacques Mandé Daguerre, but died in 1833 before their joint endeavours became entirely successful. It was then left to Daguerre to continue their work; he introduced his landmark daguerreotype in 1839. A daguerreotype plate results when a polished silver-coated copper plate is exposed to iodine vapours to produce a light-sensitive coating of silver iodide. The plate is placed in a camera, exposed, for five to seventy minutes, and then exposed to mercury vapours to bring out the image. The plate is then rinsed with distilled water, saturated with salt or hyposulphide of soda, and dried. These images were then elegantly encased. The process produces a unique, though reversed, positive image. The final image was highly reflective, and so was often referred to as a "mirror with a memory." The invention met with huge interest.

Digital photographs and daguerreotypes share many similarities. One of the most obvious is the fragility of the medium. Few daguerreotypes have survived, and those that still exist require special care and attention to ensure that they may survive even longer. The daguerreotypes were encased to ensure they were not exposed to air, which may do irreversible harm to the image. As with daguerreotypes, special care is needed to ensure the survival of a digital image. Once an image is taken with a digital camera, it is stored on the camera's memory card, which serves the same purpose as a computer disk, only its physical size is much smaller. From there, the image needs to be transferred to the computer, where the creator may save a copy, print a copy, or possibly alter the image. Once this is complete, a more active approach is necessary to ensure the image's survival. A storage medium needs to be chosen, and back-up copies made. The preservation story

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[33] Freund, *Photography and Society*, 24.

does not end there; the programs used may become obsolete, so continued attention and possible migration will be required.

Both the daguerreotype and digital photograph omit the "negative" image stage found in most other photographic processes, a "negative" being an "image in which the tones are the reverse of those in the original subject."[34] The interaction of light and chemicals produced one unique "positive" daguerreotype, and this image is not reproducible. This inability to reproduce the image only makes the original all the more valuable.

Here daguerreotype and digital images differ. In digital photography, the interaction of light and technology also creates a positive image, but unlike the daguerreotype, it is an image that is easily, even infinitely, reproducible. The image, saved in bits and bytes and seen as pixels, can be copied with ease. The flexibility of this image is much greater, as it can be adjusted and saved numerous times on a hard-drive or another storage media, and it can be printed numerous times. However, the electronic photograph is, in its own way, as fragile as the daguerreotype. In conventional film-based photography, the negative may be seen as a storage medium; digital photography does not have that luxury. If care is not taken to describe and preserve this digital image, it is at risk of being lost, erased, or rendered inaccessible. With digital photography, "there is no equivalent to an original, archivally permanent negative. This makes it even more difficult to prove or disprove the authenticity of the photograph."[35] Will digital photographs, whose existence and accessibility depends so highly on computer

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[34] Rosenblum, *A World History of Photography*, 652.
[35] Ritchin, *In Our Own Image*, 65.

technologies that may become obsolete, prove as resilient and long lasting as the daguerreotype?

Many of the insights archival scholar Joan Schwartz offers specifically about daguerreotypes, are also applicable to digital photography. According to Schwartz, nineteenth-century "French, British, and American practitioners, promoters, and critics of photography described the ways in which the new image-making processes had – or were expected to – become indispensable as a means of extending the powers of human observation."[36] Digital photography similarly changes the way we see and expands the "powers of human observation." The shift from an original image that at least has a tactile reality to one that exists only as an idea is in fact a much greater change than that of painting to daguerreotype. Digital photography has the potential to revolutionize broad public perception of reality, mainly because of its implications for how we understand visual images. More directly than previous means of making images, digital photography shakes our trust in what we see. With the daguerreotypes there was a "firm belief in the reliability and authenticity of photographs as evidence."[37] While the daguerreotype was believed to be a "mirror with a memory," reflecting precisely what was before the camera, digital photography presents more strikingly an illusion of reality. What is presented has perhaps been altered, even if only by removing red-eye, or making colours brighter. Digital photographs must be looked at with some scepticism as to their ability to accurately record what is seen. This may, however, create a permanent state of scepticism in society toward modern media. With the manipulation of photographs and moving images, people may stop putting faith in images of any kind. Basic manuals warn, for

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[36] Joan M. Schwartz, "'Records of Simple Truth and Precision': Photography, Archives, and the Illusion of Control," *Archivaria* 50 (Fall 2000), 5.
[37] *Ibid.*

example, that digital photographs have "led many people to question whether we now live in an age when the photograph simply can't be trusted to provide a truthful record of an event."[38] This indeed alters the "powers of human observation," causing a need to read photographs in a different manner.

The susceptibility of digital photographs to manipulation does not, however, alter the function behind them, or their ability to "convey their message through function and context."[39] Thus, "in our assessment of truthfulness, content must not be conflated with message."[40]

Schwartz also suggests that the "daguerreotype offered a way of seeing across space and time."[41] For example, daguerreotypes of foreign places could allow the viewer to travel to these distant places without leaving the comforts of their home. As a result, "[p]hotographic witnessing became a substitute for eye witnessing."[42] One of the benefits of digital photography that is often stressed is the ease of distribution. Within seconds of taking a digital photograph, the image can be transferred to a computer and from there, it can be attached to an email, or placed on a website, for others far distant to see almost instantaneously. This ease of transfer is accentuated by mobile phones that are able to take digital photographs. There is no longer a need to wait for images to be developed, or even to scan the image into the computer first. Within minutes or even seconds, the digital image can potentially be viewed globally; for example, baby and wedding photographs can appear instantaneously and be viewed by relatives unable to attend the

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[38] King, *Digital Photography for Dummies*, 247.

[39] Joan Schwartz, "'We make our tools and our tools make us': Lessons from Photographs for the Practice, Politics, and Poetics of Diplomatics" *Archivaria* 40 (Fall 1995), 44.

[40] *Ibid.*

[41] Schwartz, "'Records of Simple Truth and Precision,'" 8.

[42] *Ibid.*, 11.

important event. This drastically changes the way space and time are perceived in the digital world, a world made smaller through the computer. This parallels the effect of the daguerreotype and other photographic processes on Victorian society.

Regarding its relationship to notions of time, the photograph "served as an *aide-mémoire*, a device of memory, a form of time travel," according to Schwartz.[43] Digital photographs too serve in popular thinking as such a "medium of preservation."[44] However, more effort must be invested in their preservation than is the case with earlier forms of photography. One digital photography manual suggests that "[d]igital images… will last forever if carefully stored."[45] This extends, almost infinitely, this "form of time travel." The possibility of long-term preservation of a digital image exists. The main difference between traditional and digital image preservation is the tangibility of form which gives the illusion of permanence. A traditional photograph most often requires a paper-based preservation, while a digital photograph requires a bits and bytes computer-based preservation. The traditional physical photograph is prone to deterioration but digital photographs, though they do not "fade, yellow, wrinkle, rip, scratch, or rot" and are essentially infinitely copiable,[46] are fragile in their own way, for they may be easily deleted, altered, or even lost completely because of obsolete programs or technology.

The volatility of photographic media can be countered somewhat by greater attention to the context of the creation (including manipulation) of photographs. Regardless of the changes in photographic media, photographs have always served the functions of their creators: "the photograph was, and continues to be, the material

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[43] *Ibid.*, 17.
[44] *Ibid.*
[45] Greenberg, *The Complete Idiot's Guide to Digital Photography*, 11.
[46] McClelland and Eismann, *Real World Digital Photography*, 11.

evidence of human decision to preserve the appearance of a person, an object, a document, a building, or an event judged to have abiding value."[47]

The idea that "photography was transparent, invisible; the photograph, by extension was neutral, objective, unmediated"[48] is no longer accepted even for traditional photography. The creator's influence is always present in records, guiding the message to be conveyed.

The daguerreotype replaced the painted miniature as the portrait of choice for the middle classes. It remained popular throughout the 1840s and 1850s, a period which saw a decrease in the required sitting time for the production of a daguerreotype. This decrease, combined with decreased cost when compared to the older form of miniature portraiture, contributed to its popularity. Nevertheless, the daguerreotype had its limitations, namely the fact that only one portrait could be produced at a time; multiple copies could not be produced. This is drastically different from digital photography, where its reproducibility is one of its key features.

At the same time that Daguerre was introducing the daguerreotype in France, other photographic advancements were also occurring. William Henry Fox Talbot was working across the English Channel from Daguerre in England on a process he called photogenic drawing, which later became known as the calotype or Talbotype. While not as popular or widespread as the daguerreotype, which was made readily accessible by the French government when it purchased rights to the process, the calotype did "provide the basis for all substantive developments in photography."[49] Talbot's process involved the production of a paper negative, made by applying a sodium chloride solution to fine

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[47] Schwartz, "'Records of Simple Truth and Precision,'" 19.
[48] *Ibid.*, 32.
[49] Rosenblum, *A World History of Photography*, 15.

paper, which after exposure, was fixed, dried, and then either waxed or oiled to produce a transparent negative. From the negative, a positive print could be made; light-sensitive paper (sodium-chloride paper sensitized with silver chloride) was put in contact with the negative and placed in direct sunlight, and through exposure, the image would gradually appear and was then fixed, washed and dried. The use of paper to make the negative resulted in an image that was not quite as sharp in detail as the daguerreotype, but could be reproduced more than once. This sharpness of image quality has also plagued digital photography. The pixel technology of a digital photograph means that "the bigger the pixel, the easier it is for your eye to figure out that it's really just looking at a bunch of squares."[50] Early digital images were easily identified as digital, with image quality that was vastly inferior to conventional photographic prints. Thus, early digital image technology shares a common link to the calotype, in that it was an early step in the pursuit of better quality images.

Following the calotype, the ambrotype was another popular form for portraiture, and like the daguerreotype, was a unique image. The ambrotype was developed following the discovery of the wet collodion process by Frederick Scott Archer in 1848. Collodion, a mixture of gun cotton, ether, and alcohol, as well as potassium iodide or bromide, was used to coat a glass plate, which was then bathed in silver nitrate, making it light-sensitive. The plate could then be exposed, but it needed to be developed immediately, before the solution dried, hence the name "wet-plate" process. The result was a negative image on a glass plate, whereas the daguerreotype was a positive image on a copper plate. No print was made from this glass plate negative. The ambrotype was patented in 1854 by John Ambrose Cutting. In that process a positive image could be produced by

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[50] King, *Digital Photography for Dummies,* 29.

placing an opaque, usually black, surface behind the negative. These images were often enclosed in cases similar to those of the daguerreotypes, and thus are often confused with them. The main differences between the two are that the daguerreotype is reflective, very much mirror-like, and contains a reverse (backward) image. Being transparent, the ambrotype could be reversed to correct the backward image. The process was known more commonly in Europe as a collodion positive on glass. Regardless, the result was still a single image; multiple copies were not possible with this process.

The tintype, or ferrotype, is made from a similar process; however, instead of a glass plate, a thin, enameled or varnished iron plate is used. The result was cheaper and more durable than earlier forms of photography, and therefore such "photographs" were often sent in the mail, and like daguerreotypes and ambrotypes, they were often encased. This mail-ability is a quality shared by digital photographs. The tintypes were considered less precious than daguerreotypes and ambrotypes, and therefore those that survive are often not in good shape. The fact that they were cheaper, however, means "they are often less formal and document a social stratum different from that of the other processes."[51] In this respect as well the digital photographs are similar to tintypes; digital photographs are most likely to be somewhat informal in composition. At present, they are also perhaps less valued than a nicely presented conventional photograph.

In the nineteenth century, photography was a means of reflecting wealth and status. Not everyone could afford to have a portrait taken. Those who practised photography could afford the expensive equipment and had the time to do so. It took years for a process to be developed that would be generally accessible to society. The same can be said of digital photography. When first available commercially, the cameras

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[51] Leslie Mobbs, "One of a Kind," *The Archivist* 16, 3 (May-June 1989), 5.

and accompanying computer technology were very expensive; very few could actually afford to purchase the technology. As well, the digital image produced did not yet match the quality of images produced with the more traditional means; the quality and price of digital photography were not yet at levels needed for mass use.

Following the introduction of photography, some entrepreneurs, especially former miniature portraitists, saw it as a means of generating an income. To increase his income, Frenchman André Adolphe Disdéri realized, in the mid-1850s, that he needed to attract a broader clientele. He developed the *carte de visite,* a photograph attached to a card. This became perhaps the most popular form for wet-plate prints. Determined to reduce costs, Disdéri reduced the size of the portraits he created so that more photographs could be produced. The *carte de visite* format achieved popularity in France only after Napoleon III sat for a portrait, and helped make it "the principal style of portraiture throughout the world."[52] Also popular and produced through the wet-plate process was the stereoscopic photograph. This was composed of two side-by-side photographs which, when viewed through a stereoscope, imitated the perspective of seeing through two eyes, and thus produced a three-dimensional effect.

The aforementioned forms of photograph required special papers; ordinary paper would not "develop" an image. The paper used for producing photographs needed to be sensitized by some means for the image to appear. One of the first methods used was salted paper. The paper was soaked in sodium chloride and dried. The paper was then made light-sensitive by floating it in silver nitrate, which produced silver chloride in the paper. This was the type of paper used by Talbot for his calotypes. Albumen prints were

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[52] Mary Lynn Ritzenthaler, Gerald J. Munoff, Margery S. Long, *Archives and Manuscripts: Administration of Photographic Collections. SAA Basic Manual Series* (Chicago: Society of American Archivists, 1984), 41.

first introduced in 1850 by Louis Blanquart-Evard. Albumen emulsion, introduced in 1847 by Abel Niépce de Saint-Victoir, was used for glass plates as well, but this required a long exposure time and thus was impractical for portraits. The albumen print, however, "became the dominant printing process of the nineteenth century."[53] Albumen (egg white) was mixed with sodium or ammonium chloride and, when needed, was sensitized with silver nitrate. The image was revealed through "printing out," leaving a glass plate on the paper in direct light until the image appeared. The next major innovation occurred in 1871 when Richard Leach Maddox introduced a gelatin emulsion, which could be used on glass, film, and paper. On glass, this revolutionized the negative process as the gelatin did not need to be wet like collodion, and thus this process was known as the dry-plate process. Dry plates could be transported to a darkroom so darkrooms no longer needed to be transported to the chosen site where the photograph was to be taken. This, along with a faster emulsion time, "made the gelatin emulsion a revolutionary development in photography."[54] A slightly acidic solution with gelatin, as well as either bromide or chloride, was used to coat the plate or paper, and later was made to react with silver nitrate to produce either light-sensitive silver bromide or silver chloride. This could be used on glass or paper. Another advantage was that the coating of the base material could be done well ahead of time, and could even be purchased already sensitized, facilitating the photography process.

While digital photography's main image output is digital, and the computer is the primary means of storing the image and providing access to "the original," a need for some conventional tangible form for the image will likely continue. Though society is

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[53] *Ibid.*, 39.
[54] *Ibid.*, 43.

adapting to the virtual computerized image, we remain tactile creatures. Many people still want to read on paper, to listen to live music, and to hold a photograph in their hands. With digital photography, a printer is often needed, one that contain colour or black and white inks. Quality and type of paper, printer and ink all influence the quality of the print. Where a standard film print may last ten to sixty years, printouts of digital images may last a much shorter time.[55] Paper types, such as the typical multi-purpose paper, laser printer paper, or even special photo paper, will influence image quality (and cost). Image quality on paper will most likely not be as refined as that on the computer screen. The print, however, is not the main objective of digital photography. For, "[i]f that were all there was to digital photography, it would be nothing more than a fleeting novelty. The purpose of any worthwhile innovation is to go where no technology has gone before, and digital cameras are no exception."[56]

While photography democratized portraiture by allowing more people to acquire portraits at reasonable prices, the democratization of photography as a pastime took longer to occur. Until the 1880s, photography was reserved for the elite, because camera equipment and paraphernalia were expensive and cumbersome. George Eastman and his Kodak cameras revolutionized the practice of photography in the 1880s. His first camera was introduced in 1888. It could be purchased for twenty-five dollars and was loaded with 100 exposures on a film roll. Simple to operate, the photographer only had to abide by the advertising slogan "You press the button and we do the rest." Once the photographs were taken, the camera was sent to back to the Eastman Company, where the photographs were developed. The processed photographs and newly reloaded camera

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[55] King, *Digital Photography for Dummies*, 171.
[56] McClelland and Eismann, *Real World Digital Photography*, 65.

were then returned to the photographer. The age of amateur photography had begun. Interesting comparisons can be made between the ways Kodak cameras and digital cameras revolutionized picture-taking. Digital cameras in many ways reverse the "You press the button and we do the rest" approach. Digital photographic technologies allow the photographer greater control over the creation of their photographs. With the earliest Kodak cameras, "the developing, cropping, printing, mounting – the technical processes that legitimize all other forms of photography – are here made invisible."[57] Through specially designed software, these processes are becoming visible again; with digital photography, there is a return to the earlier days of artistic control involved in the production of photographic images.

Technological refinements in photography continued after Eastman's introduction of the Kodak camera. Eventually a means of achieving colour images was discovered. Autochrome Lumière, the first color photography process, was marketed in 1907. It remained the only colour process available until 1935 when Kodak introduced its Kodachrome films. Digital colour images offer a distinct advantage over conventional colour prints; colour prints are prone to deterioration and at a rate faster than black and white prints. No solution has yet been found to prevent colour fading in traditional photographs. Digital images, whether black and white or colour, are able to be preserved without deterioration, although colour affects the size of the digital file, with colour requiring more bits per pixel.

When the Eastman Kodak Company first introduced its new easy-to-use cameras, the company "associated snapshot photography with the world of leisure" and "sought to

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[57] Nancy Martha West, *Kodak and the Lens of Nostalgia* (Charlottesville: University Press of Virginia, 2000), 7.

redefine amateur photography in terms of ease and simplicity."[58] Digital photography in many ways reemphasizes photography as a leisure activity. With editing programs, photographers are able to manipulate, or "play" with the photographic images taken by a digital camera, and to create what they believe to be the best representation of the particular message they want to convey. This is becoming ever easier and simpler. Costs of technology have gone down; downloading images from camera to computer has become easier; cameras often come with their own editing software; programs are easier to use, more "user-friendly." The Kodak Company even provides Photo CDs, digital copies of conventional photographs, to allow their creators the ability to edit and manipulate.

In the decades after 1888, amateur photography became "an obligatory act of preserving memories as defense against the future and assurance of the past."[59] During the First World War, the Kodak Company emphasized this aspect of photography, and thus created "a culture of amateur photographers who cared much less about the play of photography than about its capacity for mnemonic labor."[60] While digital photography can be a means to "preserve memory," and most people may be assuming that archiving digital photographs will be unproblematic, it is probably valued more at this point because it allows easy creation and distribution of images. Preserving or archiving digital images is stressed in the how-to books on digital photography. Archiving is in some respects less labour-intensive with traditional photography, as the film negative, if it exists, is the basic storage medium; the best reprints are produced from the negative. The challenge has been to keep track of the negatives. With digital photography, the storage

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[58] *Ibid.,* 15.
[59] *Ibid.,* 13.
[60] *Ibid.,* 17.

medium is electronic. To keep track of the hundreds of photographs on a hard drive or CD, proper precautions must be taken to label and sort them. According to one manual on digital photography, "assuming you're willing to make multiple backups and check those backups over time, you can make an image file last a lifetime."[61] Thus, in many ways, digital photography represents the pinnacle of memory-preserving techniques; film is fairly stable, but nevertheless does deteriorate over time, while digitally created photographs have the potential to last indefinitely, if the proper precautions are taken.

Digital preservation is by no means a simple process. Archivists continue to grapple with the issues around the long-term preservation of electronic records in textual form. Digital photographs require specific hardware and software for the images to be accessible. If these programs continue to be readily available, there may be little problem in reading and rereading the digital photographs over multiple generations. However, technology will continue to progress, and current programs may become obsolete. For example, it is becoming increasingly difficult to access records in particular forms, such as five inch floppy disks, 78 rpm records and audio cassettes. If archivists pressure hardware and software producers to consider these issues, perhaps jointly they may be able to make this preservation task easier, for example, by providing built-in migration paths to new generations of computer technology, or by developing some means by which any past digital photography technology could be brought into use again. By working together, it may be possible to help avoid leaving records of archival value trapped in little known and hard-to-access technologies. At a minimum, archivists will need to stay abreast of the changing technologies that can accomplish this if they hope to preserve digital photographs over the long term.

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[61] McClelland and Eismann, *Real World Digital Photography*, 354.

A knowledge of the history of photography will help any archivist better address the specific challenges presented by digital photography. A photograph, whether digital or traditional, is more than just the sum of its parts, more than light, chemicals or bits and bytes. An image is created within various contexts: there is the technological context, but also societal and creator contexts, and even a functional context. An understanding of all these various contexts can help the observer to more fully understand the record and enrich its meaning and message. Digital photography is another stage in a continually evolving means of visual recording. When we understand the ongoing need for and use such technologies, we better grasp a digital photograph's importance as an archival record.

Let us consider the societal issues related to traditional photography. Ideas about the nature of photographs, and whether they were to be considered as art evolved in parallel with nineteenth-century technical photographic processes. While painting was an extension of the artist, for many the photograph was seen merely as a mechanical process that reflected what was before the camera. Many early daguerreotypists had been artists who turned to the new process to earn a living. For example, in France, Nadar, a former poet and caricaturist, took up photography out of economic need and became an acclaimed photographer. His portraits are imbued with an artistic sense, reflecting not only the individual but the personality of the subject as well; he "sought not the exterior beauty of a face, but the inner spirit of a man."[62] Artistic expression thus could be part of the photographic process. However, as commercialization edged its way into photography, the artistic emphasis became less and less apparent. Disdéri's portraits, in stark contrast to Nadar's, were devoid of personality, which were "almost entirely

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[62] Freund, *Photography and Society*, 42.

obscured, buried beneath conventional social types."[63] In Canada, William Notman was the most famous early photographer, and "tended to promote some of the worst features of Victorian photography – studio scenes and composites."[64]

Whether artistic or not, the photographs are representative of their time, their societal context, and they have important stories to tell future generations. The same can be said of born-digital photographs. One of the most controversial aspects of digital photography, which relates to its technological context, is the ease with which digital images can be manipulated. Editing programs are often provided with the purchase of a camera. This allows the creator to change colours, centre the photograph differently, remove unwanted portions of a photograph, and change the exposure to make things lighter or darker. The image is left less to chance, and more to the creator. This serves to further obscure the line between image as document and image as artistic creation. Robert Hirsch, an art historian, asks whether the "seamless ease with which digital technology allows photographs to be combined and manipulated suggests that future photographs might be a hybrid of mixed media based not on an observable reality of actual events, but on the inner workings of imagination."[65] The creator has a greater control over the digital photograph so that the picture, to a certain extent, becomes more reflective of the creator than of any form of reality. The extent to which an image has been changed, however, may not be known. It may be that no changes have been made to a digital image, or there could be many changes; the viewer may not be able to tell. Thus a new way to read such images is needed. We have entered a time when there is greater scepticism about the

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[63] *Ibid.*, 61.

[64] Ralph Greenhill and Andrew Birrell, *Canadian Photography: 1839-1920* (Toronto: Coach House Press, 1979), 51.

[65] Robert Hirsch, *Seizing the Light: A History of Photography* (Toronto: McGraw Hill, 2000), 470.

possibility of knowing objective reality – in word or in image. An image cannot be severed from an understanding of its creator – or of the person who is currently displaying it. Visual meaning cannot be solely constructed from the details of the image; every stage of its provenance and an understanding of the reason for its creation must be identified. The images are still representative of their time, and these aesthetic desires and creative purposes need to be considered when evaluating digital photographs.

The uses for photography changed as the nineteenth century progressed. Initially photography was mainly used for portraits. It was also used for nature; a few daguerreotypes still remain showing Niagara Falls. It was also used for scientific study, as a means to "accurately" record observations. Nineteenth-century creators saw their photographs as a form of documentation, with "pictures taken with an intent to inform rather than to inspire or to express personal feelings."[66] Photographs were seen as an "unproblematic means of expanding knowledge of the visible world."[67] While today, photographs are no longer thought to be such objective reflections of reality, an understanding of contemporary thought regarding photographs is important to fully contextualize them. Andrew Birrell terms this the "complete archives on photography:" archivists need not just concentrate on and acquire the photographs themselves, but must also recognize "the influence the medium has had in shaping our attitudes and in revolutionizing the modern world; the way it has grown and changed."[68]

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[66] Rosenblum, *A World History of Photography*, 155.

[67] *Ibid.*

[68] Andrew Birrell, "Criteria for Collecting: the Public Archives," *Transcript: Canadian Perspectives*, A National Conference on Canadian Photography, hosted by Ryerson Polytechnic Institute, Photographic Arts Department Toronto, 1979, 248.

If, as one manual proposes, a digital photograph is "an ephemeral collection of colored pixels that are bound only by your ability to master certain software routines,"[69] it will be important to understand these routines, and be able to account for the image's existence. Digital photography is a cutting-edge technology, and one that is likely to gain further acceptance as the technology is improved and prices decrease. As Schwartz points out, "the meaning of a photographic document lies not in the content or the form but in the context of document creation."[70] Understanding digital photography in its richness, and for its context, will allow for a more thorough representation of visual images that are currently being created to record for future generations the lives of today. For this to occur, archives must begin to acquire digital photographs and ensure their preservation. Photographs were not immediately seen as an archival media, to be appraised, acquired, described and preserved in archives. They have often come to archives from private donors as single images, thought to illustrate history and the way things have changed. In such cases, the contextual information from surrounding images is lost; perhaps much contextual information is indecipherable, and only the content is left to provide all archival significance. Early forms in the photographic process, such as daguerreotypes, are rare in archival collections. Had archival practice been further advanced at that time, and these more actively archived, more would likely survive today. Digital photographs should not suffer the same fate. Archivists have an opportunity to ensure that digital photographs, from an early time, have a place in archives, so that future archives users need not curse archival short-sightedness in preserving this increasingly important and popular means of recording visual images.

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[69] McClelland and Eismann, *Real World Digital Photography*, 65.
[70] Joan Schwartz, "'We make our tools and our tools make us,'" 46.

Digital photographs are seen with some trepidation by many archivists, who are uncertain and perhaps a little fearful of their complexities and demands. I hope that this thesis will alleviate at least some of these concerns and stimulate further thinking about the challenge of archiving digital photographs. This survey of the history of photography helps that effort by highlighting the distinctive features of digital photographs and by recalling that photographs have always presented complex challenges to archives. The increasingly contextual intellectual approach, as advocated by archival scholars such as Joan Schwartz, remains one of the key means of addressing the challenges presented by digital photographs. With this historical and contextual approach we can move forward to deal with a digital means of visual representation that is fast becoming *the* means of creating a still visual image in the twenty-first century.

Chapter Two

Digital Photographs and Archival Theory

Digital photographs challenge conventional archival thinking. Traditional archival theory supported efforts by archivists to sustain records in an unchanging state across time. More recent thinking about archives suggests that this is a misleading view. It maintains that records evolve, as they change physically (through natural decay, neglect, damage, and/or reformatting) and take on new meanings (or identities) as a result both of the physical changes and of constant recontextualization by archivists and others. Electronic records such as digital photographs bring home this point in a striking way because they are so obviously susceptible to major physical changes (as they require active preservation reformatting as their technological support evolves) and to editing or manipulation of their information content, which affects the evidence they convey.

A view of archival theory inspired by postmodern insights into communication can be more helpful in understanding this critique of traditional notions. The postmoderns suggest that means of communication shape what we can know. They are not neutral carriers of messages. To understand their messages, as best we can, we need to understand as much of the context of their creation as we can. That context is broad, as it extends to the entire history of a communication in question. We can never know this complex context in its entirety. As we learn more about it, the archival records/communications evolve in light of new contextualizations of them over archival timeframes. Archival description must reflect as much of this always changing context as

possible. It can no longer focus exclusively on the description of the initial inscription of the record, in a misguided effort to freeze the meaning the record may have had at that point only.[1]

By adopting a postmodern view of archival theory, born-digital photographs can be better understood and accepted as an important archival resource. Digital photographs should be viewed in relation to their multi-layered context (especially their functional, technological, archiving, and use contexts), rather than simply in relation to their content and status as immutable evidence, especially of the initial act of inscription. If this is done, the issues surrounding their malleability, which does affect their integrity, authenticity and reliability, can be addressed and understood, and even accepted as merits, rather than fatal flaws. A digital photograph can then be seen as a record with archival value. This chapter will outline this perspective on the relationship between digital photographs and archival theory.

By embracing a postmodern definition of a record, a digital photograph can be seen, like any other record, as a type of meaningful communication that "is an evolving mediation of understanding about some phenomenon - a mediation created by social and technical processes of inscription, transmission and contextualization."[2] A record, any record, including a digital photograph, is more than just content. By only looking at

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[1] Canadian archival educator Luciana Duranti expresses this view when she writes that "to declare a document authentic means to say that it is precisely as it was when first transmitted or set aside for preservation, and that its reliability, or the trustworthiness it had at that moment, has been maintained intact.... The identification of the documents, the assignment to them of an intellectual and physical space in the whole of the authentic documents, that is, their location and description in context, by freezing and perpetuating their interrelationships, ensure that possible tampering will be easy to identify. Because of all this, any document that has passed the archival threshold, for as long as it exists, is truly a permanent monument to its creator's actions." See her "Archives as a Place," *Archives and Manuscripts* 24, no. 2 (November 1996), 247.
[2] Tom Nesmith, "Reopening Archives: Bringing New Contextualities into Archival Theory and Practice," *Archivaria* 60 (Fall 2005), 262.

content, much information and interpretation is misrepresented or lost. There are a number of contexts that influence the creation of a record, and also contexts that influence the user of the record. For instance, the same record could be read very differently by a historian interested in women's history as opposed to one who specializes in economic history. The reality that records communicate is always changing or evolving as a result of the social and technological forces that affected the initial creator, and the subsequent life of the records following this initial creation, including the very act of archiving – a record gains a new value or meaning if it finds a home in an archives. The record is constantly imbued with new physical forms and new meanings. It evolves, is never static and is always changing. While true for all records, it is in many ways accentuated for born-digital photographs. The reproducibility of the digital image facilitates using an image in different ways, which decontextualizes and then recontextualizes it. With a traditional photograph, a copy of the original image loses some quality, and in a copy of this copy, even more is lost; the best reproduction is from the original negative. Similar changes can affect digital photographs, although some appear to assume they are an ideal archival technology. One scholar writes (overlooking the impact of technological reformatting across generations of time and technologies) that with digital photographs, the image's pixels can be "replicated precisely, so a digital image that is a thousand generations away from the original is indistinguishable in quality from any one of its progenitors."[3] Yet, change can occur when copies are made from copies and information can be lost through compression and conversion of digital files. Nevertheless this comment illustrates the assumed ease with which digital photographs can be replicated.

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[3]Mitchell, *The Reconfigured Eye*, 6.

Archivists have typically aimed to freeze a record in time and space and transmit it unchanged to future generations. Canadian archival educator Terry Eastwood outlines some of the characteristics of records that archivists have traditionally aspired to uphold in order to preserve a static record in a kind of idyllic state of nature. British archivist Sir Hilary Jenkinson (1882-1961) was among the first English-speaking archivists to state these pillars of archival theory as impartiality, authenticity, and naturalness. To these, Eastwood adds uniqueness.[4]

According to Eastwood, these characteristics of the context in which records are created and reside "explain why archives cannot be treated solely for their content, for the information they bear."[5] A single photograph, whether the result of traditional or digital photography, should not be managed by archivists solely on the basis of information about its subject content. Recalling Jenkinson, Eastwood states that "[i]n order to conduct affairs, and in the course of conducting affairs, certain documents are created to capture the facts of the matter of action for future reference, to extend memory of deeds and actions of all kinds, to make it enduring."[6] For these records to be genuinely archival, they must have the quality of impartiality, which for Jenkinson and Eastwood means that a record was not created "in the interest or for the information of Posterity."[7] Records that are created impartially ought also to be physically arranged without intent to slant their subsequent interpretation. These records will have the quality of "naturalness."

However, many records have been made with a concern about the long-term impact that the record will have in the organization that created it, in the creator's

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[4] Terry Eastwood, "What is Archival Theory and Why is it Important?" *Archivaria* 37 (Spring 1994), 128.
[5] *Ibid.*
[6] *Ibid.*, 125.
[7] Hilary Jenkinson as quoted in *ibid.*, 127.

personal or family life, and on society. They have also been organized in ways that either conceal or make available that record. It would be nearly impossible to identify those that do not have the qualities of "impartiality" and "naturalness" and then separate them out as non-archival (?) from those that are supposedly impartial and natural, assuming that that was even the right action to take with them. Usually, "posterity" plays an important role, as the images are a reminder of an event, such as a birth, wedding, or funeral. Photographs, for example, are in many cases made to be reproducible; this is one of the attractive features of the technology. Thus photographs, other than a few exceptions, are not "unique."

For Jenkinson and like-minded contemporaries, a record that is impartial and natural is thus made reliable, and can be received years later as trusted authentic evidence of the actions of its initial creators, as long as "the record does not result from any manipulation, substitution, or falsification occurring after the completion of its procedure of creation."[8] The aim of the archivist is to guard and hand on the reliable, authentic record. The ease of manipulation of digital photography represents one of the greatest challenges to this. If digital photographs must have these qualities to be archival, it is unlikely they would ever be acquired by archives and much valuable information would be lost. Rather than suffer that loss, archivists can try to outline as far as possible the strengths and weaknesses of the evidence through their research into the history of the records. Canadian archival educator Tom Nesmith has written that archivists can work to preserve the integrity of the records through more than simply being a guardian of its properties, but "by unraveling the often complex histories of the records so that their

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[8] Luciana Duranti, "Reliability and Authenticity: The Concepts and Their Implications," *Archivaria* 39 (Spring 1995), 7-8.

users may make more informed interpretations of the evidence they convey."[9] As records

are "imperfect" evidence, much of what they convey "will be understood as archivists

and others learn more about the history of the records. Thus the utility, reliability, and

authenticity of archival records are directly related to the ability of the archivist to

interpret or contextualize records as fully as possible, rather than based simply on

observing and guarding those attributes of records."[10] By approaching photographs

contextually, whether the context shaped by the initial creator or later user, as each use

shapes a new context and can reflect a new function, a new understanding of the

photographic record can be gained, an understanding that helps illustrate the importance

of photographs, and digital photographs especially.

Joan Schwartz, the leading Canadian archival scholar writing about photography,

proposes that a functional approach to photographs may prove beneficial for archivists in

this setting of documentary fluidity. Her arguments are convincing. In some respects they

are even more convincing for digital photography. If we consider digital photographs in

relation to their function, or functional context, as Schwartz suggests for photographs in

general, their value can be found in these manipulations, and is not necessarily

diminished by the manipulations.

For example, if we consider the concept of the "original," following Luciana

Duranti, the "original" can be viewed as the most reliable record, as it "has the maximum

degree of completeness required for the specific type of record" and "it is subject to the

highest degree of control in the procedure of creation."[11] While written with seemingly

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[9] Tom Nesmith, "What's History Got to Do With It?: Reconsidering the Place of Historical Knowledge in Archival Work," *Archivaria* 57 (Spring 2004), 26.
[10] *Ibid.*
[11] Duranti, "Reliability and Authenticity," 6-7.

more stable textual records in mind, and administrative and legal records in particular, Duranti's statement runs into difficulty with the more obviously fluid digital photography. The initial and most accurate digital image is not necessarily the most "complete." While in its uncompressed form it contains the most information, the most pixels, and hence requires the most storage. The original image straight from the digital camera is not necessarily the one desired, merely a rough draft of sorts. The creator may make adjustments, to present the "complete" image. This control and manipulation at present cannot be authenticated through metadata and audit trails. The concept of the original reinforces the idea that there is only one, a unique image, a characteristic Eastwood stresses.

Schwartz also challenges this assertion for photography: "How, then, can we apply the diplomatic concept of the original to photographs when…'the very principle of photography is that the resulting image is not unique, but on the contrary infinitely reproducible.'"[12] The reproducibility, made even easier with digital photography, creates a new "original," which is accompanied by a new context and new function, a new reason for its being. With digital photography, a copy may be more or less identical to the first. As well, this new "original" likely has a new function. For this reason, a functional approach to photographs, and digital photographs especially, can help in incorporating them into an archival setting. Fulfilling a function, their message can be understood even if their content may need to be viewed with some suspicion and scepticism. As Schwartz states: "archival photographs convey their message through function and context."[13]

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[12]Schwartz, "'We make our tools and our tools make us,'" 46.
[13] *Ibid.*, 44.

Accordingly, "in our assessment of truthfulness, content must not be conflated with message."[14]

To maintain a functional approach when looking at digital photographs, they must be viewed first in the context in which they were created and used. They were created or used for a particular purpose, whether to illustrate a business event, process, product or function, or to commemorate an event. There is a reason why they were created, and for such images to be acquired archivally and for them to have the most archival value, their function and surrounding contexts must be known. As Schwartz points out, "the meaning of a photographic document lies not in the content or the form but in the context of document creation."[15] This process of creation, shaping why a photograph was taken, which may include documentation about the possible manipulation process, needs to be understood, so that future users of a photograph, whether traditionally or digitally created, can begin to appreciate the image before them. Schwartz writes: "Photographic images are decontextualized and recontextualized into photographic documents, and in the process assume new functions and acquire new meanings with new contextual configurations."[16] Taking this one step further, as a record continues to evolve, so too will its function. The initial purpose behind the initial inscription of the image will take on a new function when placed in a new context. As well, the initial inscriber may change the image as time passes, such as by removing an individual after a divorce. Thus, just as a photograph is ever evolving, its new uses will also give it new contexts and functions. With digital photographs this is accentuated

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[14] *Ibid.*

[15] *Ibid.*, 46.

[16] *Ibid.*, 50.

since, because of their electronic format, they can be easily manipulated and easily distributed over email and the Internet.

By understanding the factors that went into the creation and use of a digital photograph, the societal forces that promote a need for a "perfect" photograph, and the function (the purpose for which the photograph was required), the archivist and the user of archives may be able to decipher the intended message of the photograph, even if the image has been manipulated. Schwartz adds that a "photograph is neither truth nor reality, but a representation willed into existence for a purpose and mediated by the persons concurring in its formation. Its message is embedded in the visual transcription of facts, but emerges only in functional context."[17] Ultimately the message often needs to be teased from a photographic source. Archivists require an understanding of the forces involved in the creation of such a record, so as to elucidate its functional and overall context, and provide users with the tools they will need to decipher photographic messages and meanings.

Furthermore, according to Schwartz, "diplomatic principles and concepts may help to break the presumed link between the photographic image and visual 'truth' by revealing the photograph to be a *mediated representation of reality*; the product of a series of decisions; created by a will, for a purpose, to convey a message to an audience."[18] No photograph will ever illustrate "truth;" all records, whether photographic or textual, are representations of the truth.

For digital photography, such representations are partly mediated by computers, part of their technological context. For traditional photography, "physical form is an

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[17] *Ibid.*, 44.
[18] *Ibid.*, 55 (emphasis added).

essential part of the message… part of the way in which the photographic document conveyed the message of its author to the intended audience."[19] Digital photographs, too, have a physical form different from other photographs, a "physical form" without tactility. They are expressed as bits and bytes, through pixels. This new and different virtual "physicality" presents digital photography with benefits, such as ease of transmission via the Internet and email, and now even mobile phones. Consider, for example, that the "images that defined the media coverage" of the July 2005 terrorist bombings in London, England were captured with mobile phones.[20] Understanding the benefits of digital images can help to determine why the record was created in the digital form and add to and enrich the context of the given image.

Schwartz's analysis focuses on traditional photography. To ascertain the authenticity and genuineness of a photograph, the physical object as well as the visual information must be examined.[21] However, with digital photography, a tactile physicality is absent; the image may exist only in the virtual electronic world, which requires different examination techniques. For this reason, digital photography, like other electronic records, may also need to depend on another source of information (metadata) to maintain any semblance of authenticity and genuineness.

To appreciate as fully as possible a digital photograph's value, archival or otherwise, proper metadata is a considerable advantage. Such information contributes to the history of the record, ideally including an audit trail so that the changes that may have occurred to a photograph can be traced. Unfortunately as there is no negative created in

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[19] *Ibid.*, 58.

[20] James Owen, "London Bombing Pictures Mark New Role for Camera Phones," *National Geographic News*, July 11, 2005, http://news.nationalgeographic.com/news/2005/07/0711_050711_londoncell.html, accessed May 5, 2006.

[21] Schwartz, "'We make our tools and our tools make us,'" 45.

digital photography, it is difficult to determine the extent of change. Some metadata standards might provide for tracing the change history of a record, but this is dependent on the creator having actually adopted the standard.[22] Furthermore, "if images are individually rerecorded there is no equivalent of a contact sheet in which one can see the thinking of the photographer develop and understand the context in which the image has been made. The image becomes, in a sense, like an out-of-context, deracinated quote."[23] The interrelatedness of photographs is often lost, which is why it is necessary to know and understand the context in which the image was created, and to invoke a reliance on functional context, or the reason the image was taken or used in the first place. Can digital photographs be considered "evidence" when we cannot be certain of the extent of manipulation and fabrication of the image? It seems unlikely that the image by itself can be trusted. This is not new to digital photographs. However, if a digital photograph's functional context is taken as key, then its value as evidence goes beyond the specific content of the image and the context becomes the significant factor.

Even the most basic digital photography manual points out the potential problems of digital photography. The ease of manipulation of digital photographs has "led many people to question whether we now live in an age when the photograph simply can't be trusted to provide a truthful record of an event."[24] However, "[p]hotography's highest function has never been the telling of unmediated truths, but rather its engagement in a dialectic with human beings."[25] An abundance of contextual information is required for every document to further enrich understanding. Contextual information is required as

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[22] For example, see the Working Group on Preservation Issues of Metadata's *Final Report*, May 1998, available at http://www.rlg.org/preserv/presmeta.html, last accessed June 18, 2006.
[23] Ritchin, *In Our Own Image*, 65.
[24] King, *DigitalPhotography for Dummies*, 247.
[25] Ritchin, *In Our Own Image*, 142.

never before, to ensure a record's archival value. Without the contextual information, a digital photograph has much less value. However, provided with context, the image can convey its functional purpose, and have archival value.

While digital photographs share many characteristics with traditional photographs, they also share many with electronic records. The first and most obvious one is their dependence on computer technology. As a result, electronic records and digital photography raise similar preservation issues. As computer hardware and software continue to advance, previous programmes become obsolete. Proper precautions need to be taken to ensure that the records, whether photographic or textual, can be accessed in years to come.

Electronic records have posed numerous records management and long-term preservation problems for archivists. For many years, archivists have been attempting to come up with solutions to these problems. A few major research projects have been undertaken, which have important implications for archival theory and digital photographs. Between February 1, 1993 and January 31, 1996, the School of Information Sciences at the University of Pittsburgh undertook an extensive research project funded by the National Historical Publications and Records Commission. This project on the Functional Requirements for Evidence in Recordkeeping, known as the Pitt Project, examined the variables that affected the insertion of recordkeeping requirements into electronic information systems.[26] The main objective was to develop a set of well-defined recordkeeping functional requirements, which would satisfy all the various legal,

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[26] The main project website, along with the working files, was destroyed by a technical glitch at the University of Pittsburgh. Project materials can be accessed, however, through the Internet Archive. Functional Requirements for Evidence in Recordkeeping, http://web.archive.org/web/20000818163633/www.sis.pitt.edu/~nhprc/, accessed April 26, 2006.

administrative, and other needs of a particular organization; these functional requirements could then be used in the design and implementation of electronic information systems.[27] A key point here is that the Pitt Project was dealing with information and record systems, not individual records. The end result was a model to enable organizations "to develop systems that create, identify, capture, maintain and use records -- whether they be in electronic or paper form."[28] The components of the model were: the literary warrant ("statements drawn from the law, standards, and professional best practices concerning the requirements needed to have records serve as reliable evidence"), the functional requirements (or "set of elements required to ensure the preservation of evidence in electronic form"), a set of production rules ("rules that decompose each functional requirement into a form that is specific and observable"), and metadata specifications (which "describe how documentation of the content and structure of a record can link up and be retained with metadata that describes the context of its business transaction").[29] The key purpose of the Pitt Project was to find means of ensuring that reliable records were generated in electronic form, records that stood up as authentic evidence over time, rather than the context-poor data produced by most computer systems. This evidence:

> ...can only be made by compliant organizations using responsible, implemented and consistent recordkeeping systems. Records captured by such systems must be comprehensive, identifiable, accurate, understandable, meaningful and authorized. They must be maintained inviolate, coherent, auditable and removable. And to be used they must be available, renderable, evidential, exportable and redactable.[30]

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[27] *Ibid.*

[28] Functional Requirements for Evidence in Recordkeeping, Site Orientation, http://web.archive.org/web/20000708234401/www.sis.pitt.edu/~nhprc/orient.html, accessed April 26, 2006.

[29] *Ibid.*

[30] Functional Requirements for Evidence in Recordkeeping, Metadata Specifications, http://web.archive.org/web/20001212190100/www.sis.pitt.edu/~nhprc/meta96.html, accessed April 26, 2006.

The approach of the Pitt Project as a whole is highly general and focused on records management for contemporary records, rather than long-term archival preservation. Although the Pitt project offers valuable general guidance on the character and purpose of contextual information for electronic records, there is little that is specifically about particular electronic media such as digital photographs.

Another important project dealing with electronic records was based at the School for Library, Archival and Information Studies at the University of British Columbia from 1994 to 1997. The UBC project produced a report entitled *The Preservation of the Integrity of Electronic Records*. This project addressed the creation, handling, and preservation of reliable and authentic active electronic records. It worked from the traditional assumptions that animated the Pitt project – that the aim of electronic records management was the creation and protection of the static, unchanging, reliable, and authentic record. The UBC project laid out in great detail the ideal features of electronic records and the electronic recordkeeping procedures required to maintain them in records management systems for current records.[31] The project also laid out rules that if followed would leave little doubt about the reliability and authenticity of the records, but there were some concerns about some special problems posed by computerized communications. It was acknowledged at the end of the research that the migration necessary to protect electronic records would have an impact on their integrity: "While, after migration, the resulting records may look like the ones that have been migrated, their physical form has substantially changed, with loss of information on the one hand, and addition of new information on the other." The project's response to this threat to

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[31] Luciana Duranti and Heather MacNeil, "The Protection of the Integrity of Electronic Records: An Overview of the UBC-MAS Research Project," *Archivaria* 42 (Fall 1996).

authenticity was to conclude that tighter control procedures were required to monitor the migrations and attest to the validity of the evolving document: "The authenticity of electronic records in the long term can only be ensured by self-authenticating processes of reproduction from one medium to another and of conversion from one digital technology to another; by the reliability of the person or office entrusted with the authority and the capacity of carrying out the reproduction and conversion processes; and by an uninterrupted line of physical custody." It added that "the verification of the authenticity of electronic records over the long term will have to rely on one thing and one thing only: their *archival description*."[32]

The UBC project's more broadly based international successor, International Research on Permanent Authentic Records in Electronic Systems (InterPARES) has attempted two things: to test the utility of the concepts and procedures for recordkeeping for electronic records outlined in the UBC project with actual electronic records management systems and to outline what would be involved in maintaining the authentic record permanently as archives. InterPARES has aimed to develop "the theoretical and methodological knowledge essential to the long-term preservation of authentic records created and/or maintained in digital form."[33] From the initial research, policies, strategies, and standards were to be developed to ensure "the longevity of such material and the ability of its users to trust its authenticity."[34]

The InterPARES project has been divided into two parts. Phase I, conducted from 1999 to 2001, is "focused on the preservation of the authenticity of records created and/or

[32] *Ibid.*, 49-50, 57 (emphasis original).
[33] InterPARES Project, http://www.interpares.org/, accessed April 26, 2006. The project's overall director is Luciana Duranti, who also headed the UBC project.
[34] *Ibid.*

maintained in databases and document management systems in the course of administrative activities."[35] Phase II, which began in 2002 and will be completed in 2006, expands on the institutional records management focus of phase I by exploring issues of "reliability and accuracy from the perspective of the entire life-cycle of records, from creation to permanent preservation," especially in "complex digital environments in the course of artistic, scientific and e-government activities."[36]

Phase I of the project resulted in reports from three task forces: an Authenticity Task Force, an Appraisal Task Force and a Preservation Task Force. Although this phase of the project dealt with textual records systems, the conclusions are relevant for digital photographs. InterPARES I found that actual electronic records management systems were not being administered in ways compatible with the ideals of the UBC project, and they were not likely to be reorganized along those lines because their creators, users, and even the legal system saw no major problems with the trustworthiness of the records in their systems that would require such change. Thus the traditional aim of archival theory – preservation of the static authentic original record – could not be done with assurance in the electronic realm. Heather MacNeil, chair of the Authenticity Task Force, suggests the findings of the Task Force may lead to "focusing less attention on establishing whether a record is complete, stable and unchangeable, and more attention on determining whether and to what extent the system is capable of tracking changes and how that tracking function might be managed over time."[37] A more modest but less definitive goal was to be sought. She said that "a record has integrity when it is complete

[35] *Ibid.*
[36] *Ibid.*
[37] Heather MacNeil, "Providing Grounding for Truth II: The Findings of the Authenticity Task Force of InterPARES" *Archivaria* 54 (Fall 2002), 32.

and uncorrupted in all essential respects. This does not mean that the record must be precisely the same as it was when first created .... Even in the paper world, with the passage of time, records are subject to deterioration, alteration and/or loss." [38]

For the appraisal of digital photographs, the Appraisal Task Force also had applicable findings. This Task Force determined "that electronic records must be appraised from the same theoretical and methodological standpoint as traditional records." [39] Like the Authenticity Task Force, it determined that the medium should not affect appraisal, other than taking into consideration the technological context. As well, "appraisal had to be conducted early in the life of systems producing the records." [40] For the appraisal process, it is best to view the records in their "live" environment, their immediate context, and appraise them "more than once in the sense that the dynamic nature of the digital environment means the assumptions and judgments of the appraisal as it exists at any point in time must be validated before disposition action is taken." [41] This begins to address the dynamic nature of records, though the implication is that once acquired by archives, this dynamic nature is at an end. While this fits the traditional view, the postmodern definition of record alerts us to the changes to the records that can still occur as a record continues to evolve. The Appraisal Task Force also found that many of the problems "that occur in the archival treatment of electronic records stem from changes in the records' context over time" and that "Monitoring these changes is a distinct activity; it ensures that up-to-date information about records is compiled and that

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[38] *Ibid.,* 44-45.
[39] Appraisal Task Force Report, http://www.interpares.org/display_file.cfm?doc=ip1_aptf_report.pdf, accessed April 26, 2006.
[40] *Ibid.*
[41] *Ibid.*

appraisal decisions are updated accordingly or, where there is a need, revisited."[42] While

not going as far as to suggest this is metadata, it is nonetheless information about

information, which is vital for all digital records, including photographs.

The Preservation Task Force determined that "it is not possible to preserve an

electronic record: it is only possible to preserve the ability to reproduce the record" as "it

is not possible to store an electronic record in the documentary form in which it is

capable of serving as a record."[43] This conclusion also contradicts previously held

assumptions of conventional archival theory. This discovery is important for digital

photographs, demonstrating that the records are indeed dynamic and ever evolving.

InterPARES II (Experiential, Interactive, Dynamic Records) took what had been

discovered in phase I to move the project from the theoretical to the practical. Most

important in terms of digital photographs was the phase II study that involved a survey of

photographers who use digital technology. That survey was designed "to gather data that

would document photographers' current actions and attitudes towards creation, use and

preservation in the digital environment."[44] The thirty-two question, web-based survey

was conducted in 2004 and was answered by 402 photographers. The respondents were

asked about their professional and technological context, their activities and procedures,

especially as they relate to the reliability of their images, their digital preservation

practices, their protective measures to ensure the security (authenticity) of their digital

images and their awareness and willingness to use standards and guidelines known to the

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[42] *Ibid.*

[43] Preservation Task Force Report, http://www.interpares.org/display_file.cfm?doc=ip1_ptf_report.pdf, accessed April 26, 2006.

[44] Survey of Record-Keeping Practices of Photographers using Digital Technology, http://www.interpares.org/display_file.cfm?doc=ip2_digital_photo_recordkeeping_report.pdf, accessed April 26, 2006.

heritage community. The results showed that the majority of professional photographers surveyed worked in a digital environment and while they "are aware of the fragility of digital media and the vulnerability of the digital environment in which they work, they are not confident of the procedures that they use to protect themselves."[45] Furthermore, they are unaware of many sources of information to assist in the protection of their digital images, and many of the comments were essentially seeking advice. An interesting result is that 95.9% of the photographers would follow "a standard for digital image creation and file maintenance to ensure the longevity of [their] digital images if it was applicable to [their] practice and made available to [them]."[46] The researchers concluded that the survey served to identify a "need to pursue a greater degree of communication between creators and preservers in order to ensure the future longevity and readability of born digital images."[47] Guidelines based on this research are to be written in 2006.

While the researchers of the Pitt and UBC Projects hoped to establish criteria to allow electronic records to be "frozen" in time, InterPARES determined that that is an unrealistic goal. Electronic records are not likely to be managed by their creators as ideally as the projects hoped. Furthermore, as Heather MacNeil indicates, "If the recommended standards were to be implemented fully it is likely that the electronic system in which they sat would collapse under the sheer weight of the metadata."[48] As of yet, there is no definitive way for archivists to manage electronic records over the long term. Most archival attention to electronic records has been focused on government and private institutional records, but what will become of the electronic records of private

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[45] *Ibid.*
[46] *Ibid.*
[47] *Ibid.*
[48] As quoted in Nesmith, "Reopening Archives," 268.

individuals? Such private materials have traditionally formed a valuable part of the holdings of many Canadian archives. If most institutions are not likely to meet the high records management standards for their records set by the Pitt and UBC projects, the creators of private records are even less likely to do so, as they are not obligated to do so by law or policy or broad public expectation. This creates special challenges for archivists.

InterPARES II began to explore such issues, but as yet we await guidelines developed from its research. Research into and discussion of digital photographs is still at a very preliminary stage; there exist opportunities to probe, experiment, hypothesize, and suggest. Archivists are beginning to respond to digital records with an even greater sense of the complexities they present, as a result of recent research by InterPARES and reflections on archival theory by others, such as Joan Schwartz.

After the discussion of the history of digital photographs in chapter one and the implications of digital photographs for archival theory in chapter two, chapter three will try to address the practical concerns and circumstances faced by archivists when dealing with digital photographs. Chapter three includes a proposal for a possible archival strategy for dealing with born-digital photographs. It reflects the new understanding of archival theory (and the evolving, rather than static record) that we have come to understand in the last fifteen years of debate and research into electronic records.

Chapter Three

Current Practice and Future Directions

for Archiving Personal Born-Digital Photographs

Digital photographs are replacing film-based photographs as one of the main visual records of our era. As I have established, they are visually similar to traditional photographs, and understanding their context as opposed to content may help alleviate concerns raised because of their malleability and the lack of an original. While they need to find a home in archives, few archives are yet acquiring such images, and those that do face significant challenges. Chapter one dealt with the characteristics of digital photography in light of the history of photography and chapter two with the implications of these characteristics for archival theory. Chapter three will deal with archival practices for digital photographs. This chapter will discuss current practices through an analysis of the results of a survey that assessed the approaches that archives currently use for digital photography. Following this discussion, a proposal for the capture and description of born-digital photographs by archives is suggested for further consideration. The model reflects and implements some of the theoretical ideas outlined in chapter two and suggests the kinds of information needed to preserve an ever-evolving record.

As chapter two's examination of electronic records research shows, archivists are embracing the digital age. Many archives have undertaken projects to digitize some of their holdings, which are subsequently often available over the Internet. This is most often accomplished through the digitization of traditional photographs and records.

Grants have provided substantial funding for projects designed to mount digital content onto the Internet. This improves access to archives, in particular to the images within existing archival collections.

While archivists are becoming more familiar with such digitized images, these images will more than likely continue to be available in hardcopy. What about images without this backup? In the spring of 2005, I conducted a survey of archivists to try to answer some questions about digital photography -- specifically born-digital photographs -- and archival responses to them. I wanted to determine their current place in archival work, and their implications for archival practice.

My survey was publicized over five archival listservs: the Canadian archival listserv (arcan-l@mailman.srv.ualberta.ca), the listserv of the International Council of Archives (ica-l@mailman.srv.ualberta.ca), the listserv sponsored by the Society of American Archivists (archives@listerv.umohio.edu), the listserv for Australian Archivists (aus-archivists@archivists.org.au), and a listserv addressing the management of photograph collections (photoarchives@listserv.umkc.edu).

I sent out an introductory email over these listservs that invited those interested in answering my questions to contact me. When they did, I sent them the questions about digital photography and archives (see appendix). I received twenty-five responses.[1] Responses came from across Canada and the United States, but also from Australia, New Zealand, Spain and Switzerland. This low number is perhaps an indication of the problematic nature of digital photographs and that few archivists are dealing with born-digital photographs. The respondents represent archives ranging in size from one person

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[1] I am unsure exactly how many received this initial email, but I was informed that over the Society of American Archivists listserv, 3473 people received my introductory email. It seems reasonable to assume about 5,000 people likely received my introductory email.

operations, to the National Library of Australia, which employs 400. Almost a third (36%) of respondents are from small institutions (less than five employees); 28% are from mid-sized archives (five to fifteen employees); and 36% are from large institutions (more than fifteen employees).

Most respondents are archivists; others include a librarian/art curator, a librarian, a graphics librarian and a senior manager for government records. The archivists have from one to twenty-five years of experience, and had been in their current position from as little as a few months to as much as 21 years; most have been in their positions from one to ten years. Most have some experience with digital photography, though mostly through the use of digital images for access copies within their given institution. Few have much experience with born-digital photographs.

Whether and how born-digital photographs become part of archival collections will be decided by individual institutions, and this depends in part upon their mandates. Twenty-two respondents state that digital photographs fall within their institution's archival mandate, while only three say they are excluded. One of the three explains that digital photographs are not specifically included only because they are not mentioned in the institution's policies and procedures.[2] Although most mandates are inclusive of a wide range of media, an archives may not actually hold much material in a given medium. Mandates offer a guideline for what is appropriate for the institution to acquire. For example, Library and Archives Canada has as its mandate:

- To preserve the documentary heritage of Canada for the benefit of present and future generations;
- To be a source of enduring knowledge accessible to all, contributing to the cultural, social and economic advancement of Canada;

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[2] I would suggest this may come from a different understanding of mandates; mandates should likely remain fairly stable over time, while policies and procedures require updating.

- To facilitate in Canada cooperation among communities involved in the acquisition, preservation and diffusion of knowledge; and
- To serve as the continuing memory of the government of Canada and its institutions. [3]

Documentary heritage, knowledge and memory are key words in many archival mandates. They tend to have a similar feel: to preserve the documentary heritage of a certain group, place or institution, regardless of the media. Digital photography is coming to be viewed as simply another medium for archives. At the National Library of Australia, the staff "regard [digital photographs] as simply the latest form of photography, to be collected, stored, managed and made accessible like the rest of [its] photographic collection."[4]

While digital photographs fall within the mandates of most respondents' archives, few are actually archiving born-digital photographs. On the whole, Australian and New Zealand archives have been acquiring more born-digital photographs than North American archives. Of these, the most advanced seems to be the National Library of Australia, which had approximately 2000 born-digital photographs, almost 900 of which were acquired between July 2004 and the end of April 2005. Their images are stored and managed through Digital Collections Manager (DCM) software system, specifically developed by the National Library staff after it was unable to find a suitable system that was commercially available. The library's in-house system is able to capture, store, manage, identify, provide access, deliver and preserve its digital collections.[5] As of September 2005, Library and Archives Canada had a very small collection of government

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[3] Library and Archives Canada website, http://www.collectionscanada.ca/about-us/index-e.html, last accessed June 18, 2006.

[4] Linda Groom, Pictures Librarian, National Library of Australia, survey response.

[5] Linda Groom survey response. Digital Collections Infrastructure, http://www.nla.gov.au/digicoll/infrastructure.html, accessed February 12, 2006.

digital photographs, with only six signed authorities in the Records Disposition Authorities Control System referring to expected acquisitions of government electronic photographic records.[6] As for private records, there were only a handful of fonds with any electronic images, and "some of these are not 'born digital' but are scans of negatives or prints held elsewhere in [its] collections."[7]

Born-digital photographs are currently not a high priority for most archives, as they have seldom been approached to retain them. On the other hand, digitized hardcopy photographs are a relatively high priority as archives are increasingly using them to increase access to their records. Some respondents said that born-digital photographs should be a high priority because of the fragility of the medium. It was the general consensus of the respondents that digital photographs should not in principle be given higher priority than other archival records, as digital records are simply another type of valuable documentation. However, they are much more likely to be deleted, lost or altered by their creator. For this reason, the acquisition of born-digital photographs should be seen as extremely time-sensitive because they may well otherwise be lost to history. As Jeff O'Brien, City Archivist for Saskatoon, states:

> [T]he fragility of digital photographs mean that they have specialized requirements which we with our traditional hard-copy mind sets may not be addressing. In that sense digital photographs do need to be a higher priority, if only because nowadays more and more images are being created AND MAINTAINED digitally, by both institutional and individuals, and ultimately that is how we are going to get them.[8]

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[6] Library and Archives Canada, *Digital Information at Library and Archives Canada: An Overview of Progress and Issues* (September 28, 2005), section 1.1.3. "Scale of collection, rate of ingest" http://www.collectionscanada.ca/scin/012033-500-e.html, accessed June 1, 2006.

[7] *Ibid.*

[8] Jeff O'Brien, City Archivist, City of Saskatoon, survey response (emphasis original).

As implied by this statement, a digital image should be acquired in its digital rather than printed form. By printing images, clarity, context, and computer functionality are lost.

To receive born-digital images, archives need a plan of action to acquire and manage them. Those few respondents whose archives had acquired digital images in the form of CDs and DVDs, had undertaken no other means to preserve them. These CDs and DVDs cannot be forgotten or overlooked among the backlog or on the shelves. When an attempt to access them is made years from now, the records may be inaccessible as technology has changed or the storage form has deteriorated enough to make them unreadable.[9] Furthermore, sunlight, humidity and surface damage can reduce the theoretical lifespan of a storage medium such as a CD-R or DVD-R from the manufacturer's claim of 100 years to just a few years.[10]

Archives need to be aware of the risks and begin preparations for this new medium of digital photographs. One respondent indicated that his archives had yet to acquire digital photographs as they "do not have the infrastructure (policy and procedures, financial and people resources, technology systems) needed to appraise and acquire, describe, preserve, and give access to digital photographs."[11] This is likely true for many archives. Nevertheless, archivists will need to address, preferably sooner rather than later, the issues regarding born-digital photographs.

However, even if archives develop the technologies and policies to undertake archival functions with digital photographs, there is no guarantee there will be born-

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[9] This is not meant to imply that the CDs and DVDs will be neglected by archivists, but that they need ongoing attention. For information about these storage media, see http://www.dpconline.org/graphics/medfor/media.html and http://www.dpconline.org/docs/dpctw04-03.pdf. In general, they are not recommended for archival preservation.

[10] Michael Pollitt, "Ever decreasing circles" from *The Independent*, April 21, 2004, available at http://dvdplusvideo.com/petesguide12a.html, accessed November 25, 2005.

[11] Survey response.

digital photographs for them to acquire and preserve if further steps are not taken. Archivists need to position themselves more toward the front-end of digital document creation. The fragility of born-digital photographs and the need for contextual information about them will need to be publicized so that the public, institutions and governments will be aware of the archival concerns and value of digital photographs so as not to lose the images before they can be archived. While this may be easier for institutions through records management programs and for professional photographers who understand the risks, the risk of loss is higher for personal records. Speaking from anecdotal information and personal experience, O'Brien noted that "most people are NOT willing to migrate / reformat their collections of photographs, meaning that where in a traditional environment we might receive a box of reasonable-quality photographs unearthed from someone's basement, nowadays we might receive a box of old CD's no longer useful for anything save as shiny drink coasters or funky decorations."[12] Furthermore, he stated that "Digital photography has the potential to wipe out a huge swath of documentation which would otherwise be maintained by default, in the bottom drawers and attics of society."[13] By teaching the public about the risks, the possibility of receiving digital photographs in the future might be slightly improved.

For those whose archives are not yet accepting digital photographs, many did not respond to the question "If you are expecting them in future, how soon do you expect them to become a practical matter of concern?" Most of those who did respond to this question predicted that they would address the issue in the next two to five years; one archivist was sufficiently baffled by the topic that he hoped that it would not be until after

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[12] Jeff O'Brien survey response (emphasis original).
[13] *Ibid.*

his retirement in 2027! Lack of finances and overextended personnel are reasons given when respondents were asked why they are not yet dealing with digital photographs. As Lori Nordland, Digital Archivist at the Provincial Archives of Alberta, stated, however, "Just think what would have been if the Zapruder film was digital rather than celluloid? One of the most memorable events in American history, and a private record to boot, would have been lost. And the assassination of JFK would never have been accessible 2 or 3 years or more after the event."[14] A few years of hesitation may result in significant gaps in the visual memory for this century.

Born-digital photographs are a distinct type of record, both visual image and electronic record. Visual images and electronic records require specialist attention from archivists. Thus the areas of archival expertise for born-digital photographs are doubled. Rod Carter, Archivist for the Religious Hospitallers of St. Joseph, St. Joseph Region, in Kingston, Ontario, believes that "digital images suffer from a classification of 'special media' and are not, perhaps, given the same sort of attention that they deserve."[15] He suggests that:

> A great deal of investigation needs to be done by archivists and historians
> of records/record-keeping and it needs to be published in professional
> journals about how people/institutions are using digital images, if and how
> is this different than traditional photos, and how do archivists/archives
> need to realign their thinking in order to adequately deal with and
> understand this new medium.[16]

Archivists and their archives need to address the concerns that born-digital photographs will bring to their institutions and the profession as a whole.

[14] Lori Nordland, Digital Archivist, Provincial Archives of Alberta, survey response.
[15] Rod Carter Archivist, the Religious Hospitallers of St. Joseph, St. Joseph Region , survey response.
[16] *Ibid.*

When asked whether digital photographs will influence archival thinking, a majority of respondents answered no or very little. Whether or not digital photography will challenge archival theory will depend on one's definition of archival theory. As addressed in chapter two, digital photographs challenge traditional archival theory and its interpretation of a record as static. However, this definition itself has been challenged in recent years by the postmodern approach to archives, whereby a record is seen as dynamic and ever-evolving. This interpretation has stressed the provenance and context of a record. Cast in these terms, born-digital photographs reinforce the value of contextual provenance and should not shake the foundations of postmodern archivy; stated simply, "A photograph is a photograph regardless of whether it is printed on paper or exists as a string of 1's and 0's."[17] The underlying basics of the postmodern approach should not vary whether we are dealing with a photograph or a letter or organizational minutes. As Linda Groom, Pictures Librarian at the National Library of Australia, suggests, while digital photographs "should be regarded as simply the next format – a similar change to moving from glass negatives to plastic negatives, for instance. They bring with them some particular issues, such as the possibility of manipulation, but that possibility needs to be seen in the context of all photographs being the result of the photographer's own vision of the world."[18] Like all records in a postmodern archival setting, digital photographs need to be understood more in relation to their context than content, and this context must be as well-documented as possible. Joanna Sassoon, Project Archivist for the State Records Office of Western Australia, warns that "digital photographs are likely to become orphans much more quickly than paper based

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[17] Jeff O'Brien survey response.
[18] Linda Groom survey response.

photographs – they will lose their evidential value very quickly (as soon as the person who took it left or forgets about it), their context of creation, and their copyright status will be extraordinarily hard to trace."[19] Carter also moves toward this point in his comments on authenticity and the fluid digital record:

> [A]rchivists need to investigate how digital images are being used. I think it is naïve to say that they are the same as traditional photographs. They are emphatically not. The way these records are created, circulated, preserved, and the overall relationship of the user to the record involves a very different mind-set. Aside from history of record-keeping aspects of archival theory, notions of authenticity and of evidence need to be rethought in light of this very plastic medium; and appraisal in the face of the multitude of possible images that are transferred (people seem to take more digital photos than film based ones, although potentially less are worth keeping) shall have to develop some standards or strategies, although, again, not much has been done for traditional photographs in appraisal so I am not expecting anything for digital images in the near future; and, as with other records, digital or otherwise, standards for description and metadata need to be developed. Archival functions, on the other hand, will be affected.[20]

The challenges posed by born-digital photographs will be felt most by archivists in the practical work they undertake. Almost every respondent agreed that digital photographs will affect archival practice. No longer will an envelope sleeve and pencil be appropriate for an archival photographic image, but the archival functions of acquisition, appraisal, preservation, arrangement, description and access will all still need to be done. Some of these functions will have to be revised more than others in order to be applicable to born-digital photographs. However, the stage at which the archivist becomes involved may be most affected. Digital photographs require a "front-end active role in which the archivist will almost need to appraise the record prior to its creation so that the appropriate measures can be taken at creation should the record be deemed for the

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[19] Dr. Joanna Sassoon, Project Archivist, State Records Office of Western Australia survey response.
[20] Rod Carter survey response.

archives, or require preservation beyond the lifespan of the technology that created it."[21]

According to Nordland:

> [A]rchival practice will become more geared towards the creation stage, or the front-end in order to ensure that digital records are both preserved and made accessible over the long-term. This will require a shift in the practice and position of archivists within organizations and institutions. However, the private collections may end up suffering, unless the archivist identifies potential donors prior to creation and donation of record so that best practices are in place to ensure the accessibility of the record to future generations of researchers.[22]

While on the whole little is being done about archiving born-digital photographs, a few respondents mentioned projects that were breaking new ground for born-digital photographs and multimedia digital records. The projects dealing with digital records may well in turn have some application to born-digital photographs. (This will be explored below.) At the State Records Office of Western Australia, Sassoon reports that its "Recordkeeping services who deal with agencies/departments are working towards developing standards for the creation, storage and documentation of digital photographs but we haven't got that far with that standard as yet."[23] This project deals with institutional records; personal records will be at greater risk.

Perth College in Western Australia created an Archiving Digital Images Committee to "develop a set of guidelines *in order to collect, catalogue, access and preserve* digital images *which capture* the history of Perth College. Without *constant review* of how [they] utilise the digital resources, [they] run the risk of losing a significant portion of the *social and cultural* history of [their] School."[24] The proposed guidelines suggest that all digital images taken by college staff could be stored on the shared drive.

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[21] Lori Nordland survey response.

[22] *Ibid.*

[23] Joanna Sassoon, survey response.

[24] Peter Klemm – 19/5/04, Archiving Digital Images – Draft, Perth College (emphasis original).

Archives staff could regularly select suitable images from them and the selected images could then be copied to an appropriate location and catalogued. These archived digital images could be converted to an alternative medium for long-term storage. The proposal suggested conversion to print or negative. While this may be an easy solution for preservation and may be necessary in some cases or until better alternatives are available, it does seriously undervalue and conceal the technological context of digital photographs and the advantages of having them in computerized form.

While no one responded from the National Archives of Australia, Sassoon alluded to the advances it has made with the Australasian Digital Records Initiative (ADRI). ADRI is a project undertaken by the Council of Australasian Archives and Records Authorities, which includes the heads of the government archives authorities of Australia, New Zealand and each of the Australian states and territories. Its primary objective is "to pool resources and expertise to find better ways to ensure that digital records are preserved and made accessible for the future."[25] The Provincial Archives of Alberta has hired a Digital Archivist. The Government of Alberta had been working on a digital preservation pilot study for the Government of Alberta. Unfortunately, this study has not been released to the public and the project has been abandoned. While such initiatives seem rare, institutions can look to them for guidance when (inevitably) undertaking their own projects. As Sassoon so accurately stated: "Digital photographs are an important form of archival record, and if we don't work towards standards for their documentation and preservation they will not survive to become archival."[26] It is time to heed Sassoon's advice: "If we are not careful with digital photographs, and we lose our

[25] Australasian Digital Records Initiative, http://www.adri.gov.au/content.asp?cID=14, accessed November 18, 2005.
[26] Joanna Sassoon survey response.

archival principles, we will be creating future generations of photographs without context, and with content alone. I fear that people are enamoured by technology and forget their foundations. It is not the digital bit, but the photography bit which guides how I think![27]" The sooner archivists and archives deal with born-digital photographs, the more likely their survival and the benefits they can bring.

If digital photographs are to be part of the "collective memory" captured by archives, they will need to be acquired, appraised, preserved and described by archives. Digital photography is dichotomous in nature, part photograph, and part electronic record. Digital photography will require modified measures, drawing lessons from the treatment of both photography and electronic records by archives.

Through their work, archivists are creating the records with which future generations will reconstruct the past. Speaking specifically about photographs, motion picture films and videotapes, American archivist Gerald Ham remarks that they "capture the detail and quality of everyday life in a way few diarists or artists could."[28] Referring to one archival function specifically, Ham comments that appraisal "is not a responsibility they [archivists] take lightly for they know the quality and character of the historical record of the future depends upon the soundness of their judgment and the keenness of their perceptions about what should constitute that record."[29] Digital photographs are just one more piece in the puzzle that will be needed by future generations to help construct their past.

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[27] *Ibid.*
[28] F. Gerald Ham, *Selecting and Appraising Archives and Manuscripts* (Chicago: The Society of American Archivists, 1993), 3.
[29] *Ibid.,* 1.

Schwartz's valuable insights into conventional photography are applicable to digital photography. She writes that:

> The way archives appraise, acquire, arrange, describe, and make accessible photographic records depends upon our understanding of the role of photographs in the business of life, and, indeed, in the life of a business – personal business, group business, corporate business, government business. It demands that archivists understand how and what and when photographs communicate information across time and space.[30]

Understanding the role of digital photography will enable archivists to develop improved means of handling them, and to come to a better understanding of digital photographs as archival records. In a subsequent work, Schwartz states that "It is our job as archivists ... to ensure that photographs, indeed all visual and audio-visual materials, whether analogue or digital, continue to preserve and transmit their 'burdens' with undiminished strength and clarity."[31]

More so than with traditional photography, a digital photograph's archival experience begins long before it reaches the actual archives. The creator of the born-digital photograph is immediately involved in appraisal by deciding which photographs are to be saved. Unlike traditional photography, where the creator receives all the film negatives, where he or she has a record of the order in which the photographs were taken and the entirety of what was taken, and film negatives serve as their own storage media, digital photography demands a more active process. For these reasons, "[a]rchivists must understand the ways in which the digital photographs were created, maintained, and

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[30] Schwartz, "'Records of Simple Truth and Precision,'" 40.
[31] Joan M. Schwartz, "Coming to Terms with Photographs: Descriptive Standards, Linguistic 'Othering,' and the margins of Archivy," *Archivaria* 54 (Fall 2002), 171.

disseminated in terms of the hardware and software which was used, in order to competently carry out their archival functions."[32]

The creator's own appraisal decisions are an issue archivists will have to understand when acquiring digital photographs. The likelihood that the creator of a digital photograph will have kept all the photographs taken at one time is very slight; to do so would require tremendous computer memory, or else the diligent transfer onto alternate storage such as CDs. The interrelationship of photographs is lost; an active approach to ensure that such links are recorded in some other form is needed to ensure that any contextual information that may potentially be gleaned from these relationships is not lost completely. Archivists need to be aware of the occurrence of such processes before they even see the records.

A more active approach must also be taken by the creator to preserve digital photographs. Most digital photographs are compressed in one form or another. Compression can be minimal, losing very little image quality, but that does not reduce the size of the file very much. Other compression modes, for example the commonly used JPEG compression, removes some of the pixels, creating a smaller file, but losing a significant amount of the image's clarity and detail. This type of compression is known as "lossy compression." Other factors influencing the size of the file include the colour (24 bits per pixels, the RGB colour system, or 8 bits per pixel) which determines how many colours the image will have. This can be as little as 256 (with 8 bits) but may be into the millions (with 24 bits). The number of pixels also influences the size, and can be changed at the will of the creator.

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[32] Andrew Rodger, "The Acquisition of Digital Photography: Report from a Continuing Study," unpublished manuscript, 2001.

Once all these decisions influencing file size have been made, then the creator must decide on storage for the preservation of images. The camera records on a memory card. Then the image is transferred from the memory card to a computer. The digital images can be stored in the computer itself on the hard drive, or they may be transferred to another type of storage, such as a CD. Here, technological advancements become important. If precautions are not taken to assure that the storage medium is still readable in newer computers, the storage devices might become obsolete and the images could be lost. These are issues that archives will need to consider when digital photographs are acquired. Long-term preservation planning will be required, as it is for other electronic records.

Once a digital photograph has been deemed worthy of archival acquisition, one of the major issues is the further preservation of the image. Dealing with digitization, Franziska Frey hopes that the project "Digital Imaging for Photographic Collections: Foundations for Technical Standards" will "illustrate where the crucial points of image quality are and where they have to be considered in the work flow of an imaging project."[33] Four of the main image quality parameters the project identifies are tone reproduction, colour reproduction, detail and edge reproduction, and noise. For born-digital photographs, such issues will also need to be addressed. Will archives acquire digital photographs that have been compressed? Will they compress images to maximize their storage capabilities? Will there be colour specifications for acquiring digital photographs? How many pixels per inch will be desired or needed? Will any of these issues matter, with archives accepting any size, colour or form of digital photograph,

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[33] Franziska Frey, "Digital Imaging for Photographic Collections: Foundations for Technical Standards, *RLG DigiNews* 1, 3 (December 15, 1997), http://www.rlg.org/preserv/diginews/diginews3.html#com, accessed February 20, 2006.

provided there is enough contextual information? How will archives store the digital photographs once acquired?

Such decisions for digital photographs will most likely need to be made by individual archival institutions. Some may reject digital photographs entirely. For example, the Virginia Department of Historic Resources has such a policy on digital photographs:

> Due to the impermanent nature of digital photography, both in its printed form and in the technical format of its creation, neither digital photographs nor their technical formats (i.e. CD or diskette) will be accepted as part of the permanent inventory of historic property records in the Department of Historic Resources (DHR) archives. These digital formats will not replace the existing method of photo record in the DHR archives, which is black-and-white, 35mm, acetate, negative film, and the prints processed from this film.[34]

Each institution will need to formulate its own policies on digital photography. However, it is shortsighted to rule out digital photography. The contextual approach that has been adopted in other areas of archives will be particularly important for digital photography. We need to heed the advice of Canadian archival educator Terry Cook (which applies to digital photographs as well as any records), that "we must maintain provenance, order, interrelationships, and context front and centre over facts, figures and media fragmentation."[35]

The literature on electronic records has established that archivists need to be involved in the record's lifecycle or records continuum much closer to the record's creation stage, if there is to be any hope of protecting electronic records as archives.

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[34] Virginia Department of Historic Resources, Archives and Library, http://state.vipnet.org/dhr/archives/archiv_digital.htm, accessed January 28, 2006.

[35] Terry Cook, "Appraisal in the Information Age: A Canadian Commentary," in ed. David Bearman *Archives and Museum Informatics Technical Report No. 13*, (Pittsburgh: Archives and Museum Informatics, 1991), 55.

Numerous respondents to the survey mention this. Thus we are left with the question: how does an archivist get involved closer to creation?

This answer seems somewhat more straightforward when analyzing digital photographs, and electronic records more generally, created by large organizations in which there are formal records management systems. While still challenging, archivists can work with records creators and managers in such organizations earlier in the records' life cycle to try to improve the prospects for archiving electronic records. The risk for digital photographs is that they might be missed in the scheduling process, seen merely as ephemeral records or supporting records of less importance. Such larger institutions can create policies and guidelines for those creating digital photographs, indicating best ways to store images, what changes would be acceptable. Perhaps they can even afford to purchase, or design, software to help maintain their images.

Records of large institutions, however, are only part of archival holdings. There is at least some reasonable hope, given the laws and policies supporting them, that their electronic records will be managed more effectively one day. Personal digital photographs are at much greater risk. Most large Canadian archives include the records of small private organizations and individuals in their holdings, along with government and corporate institutional records. Personal digital photographs are being used to document the same sorts of actions and phenomena as the many millions of valuable conventional photographs now in archives. The latter images have provided valuable information about such things as dress, décor, architecture, and much more.

Approaches to electronic records management and archiving suggested by the Pitt and UBC projects for governments and large business organizations are unlikely to work

for small organizations and individuals. If rigorous ideal record-keeping measures cannot be imposed on large institutions successfully, there is much less likelihood that they can be imposed on private persons. Also, the records management infrastructure for institutional records is not there for personal records. However, the front-end orientation of institutional records work will be needed for personal records in electronic form and represents a key shift in the traditional approach employed with paper-based personal records, wherein acquisition usually focuses on records at the end of their life cycle and "archivists will acquire holdings after the creators have completed their professional careers or have died, when companies shut down or when communities disappear."[36] Such a strategy will be "detrimental to developing acquisitions of electronic records in private holdings."[37] New strategies are needed so that personal electronic records, and specifically digital photographs, may some day be acquired by archives.

Strategies have been suggested to provide for the effective acquisition of personal electronic records before they disappear. In 1994 Australian archivist Adrian Cunningham suggested that for personal electronic records archivists need to be more active in the pre-custodial phase. This will require "a shift from the policy of targeting potential donors towards the end of their active working life to a strategy of approaching them at the earliest possible time after it becomes clear from their achievements and activities that their records are worthy of preservation."[38] Cunningham felt a Jenkinsonian unease with a strategy that required such involvement by the archivist in the creation of records. He feared that it had the potential to "introduce a self-conscious element to the

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[36] Lucie Paquet, "Appraisal, Acquisition and Control of Personal Electronic Records: From Myth to Reality" *Archives and Manuscripts* 28, 2 (November 1999), 88.
[37] *Ibid.*
[38] Adrian Cunningham, "The Archival Management of Personal Records in Electronic Form: Some Suggestions" *Archives and Manuscripts* 22, 1 (May 1994), 101.

processes of record creation and preservation that may have unfortunate implications from an evidential viewpoint."[39] These qualms were gone five years later. He pointed out that in those intervening years, little had been done or written about personal electronic records. There remains "an electronic records time bomb ticking away out there in the land of personal records, and it is up to us to start working out how we are going to defuse it before it blows us all away."[40] Cunningham maintained that "if [archivists] are to have any electronic records to put into our archives we cannot afford to be squeamish about getting involved in the processes of records creation and record-keeping system design."[41]

Lucie Paquet, who worked for the National Archives of Canada (now Library and Archives Canada) in the personal records section, is one of the few personal records archivists to have worked much with textual electronic records. She learned that "If the archivist intervenes when records are being created, or shortly thereafter, it is possible to make donors aware of the need to preserve their records."[42] Conversely, without archival intervention, "donors may destroy electronic records."[43] Furthermore, "Unlike the public sector, there are no regulations or general standards governing the preservation of the personal records of individuals, businesses or groups."[44] She sees a new role for archivists in "making recommendations, suggesting certain procedures, offering solutions

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[39] *Ibid.*

[40] Adrian Cunningham, "Waiting for the Ghost Train: Strategies for Managing Electronic Personal Records Before it is Too Late" *Archival Issues* 24, 1 (1999), accessed at http://www.mybestdocs.com/, February 20, 2006.

[41] *Ibid.*

[42] Paquet, "Appraisal, Acquisition and Control," 74.

[43] *Ibid.*

[44] *Ibid.*

such as restricting access during a certain period of time, developing a retention schedule, and explaining to donors the reasons why it is necessary to save their personal records."[45]

Such strategies for electronic records are applicable to digital photographs, but perhaps what is needed is something else that Paquet suggests – that archivists "need to be proactive and innovative," and "part of this dynamic process created by the information society." She continues that those "responsible for private source archives need to shift from a passive approach to a more active one so that they can intervene while records are being created or shortly thereafter" as there is "no choice if we are to save private historical electronic records."[46]

What further innovative measures might be tried in order to protect digital photographs? Education of the public may be important, but can an archives go further? Certain current actions taken with digital photographs offer some possibilities for further development by public archival institutions. Most personal digital photographs are likely stored on personal computer hard drives or on CDs. Many people also post their digital photographs to websites, which will store their photographs for them, while permitting friends and family, and even strangers, to view these images. This type of venture provides an often free "archival" service to individuals wanting to preserve and share their digital memories.

If archives took this "archival service" and made it truly archival, through designing and hosting such a web-based image storage system, an archives could ensure the acquisition of digital images as well as the capture of contextual information about digital photographs as they are created. This suggested model would result in a custody

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[45] *Ibid.* 79.
[46] *Ibid.* 88-89.

arrangement whereby the digital photographs are captured and more fully described (and hence contextualized), and where an attempt to capture the image's dynamic nature is offered.

Currently a basic digital photograph storage system, using Yahoo! Photos as an example, has its user sign up for a personal account. He or she then creates one or more "albums." The de facto organization of the photographs is by date, but titles can be assigned to the albums.[47] At this stage, the user is asked to establish a privacy setting for the folder. Next the user inputs their digital photographs into the newly created album; the user has the *option* of assigning a name (maximum 40 characters), different from that of the automatically-generated file name, and a brief description (maximum 120 characters) to each image. As well, the user has the *option* of making a few changes to their digital images, such as removing redeye. Other information captured includes the date the image was uploaded, and the size of the image.

This information is very basic. Were an archives to be involved in the design of such a system, more information could be captured about a given image, providing greater context to the image; some information might possibly even be mandatory for the digital photograph to be accepted into the system. The basic system now suggests only a few categories for users, and does not provide sufficient space if a user wanted to include more information; an archival system could prompt the creator with more categories, based on the types of contextual information archivists would like to have for images. For example, a creator might be willing to fill out spaces indicating "Photographer" or "Date image was taken," or "Type of camera used," if they are provided. Another possible useful tool could be the use of subject headings, a method that has already found success

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[47] These albums could almost be considered the equivalent to archival series.

on the Flickr site as "tagging." Tagging gives the users of Flickr the option of assigning keywords to their images, so that the images can later be searched by this word, bringing all images with that keyword together.[48] The success of this feature would suggest that many people are willing to take a few extra seconds to provide a bit more information about their images if it might benefit them by providing better organization for their own digital images.

Any system designed with the help of archivists would likely be more labour intensive for the creator, but would benefit both archives and creator. The creator has information that he or she may otherwise forget within months, and the archival record has the necessary contextual information archivists desire.

Like other photo service providers, an archives system would also require all creators to sign up for the service. Criteria could be established by the Archives, identifying those who could participate, perhaps even conducting preliminary interviews of possible candidates for the project. Preliminary information identifying the kinds of image the archives is interesting in acquiring, and possible appraisal criteria the image will be subjected to, could also be provided to participants.

For an archives-driven system, those who were to use the system might have to provide more information about themselves, beginning with the standard information found on a typical donor record (name, phone number, address). As well they could provide other biographical information which could then be used later for a biographical sketch in a fonds-level description. This information would be for the creator's and the archives access only; if images were publicly available, viewers of the site would have

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[48] An archives-driven system could retain such a feature, though perhaps tailoring it to some extent, like the Archives Society of Alberta has done with its Alberta Insight, providing only a certain number of subject headings (topics), so that there is some uniformity to these "tags."

access to this information only if it were in the form of a fonds-level description. As well, individuals and organizations that might be likely to provide digital photographs that fall within the mandate of the archives could be informed of this new service and advised of the advantages of using it, as could people and groups that have already provided records to the archives. An archives could also seek out those who have not yet provided material: emerging professionals, small corporations, not-for-profit organizations, and prominent (and perhaps some not-so-prominent) members of the community, and encourage them to include the new database in their plans. Their non-digital-photographic and other non-digital records (including traditional photographs) would still be acquired by the archives in order to preserve a comprehensive fonds.

Each creator would have an individual digital photograph "folder" (a portion of their overall multimedia fonds) in this archival model. While this does suggest media separation, some physical separation is unavoidable as paper and bits and bytes, for example, cannot be stored side by side. All records would be linked via a comprehensive fonds-level description, and treated as a whole for such archival functions as appraisal and description.

After providing basic contact and biographical information, the creators could freely upload their digital photographs to the system. They could also be encouraged to upload digital photographs directly from a camera, which would provide all necessary raw data, and then the system could convert the image to a predetermined format that the archives has chosen as its method of storage (e.g. TIFF or JPEG, 600dpi, 300 dpi, etc.). The source of the photograph (either direct from the camera or a file previously held on a computer) could be recorded, as could the type of camera used (part of the image's

technological context). Like Yahoo! Photos, the site could provide some editing capabilities. If the system has the potential to make these changes, then it could also track and provide an audit trail of those same changes. Space could be provided so that the creators could indicate whether changes had been made to the image. As well, space could be provided to prompt the creators to explain why (or even why not) they made the changes to their image. Even if all the creator did was check a box to indicate that the image had or had not been altered in some way, this would still be useful in alerting the archivist, and later users, to the possibly problematic nature of this evidence. Without providing this option, important information to help understand and interpret the image might be lost.

The system could prompt a creator to fill in information about an image, or a group of images (in the form of albums or series), information the archives needs and the information an archives would like to have about the photographs in their collection, such as photographer, date, place, why the photographs was taken (helping give the function of the image), and what technology was used.[49] The archives could also explain (or justify) to the creators why they are suggesting these categories, explaining to the user why a description and the context for the image is important for understanding the record now and in the future. Through this descriptive process, substantial contextual information might possibly be captured. However, as the recording of this information is voluntary, it might not be provided accurately or comprehensively by the image creator, especially the more labour-intensive categories where an image's functional context and evolution might be recorded. Archives will not be able to impose a rigid record-keeping regime on

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[49] The archives might make it possible for creators to provide this information orally, on tape, in a way that mimics the way people often "describe" photographs when showing them to one another. This might facilitate the acquisition of descriptive information. Transcripts could then be made of the oral information.

private individuals any more than the electronic records management research projects such as InterPARES found could be imposed on institutions. Nevertheless, by suggesting this information and providing space to record it, it is possible that some images may be more fully described and contextualized. If the creator chose not to fill out the most basic contextual information, the system might not allow the creator to progress to the next stage, to ensure that some contextual information is provided for the image. As discussed in chapter two, and so nicely articulated by Schwartz, "the meaning of a photographic document lies not in the content or the form but in the context of document creation."[50] There could also space for an agreement that creators will transfer copyright to archives if their images are selected to be part of the archives, as well as an agreement regarding any access restrictions on the images.

Following the initial capture, subsequent use of the image could be recorded by the system. The number of times an image was viewed might be valuable information for an archivist later on when it comes time to appraise an image. Space might be provided to help record use of the images, such as links to websites that have used the image. These will shape how the image evolves, and provide leads and insights into the record's value for current and future use. It will not be complete (and likely never will be complete, as context is essentially boundless), but striving for contextual completeness is a worthy goal, and necessary for digital records.

Contextual information will be important for archivists and future users. In the past, many photographs have arrived in the archives with little or no identification. The *Rules for Archival Description* provide the standard means of describing these records. The creator context is stressed, but little more is usually provided about why the images

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[50]Schwartz, "'We make our tools and our tools make us,'" 46.

were created and little is necessarily included to indicate an image's function. Archivists and other users can only make deductions about this context based on the image's content. Contextual information is vitally important for assigning records archival value, and this custodial arrangement provides an opportunity unlike many others to capture and describe born-digital images and hence to provide archivists and users with a wealth of contextual information about a given image. As Canadian archival educator Heather MacNeil pointed our following InterPARES, "the function of archival description to authenticate the records and perpetuate their administrative and documentary relationships" will be critical for electronic records.[51]

So far, other than the design of the system, archivists have not been directly involved in the process; the creator has been doing the work.[52] Up to this stage, the creators have been making their own archives are creating item level descriptions; the system is simply a repository for their images. These are not as yet archival images; the server is serving as a records centre for the digital photographs, storing them until it is determined whether they are to be maintained as archival. At some stage, an archivist will need to appraise the images for long-term retention. Appraisal of the images could and will likely be problematic and time consuming; the appraisal of large quantities of traditional photographs has already often been problematic and time consuming. However, without such a digital image capture and description system, there might exist no images to appraisal and acquire, and such a system would possibly provide a wealth of information to make the process easier.

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[51] MacNeil, "Providing Grounding for Truth II," 57.
[52] The Digital Collections Manager at the National Library of Australia, on the other hand, was designed for in-house archives use. While providing for the storage of digital images, it does directly involve the creator.

One appraisal option might be to capture the entire system from time to time, and the images within the system could be appraised at a later date, when more time has passed and more perspective has been gained. Another option might be for an archivist to pull up records not altered in the last year, so that the "inactive" images created more than a year ago can be appraised. Either way, the archivist is provided with the context of creation for the images, and not orphan and unidentified images. He or she will be better able to appraise the images as will the archives user.

Space could be provided to indicate to the creator that an image has or has not been selected for the archives, and perhaps even a brief explanation as to why or why not the image was selected. If, like similarly available systems, whereby an image is uploaded by the creator for preservation and access, an archives may be required to maintain the non-archival images. If this is the case, the images not selected could have their image size decreased (e.g. from TIFF to JPEG), which would allow archives to maintain them in less space. This option could allow for a post-custodial approach with a twist; the selected images could be maintained in the system where they were initially stored, and once an archivist has indicated that the image is archival, the image could be cross-referenced with an archival description so that it could be searched by researchers. At the same time, the context of creation is also maintained. The archival digital images could be linked to the archival description of the records, facilitating access to the images on the server. This system could also accommodate additional information from the archives, information about the possible migration that has occurred, appraisal criteria, and even possibly use by the archives in exhibits or publications or researcher publications, helping to document the dynamic nature of the record.

By hosting the server, the archivists are better able to understand the creation process of the photographs. By maintaining the records within such a storage system, the archives would maintain quality control and backup protocols for the data and strive to obtain and maintain as much contextual information about the records as possible. Through this capture and description process, the information that would be recorded would allow for more effective archiving of born-digital photographs. Item level descriptions would be provided, and the information gathered could be used by archivists for higher-level descriptions.[53] Such a system would be helping to create a certain type of record, one likely not created if the creators were left to their own devices. The archives would be directly shaping record creation. Users would have to be alerted to this fact, but also advised of the reasons why the archives is doing so, in order to provide creators (and also users) of the system with an understanding of the assumptions behind it.

Electronic records can be costly to store, but they lose some of their context if preserved in paper form. As Cunningham mentioned, "preservation of records held on unstable storage media remains an expensive and labour intensive operation, but if society wishes to preserve the records it will simply have to foot the bill or develop more stable storage media."[54] Archives will need to determine what is more important to them – saving their money or, according to their mandates, preserving memory which, in the case of digital records, requires preemptive steps. Many archives are hiring digital archivists to deal with the government/institution records, but what of the other records, those of the small theatre company, the small business, the small charity or the individual

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[53] Photographs, to some extent, will continue to require some form of item level description. In this system, the creators are providing this level of description, and archivists are left to prepare the higher-level descriptions.

[54] Cunningham, "The Archival Management of Personal Records," 102.

donor? By providing a records management service for these people, perhaps even specifically targeting those who already have records in the archives, the digital visual memory can be preserved. The archives could provide a capture and description service to people who create digital photographs that fall within the mandate of their archival institution. It would be a costly and labour intensive process, but digital visual history might be lost if archivists do not strive to find a solution to help ensure that there will be digital images for researchers in fifty years time.

Archives are just starting to deal with electronic records and digital photographs. At its root, a digital photograph is still a photograph, and will have to be treated as such by archives. The traditional archival functions of appraisal, description and access should be no different; there will be some different preservation issues because of the technological context of the images, but these will be similar to those of electronic records. What will be drastically different is the need for archivists to be involved much earlier in the lifecycle of a digital photograph, much closer to creation. For this, archives and archivists may need to come up with new and innovative ideas to help ensure that their archives include a visual memory of the twenty-first century.

Conclusion

Born-digital photographs present archivists with tremendous opportunity to preserve a detailed record of the lives of ordinary people, as well as a rich selection of images of organizational activities, major events, and various objects. Each of these opportunities comes with technological, procedural and financial challenges. Further, digital photography combines concerns about the mutability and instability of electronic records with the subjective nature of photography.

Digital photographs, left to sit, will not last forever. They are fragile, and without proper precautions, will be lost. They will certainly not last as long as traditional photographs, which are still useful and readable decades later. Therefore, archivists will, within the next decade, need to create acquisition plans for digital photographs. They will need to increase archival storage capacity to deal with the submission of raw images, address the integrity and safety of archival networks, and establish criteria to select digital images for preservation. Working hand in hand with information technology specialists, they will need to seek long-term solutions to concerns about the fluidity and fragility of storage media, and the transitory nature of image formats.

Most urgently, archivists will need to bring archives more completely into the public eye, to extend the archiving of digital images and electronic correspondence – the scrapbooks, diaries and logs of our time – to individuals. Multidisciplinary projects now just underway, such as Memoir at the University of Sheffield, which will be studying "personal memories, to better understand the technology, ethics and psychology of

storing and accessing personal information" in electronic form,[55] and Paradigm (Personal Archives Accessible in Digital Media) at the libraries of the Universities of Oxford and Manchester, which is exploring "the issues involved in preserving digital private papers through gaining practical experience in accessioning and ingesting digital private papers into digital repositories, and processing these in line with archival and digital preservation requirements,"[56] may help to accomplish this. Through strategies such as the online capture and description model described in chapter three, archives might ensure that they are not only protecting the paper but also electronic visual heritage of our culture.

While this thesis has addressed some of the issues regarding born-digital photographs and their implications for archives, its treatment of them is by no means extensive or exhaustive. Private archivists perhaps need to take the biggest step. Facing enormous backlogs of traditional records, the idea of adding to the workload sounds out of the question. However, while traditional photographs can remain on the backlog shelf for a few extra years, that is not an option for digital photographs. Backlog delays will almost certainly result in the disappearance of immense numbers of them. The sooner archivists are willing to embrace the challenges of born-digital photographs, both theoretically and practically, the more secure visual history will be in the twenty-first century.

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[55] Email to the H-IDEAS@H-NET.MSU.EDU listserv, from Costica Bradatan, sent Sunday, April 9, 2006.
[56] Paradigm, http://www.paradigm.ac.uk/, accessed June 7, 2006.

Appendix

Hello,

I am working towards my master's degree in the Archival Studies program at the University of Manitoba. My thesis examines digital photography and its implications for archives, with the tentative title "Becoming Digital: Photography, the Effects of Digital Technology and the Archival Implications," under the supervision of Tom Nesmith, nesmith@cc.UManitoba.CA.

I am hoping to learn about how archives are responding to digital photography and would appreciate your assistance. Although I am primarily interested in the views of archivists and archival institutions, researchers and others with an interest in this subject are also urged to participate.

I am looking for responses from archival institutions which may now be working with digital photographs as well as those which have not yet done so. The questions will take approximately 30 minutes to complete.

If you are willing to provide information for my thesis by answering a few questions about digital photography and archives, please contact me at karen_simonson@yahoo.ca. My research has been approved by the Joint-Faculty Research Ethics Board. Should you have any concerns or complaints, you may contact the Human Ethics Coordinator at (204) 474-7122. The information I gather will be stored in a safe location in my home, and will be destroyed within three years after completion of my thesis. The information will be used in my thesis, and possibly at conferences and for journal submissions.

Copies of my completed research will be forwarded to those interested participants; such participants may do so by indicating they would be interested in a copy and they will receive an electronic copy when my thesis is finished.

Please also forward this letter to those you think it may interest.

Thank you for your cooperation.

Sincerely,

Karen Simonson
Master's Program in Archival Studies
University of Manitoba

QUESTIONS

1. Are you an archivist? If so, how long have you been an archivist?

2. Where do you reside?

3. Who is your employer?

4. What is your title?

5. How long have you been in your current position?

6. Do you supervise archivists? If so, how many?

7. Approximately how many staff members does your archives employ?

8. Have you ever had or do you now have personal responsibility for providing archival service with digital photographs?

9. If you are not an archivist, what connection do you have to archiving digital photographs?

10. Are you an archival researcher? A records manager? A computer specialist? A photographer? Other (please specify)? (Please check all categories to which you may belong.)

11. Do digital photographs fall within your institution's archival mandate?

12. How high a priority do you think digital photographs are in the work of archives and why do you think so?

13. How high a priority should digital photographs be in the work of archives and why do you think so?

14. Has your institution archived digital photographs? If so, approximately how many? If not, why not?

15. Are you satisfied with the archival service you are able to provide for digital photographs?

16. If your institution has not archived digital photographs, is it planning to archive them in future?

17. If you are expecting to archive them in future, how soon do you expect them to become a practical matter of concern?

18. If you are expecting to archive them in future, how is your institution preparing to provide archival service for them?

19. What impact do you think digital photographs will have on archival theory?

20. What impact do you think digital photographs will have on archival practice?

21. How helpful has archival or other literature and research related to computerized records been in your work with or consideration of digital photography?

22. What of this literature and research have you found most useful and why?

23. In preparing to deal with issues related to digital photography, where would you turn for assistance?

24. Please provide any other comments on digital photography and archives that you may have.

25. Has your employer given permission for you to respond to my questions and to have itself identified in my thesis? Yes ___ No___ Please check the appropriate space. The use of the identity of institutions is integral to my research, so institutions which house records must be willing to allow themselves to be identified.

26. Are you willing_____ or unwilling_____ to have your name appear in this thesis with the data you provide? Please check the appropriate space.

Ethics Protocol Submission Form

Required Information about the Research Protocol
Karen Simonson

1. Summary of Project:

My thesis, entitled "Becoming Digital: Photography, the Effects of Digital Technology and the Archival Implications," examines digital photography and the future implication its increased use will have for archives. I need to determine what archives are currently doing with digital photographs and the thoughts of archivists on the future of digital photographs.

I propose to send an introductory email over archival listservs, and directly to specific archive organizations if this is deemed necessary and beneficial. The message will explain what I am doing and ask willing participants to contact me by email. Once contacted, I will send each individual a series of questions to be answered and then returned. With these responses, I will assemble an aggregate impression of the handling of digital photographs by archives. The information collected from the emailed questions will be the basis for the final chapter of my thesis.

2. Research Instruments: See attached.

3. Study Subjects: The participants will be recruited through email, over various archival listservs. The number of participants will be determined by the number who respond to the email.

4. Informed Consent: Many archivists and researchers will receive the email over the list serve, but they are of course not required to reply. Asking for the questions will indicate their interest and consent to participate in the study. The questions asked participants will include one to determine their willingness to have their name and institutional affiliation disclosed.

5. Deception: N/A

6. Feedback/Debriefing: Participants will be provided with the chapter of the thesis if they so wish.

7. Risks and benefits: None.

8. Anonymity and Confidentiality:

My research will primarily deal with the professional actions of large organizations. Most material that I am seeking is in the public domain and open to any member of the public. Therefore, I am not offering confidentiality to the organizations involved with my study – indeed, the identity of the institutions taking part is an integral part of my research. It is crucial not only that I understand what organizations are doing with digital images in an archival context, but also that I be able to discuss the choices made by specific institutions.

However, I am pleased to offer individual respondents anonymity within the context of my paper. An organization's response will be credited, but not the individual who responded on behalf of that organization.

I will keep the data obtained in my possession in a secure place, where only I will have access to it, or my advisor if deemed necessary. I will not allow any others access to it in any way that reveals who the subjects are without obtaining the written consent of the subject in question. I will not reveal the identity of the subjects in my thesis or other published research without first obtaining the consent of the subjects to be identified. I do not expect to use confidential records. If I do, they will either be in the custody of an institution, whose access and privacy policies I will abide by, or in the custody of a private person, whose permission to consult the records and use information from them in my thesis and other research I will obtain in writing.

I plan to destroy the data gathered within three years after the completion of my thesis.

9. Compensation: None.

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