Pointing out the Moon: New Media in the Museum

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A thesis submitted to the Faculty of
Graduate Studies in partial fulfillment
of the requirements for the degree of

Master of Architecture

School of Architecture
Carleton University
Ottawa, Ontario

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Mark Blichert
January 2008

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395 Wellington Street
Ottawa ON K1A 0N4
Canada

395, rue Wellington
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Your file Votre référence

ISBN: 978-0-494-40619-9

Our file Notre référence

ISBN: 978-0-494-40619-9

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Abstract

The museum has a unique role as a memory institution specifically concerned with the collection, preservation, study, interpretation and exhibition of artifacts. As an institution largely concerned with communication, education, and entertainment, the museum has been an early and enthusiastic adopter of New Media, which has radically changed the way information, in the form of words, images, audio, and video, is manipulated.

New Media has had significant positive impacts in the museum, and can be expected to continue to do so, although the situation is more complex than it may initially appear. The adoption of new information technologies and methods offers both advantages and disadvantages, and requires critical evaluation in terms of the museum's role and objectives.

New Media can be used to deliver interpretive information about artifacts, but it can also be used to deliver representations or simulations of artifacts and their contexts. In the case of some Virtual Reality scenarios, these simulations may purport to offer advantages over the artifacts themselves, or over the physical museum. The use of New Media to deliver Augmented Reality may represent a balanced middle ground.

N.B. This thesis does not explore the use of New Media for artistic creation, and New Media artworks are briefly mentioned only as a category of artifact among many others.

*You can point out the moon with your finger, but you
must be careful not to mistake the finger for the moon.*

– Zen proverb

Table of Contents

Acknowledgements	1
Chapter 1: Defining the Field of Enquiry	2
1.1 The New Media Era	2
1.2 My Thesis	5
1.3 Methodology of this Enquiry	6
Notes, Chapter 1	10
Chapter 2: New Media	11
2.1 Introduction	11
2.2 How Does New Media Relate to Media in General?	14
2.3 Media Issues	25
2.4 New Media and the Perception and Organization of Reality	33
2.5 Social and Cultural Impacts of New Media	51
2.6 New Media and the Real World	54
Notes, Chapter 2	55
Chapter 3: The Museum	57
3.1 What is the Museum?	58
3.2 The Artifact	70
3.3 Interpretation	79
3.4 Use of Media	82

3.5 The Exhibition	87
Notes, Chapter 3	102
Chapter 4: New Media in the museum	104
4.1 New Media as Evolution and Extension of Traditional Media	106
4.2 New Ways to Deliver Interpretive Content	107
4.3 Interactivity	109
4.4 Organization, Structure, and Coherence	110
4.5 New Media, Representations, and Reproductions	113
4.6 The Virtual Exhibition	118
4.7 The Virtual Museum: Projections and Realities	123
4.8 The Museum of the Future: Projections and Fantasies	129
4.9 An Overview of New Media and Visitor Experience	131
Notes, Chapter 4	133
Chapter 5: Conclusions	135
5.1 My Thesis	135
5.2 Main Points	135
5.3 Conflicting Visions	137
5.4 Next Steps	139
Notes, Chapter 5	141
Works Cited	142

Acknowledgements

I am very grateful to my thesis advisor, Ben Gianni, without whose generous advice, comments, criticism, and encouragement the completion this thesis would not have been possible, and to Greg Andonian, who encouraged me to undertake it in the first place.

I also thank friends and colleagues Jennifer Lonergan and Chris Kitzan, who read drafts of Chapter 3, and whose many suggestions served, if not to eliminate, then at least to limit, its worst excesses.

Chapter 1: Defining the Field of Enquiry

1.1 THE NEW MEDIA ERA

Over the course of relatively few years, virtually every aspect of contemporary life has been affected by the rise of New Media – although these changes may seem unrelated to one another and/or to media, as the term is commonly understood. The personal digital assistant, Hollywood special effects, on-line banking, MTV and music videos, the World Wide Web, video games, email, international child porn rings, and pirated movie downloads are just a few manifestations of New Media in our culture.

The old media that have been replaced or transformed have been shown to be weaker, slower, less flexible, and more expensive than New Media products – which have dazzled us with their almost magical qualities and possibilities. Users habituated to a world of shirt pocket MP3 players full of downloaded music may well look upon yesterday's turntable and LP collection with a mixture of horror, pity, and disbelief.

In recent years, New Media has become more and more common in the fields of education, entertainment, marketing, and others, and has expanded and transformed these fields in unforeseen ways. As the technology on which New Media is based is in constant, rapid evolution, it would be reasonable to expect that this process of expansion and transformation will continue, or even accelerate, in coming years.

1.1.1 New Media in the Museum

As it has everywhere else, the arrival of New Media in the museum has radically changed the way information, in the form of words, images, numbers, audio, and video, is manipulated. Every aspect of the life and work of the museum has been digitized and computerized. Collecting, preserving, researching, exhibiting, and interpreting are all carried out using digital tools in a digital environment. The media that the public now sees are comprised of digitally composed and printed graphics, screen-based multi-media productions, and searchable data banks of images and information.

As an institution largely concerned with communication, education, and entertainment, it is not surprising that the museum would be an early and enthusiastic adopter of New Media.¹ However, given the breadth of the museum's core functions – collection, conservation, study, and exhibition of material culture – this adoption is more complex than it initially appears.

As noted, New Media have arrived in the museum in a variety of forms and applications – sometimes as adjuncts to traditional media, sometimes as replacements within traditional contexts, and sometimes as entirely new products. Like most other institutions, museums now maintain websites for the purpose of promotion and outreach, as well as in order to make collections and archives accessible to researchers. Interactive kiosks, both within the museum and off-site, offer visitors access to web-based content, databases, and feedback mechanisms. Within exhibitions, similar interactive elements are increasingly used to present audio-visual content, educational games, and/or to access image banks and databases.

In an attempt to move some of the museum's collections outside its walls and into the homes of distant publics, web-based content is also used to stage virtual exhibitions. A logical extension of this is the idea of the virtual museum – a museum without physical presence – that performs museum functions and delivers a museum experience entirely on line.

1.1.2 New Media's Impact on the Museum

Some of these innovations have become solidly established, and have met wide public acceptance. They can be shown to have increased the museum's outreach, improved its outcomes, engaged new publics, and to have helped to serve existing publics in new ways. They might be described as enhancements to the museum's traditional activities (using new tools to perform established functions), or as additions and embellishments to the museum's core functions. They also raise the museum's visibility, which serves to attract more visitors to the museum itself.

Others, particularly the virtual exhibition (and even more so the virtual museum) are more radical departures from established functions and roles, and might be seen to represent a disconnect from the museum's essential nature and role. They purport to deliver an exhibition, or a museum, or the experience of an exhibition or museum, outside the boundaries of a specific time or place, and without a direct experience of artifacts (or other visitors) in a specific setting.²

Some of these applications have the potential to radically transform the museum itself – from a provider of narrow access, carefully contextualized knowledge and experience to a widely available broadcaster of these and other services. Although this may well be an extension of a traditional museum into a new realm, it may also aspire to a new type of museum that exists exclusively in the virtual realm, with no publicly accessible physical presence.

1.1.3 Images of the Museum of the Future

As we will see later in the text, thinkers in fields like Media, Design, Education, and Museology have described the museum of the future as a hyper-mediated, interactive arena where visitors browse among images, texts, audio and video, navigable virtual spaces, and manipulate virtual objects while on a self-directed quest for knowledge and experience. Visitors to this new “museum” walk on the ocean floor, read the Magna Carta, pilot a spacecraft, compose music and hear it played, while accompanied by avatars that act as personal guides/interpreters.

To the extent that the experiences provided by this museum of the future are essentially media experiences, the museum could exist primarily or exclusively in cyberspace, accessible from anywhere at anytime, and bringing together everything from anywhere and anytime. The museum visitor accesses ocean floor, the Magna Carta, the spacecraft, and the virtual orchestra, from the coffee shop, classroom or from the comfort of home.

1.1.4 Understanding New Media in the Museum

In the museum as elsewhere, the advance of New Media to date has been extremely rapid and at times seemingly inevitable. As technology evolves, we can expect this advance to continue. While the “mediatization” of the museum will likely be an ongoing process that takes us from where we are to some version of the “museum of the future” described above, one might well question the rationale for this process. Does this seemingly wholesale rush to New Media address identified needs and/or move the museum ever closer to some ideal around which a consensus has formed? Or is this a process driven purely by technological advances? The evolution of New Media may make possible dramatic changes in the way museums work, but does that evolution make those changes desirable? Can one never be too rich, too thin, or too mediated?

Forging an informed position regarding the role of New Media in the museum requires a basic understanding both of New Media and the museum. In the museum context, mediation is a key issue in two respects. The first is that the museum, in its interpretative role, commonly uses a wide range of media to gather, transform, manage, and communicate information. Mediation is by no means new in this already media-rich environment, and much of the museum’s New Media content can be expected to be a remediation of preexisting (old media) content. Second, given its mandate to collect and exhibit artifacts, the museum is itself a context that strongly mediates the reality to which those artifacts purport to bear witness. Scenarios in which visitors interact with mediated simulacra of artifacts – rather than the artifacts themselves – inject a significant additional level of mediation into an already mediated experience of the real.

1.2 MY THESIS

My professional experience as an exhibition designer spans the period of new media’s arrival and increasing prominence. Attitudes toward the adoption of new media in the institutions for which I work range from uncritical enthusiasm to the most skeptical resistance. As a professional who is closely involved in any adoption or design of new media elements, neither of these extremes seems a viable response.

This research is undertaken with the intention of creating a more constructive framework in which to discuss the role of new media in the museum. This approach requires a careful examination both of New Media and of the Museum (individually) before examining their interaction.

I would suggest that any discussion of New Media's effectiveness must begin by identifying the purpose to which it is put. The potential utility of New Media in the museum depends on its ability to address the museum's specific needs, and to deliver outcomes consistent with the museum's objectives. Thus, when used appropriately – a concept we will define below – New Media has the potential to enhance the museum experience; similarly, when used excessively or indiscriminately, New Media can degrade the museum experience. While there is little question that New Media can extend and deepen the museum's effectiveness, I contend that it should not be used to radically transform the museum, or to render its current form obsolete.

Though an enquiry both into the museum and New Media, this thesis posits that museum of the future is not a *virtual museum*.

1.3 METHODOLOGY OF THIS ENQUIRY

We will explore this subject by breaking it down into three broad sections – New Media, the Museum, and New Media in the Museum – in which a number of key issues and specific questions will be addressed.

1.3.1 Mediation, Old Media, New Media

In Chapter 2 we will explore media, New Media, and the concept of mediation itself – with particular attention to the relationship between mediated and un-mediated realities, and to the nature of the media object.

We will define media, based on the key functions of representation, communication, and reproduction, and trace the development of media, up to and including New Media. We

will define New Media, identify characteristic features, propose common examples, and look at issues regarding remediation, immediacy, and hypermediation.

Among the aspects of New Media that are of particular interest are the convergence of media, immersive and other forms of Virtual Reality, New Media's effect on the organization of and access to content, and on the perception and organization of reality. We will also examine the social and cultural impact of New Media – which is relevant to this discussion, both as results of use of New Media in the museum, and as an aspect of the cultural and social context in which the museum operates.

1.3.2 An Overview of the Museum

Having devoted a chapter to New Media, we will turn to the museum in Chapter 3 – identifying its core functions, examining the use of media (particularly in relation to the exhibition and Interpretation of artifacts), and defining the nature of the museum experience, which, I propose, is based on an encounter with the real, in the form of artefacts. We will discuss the principles, practices, and objectives underlying museum exhibitions and identify the various forms of traditional media that they employ.

A wide variety of types of museums exist, and within each type, no two museums are alike. Accordingly, Chapter 3 will also attempt to identify the principle types of museums in order to present a balanced discussion of the issues that are relevant to all of them.

This paper is concerned with the museum's strictly "museological" functions, i.e. the collection, conservation, research, and exhibition of artifacts. Each of these functions is a subject unto itself, with its own particular disciplines, history, philosophical underpinnings, and practical considerations. Our interest here in the first three functions is primarily limited to their impact and influence on the fourth, namely exhibitions, where the products of the largely unseen professional activities of collection, conservation, and research find public expression.

We will briefly describe various museum publics, and make the important distinction between public use, i.e. the exhibition as cultural experience/edutainment, and

specialized use, i.e. the museum as a source for researchers. Making the museum's holdings searchable, and interpreting holdings are not the same thing. These are different objectives, with distinct target audiences, and our concern is focused on the Interpretation of collections to the general public.

1.3.3 New Media in the Museum

Clearly, New Media has arrived in the museum, as it has arrived everywhere, as emails, websites, digital photography, etc. Chapter 4 will explore the impact of New Media on the museum's core functions, and more specifically its use for Exhibition and Interpretation. We will also consider New Media as it is used for Outreach and Promotion, but only when New Media produced for Exhibition and Interpretation is used for those purposes. New Media created specifically for promotion purposes, like New Media created for classroom use by museum educators, falls outside the topic of this paper.

This thesis seeks to identify and critically evaluate current and potential uses of New Media in the museum in order to situate New Media in the context of other tools that address the museum's objectives, and to assess New Media in terms of pertinence, utility, and potential to improve the museum's outcomes or expand the museum's role.

We will survey New Media, and more specifically its current and potential use in museums, and past and current thinking about possible further developments. We will focus on the ways in which the arrival of New Media has changed the museum, and how it might be expected to change it further.

1.3.4 Limits of this Enquiry

As noted, this thesis is concerned with the role of New Media in the museum, particularly as it relates to the core museum functions of exhibition and interpretation. Its concern with advances in the technology of New Media, impact of New Media on mass media, entertainment, science, education, etc., and related social and political changes,

etc. is strictly limited to their impact on the Museum. In order to examine the chosen subject at some depth, every effort will be made to maintain a tight focus.

Although New Media is increasingly important as a medium for artistic creation and New Media artworks are collected and exhibited by museums, these works are of interest only as a specific category of artifact among many others, and are otherwise a side issue that will not be pursued.

1.3.5 Moving Toward the Future

It is assumed that any understanding that can be developed can be put to very good use in informing future decision-making. Current and potential applications of New Media in the Museum will be considered in terms of their pertinence to museum objectives, and their capacity to deliver on those objectives. We will attempt to identify strengths and weaknesses, risks and opportunities, and to distinguish between productive and counterproductive uses of New Media.

Notes, Chapter 1

¹ In the case of publicly funded institutions like Canada's National Museums, many of these initiatives are taken in response to mandated goals and/or strategic initiatives related to funding. The National Museums have a strong institutional motive to reach, and to be seen reaching, as wide a public as possible – both geographically and socio-economically – and to actively explore ways to expand their outreach.

² An exceptional case may be when this is done within the context of an educational outreach programme, in which case a fairer comparison might be between the virtual exhibition as a teaching tool vs. other classroom methods, and not between the experience of a virtual exhibition and that of a traditional one.

This is no doubt a field of enquiry worth exploring, but I choose to make a distinction between the museum's exhibition programming, which is directed to the general public, and those addressed to very specific publics, e.g. schoolchildren. The virtual exhibition may well be an effective teaching tool for classes of children, but the museum's physical exhibitions do not typically target this audience.

Chapter 2: New Media

The stated field of enquiry of this study is New Media in the Museum. This section will introduce and define New Media, identifying important features and issues, particularly those that relate to its use in museums. Although any number of technical, historical, social and other issues will be touched on, they are not our primary focus, and will be explored only to the extent that they are relevant to New Media's role in the Museum. So, what is New Media?

2.1 INTRODUCTION

New Media is far easier to recognize than to define, either by its exact features, or its history. What exactly is New Media, and what is not? When did it arrive; at what point did we transition from Old Media to New? Both the term, "a plural noun treated as a singular subject,"¹ and the reality it represents are the subject of various debates (Chun 1-4), and its claim to New-ness in particular is challenged on all sides, with earlier and earlier precedents being proposed for all of its features (Mirzoeff 335), and arguments advanced that it is merely a new delivery vehicle for old media (Howells 221).

The related questions, namely how new is New Media, and how does it differ from Old Media, are neither simple nor without controversy. Clearly, every medium was once new, and the term New Media must refer to more than the relative novelty of its technology. Understanding what makes New Media New Media requires some understanding of the nature and historical development of media and mediation.

As we will see, New Media refers to a specific group of media united by their use of digital data technologies. It is generally understood that New media is characterized by the use of computers to control the presentation of multi-media content; by interactivity, and by a high degree of user control over access to content.

A number of new commercial product categories based on New Media technologies have become established, and their production and dissemination has become a multi-billion dollar industry. New Media applications range from the very simple – email, spreadsheets, and catalogues on CD-ROM – to the very elaborate, or very interactive. Video gaming – on dedicated consoles, or networked for multiple players on the web – includes both virtual worlds and interactive manipulation of those worlds in real time. The world wide web, itself an example of New Media, is also the vehicle for a seemingly unlimited range of New Media products, services, and activities, and the access point to archives and databases almost beyond counting.

The furthest development of new media, and its most dramatically new product, is virtual reality, a more or less immersive media experience that sets out to simulate a “real,” i.e. non-mediated reality. This is particularly relevant because, as we will see in Section 4, the delivery to the public of various Virtual Reality experiences is strongly recurring theme in evocations of the museum of the future.

Some of the significant features of New Media are its ubiquity, almost universal accessibility, and tendency to cross boundaries and break down the distinctions between media. As it is based on technologies that generate, store, and transmit almost all types of information in a common form, namely the digital bit, it inevitably leads to a convergence of data, referred to by Manovich as “transcoding” (45-8). This convergence makes possible in turn almost limitless recombination and transformation, and allows almost unlimited access to that data. These possibilities, and the changes they enable, are of particular interest to knowledge-based institutions, including museums.

Although New Media may in some ways be seen as a simple evolution of earlier media types, or the expansion or technical advancement of Old Media, key features of New Media represent a dramatic break with Old Media, and transform

not only the use and meaning of media itself, but many of the human institutions and activities that use it. Some of these key features are the “convergence” made possible by the creation and storage of diverse media types in a common digital form; the ease of real time multi-player communication, interaction, and manipulation; and access to almost unlimited quantities and types of data.

2.1.1 New Media in the Museum

The role of New Media is expanding exponentially in the museum, as it is in other areas. New Media is of critical interest to the museum for four principal reasons:

- Even if New Media were limited to its simplest, least “new” form, i.e., as a development or extension of traditional media, those developments or extensions would be of vital interest to institutions as heavily involved in or dependant on media as museums.
- In an increasingly crowded competitive field, the need to effectively market the Museum and its products, events, and services, both to the public and to sources of funding, requires extensive and sophisticated media use.
- There is a perceived need for the museum to project an image of innovative and contemporary change in order to remain relevant and attractive to its public. New Media is seen as a tool to promote access and democratize the museum experience.
- Because the Virtual Museum has long been cited as an inevitable, or at least highly desirable evolution of the museum (Macdonald, *Commercial Considerations* 4), and because Virtual Exhibitions, at least in name, have come to occupy a significant place among museum offerings to the public, Virtual and Immersive technologies are already being actively pursued or adopted.

Within the limits imposed by our focus on New Media's impact on the museum, this Section will critically consider New Media's nature, essential features, and place within the context of media in general. The degree to which any particular aspect of New Media is explored will be informed by the four considerations identified above.

2.2 HOW DOES NEW MEDIA RELATE TO MEDIA IN GENERAL?

2.2.1 Definitions of Media

We assume that New Media is in some way a subset of media, so what is, or are, media? Although Marshall McLuhan is recognized as a brilliant thinker on media, and his writings have had enormous influence, his all-encompassing definition of a medium as "any extension of ourselves," and his use of electric light and the railroad as examples of media (McLuhan 1), casts the net far too wide to be helpful. Bolter and Grusin's definition of a medium as the "formal, social, and material network of practices that generates a logic by which additional instances are repeated or remediated, such as photography, film, or television" (273), is much more useful, but a simpler definition that is more intuitively apropos may be better suited to our purpose.

2.2.2 Our Definition: Representation, Reproduction, Communication

As a simple working definition for our purposes here, we can say that media are *tools for representing, reproducing, and communicating aspects of reality*. The application of these techniques to unmediated reality is referred to as *mediation*, and their application to mediated reality is known as *remediation*.

The product of mediation is a *media object*. While a flower is an unmediated object, and a sunset is an unmediated event, an image of a flower and a poem about a sunset are both media objects. To write a poem about a painting of a sunset is to remediate it, which creates a new media object.

The need to mediate reality is as old as human culture. Thinking may be possible without a method of representing things, but communication is not. Media have three central functions: the representation of an aspect of non-mediated reality (i.e. the transformation of the real object into a media object), the reproduction of that media object, and/or the communication of that media object.

2.2.2.1 Earliest Media

Speech is perhaps the oldest medium, followed by early forms of drawing, painting, and sculpture. Writing is a medium that combined technical aspects of drawing, painting, and sculpture (in the form of incised relief) to represent or remediate speech. These media evolved and developed slowly over thousands of years, with the successive development of writing systems – including phonetic alphabets, incremental improvements in pigments, binders, tools, etc., and periodic technical breakthroughs, like printing, paper, and movable type – that greatly expanded their powers.

2.2.2.2 Post-Renaissance Media

A period of rapid evolution began in Renaissance Europe, when the two-dimensional world of drawing and painting became three dimensional with the systematic development and application of linear perspective. In the 19th century, scientific and technological advances, including the mastery of electrical energy, made possible the rapid development of a variety of new media, including telegraphy, and audio media such as phonography, telephony, and radio. Photography, and then cinematography radically expanded and transformed the power of visual media.

With the development of photography, the subjective representation of reality achieved by earlier visual media (drawing, painting, printmaking) was complemented by a more “objective” representation, and the photographic still became dynamic with the invention of cinema. The cinematic medium grew richer

as it incorporated colour and the medium of recorded sound. The development of animated cinema advanced in parallel, adding sound and colour concurrently.

Just as combining the technical aspects of visual media with the content of speech led to the creation of writing, in the 20th century, combining technical aspects of radio with the content of cinema and radio led to the creation of television. Together, radio, television, and mass-produced, rapidly distributed newspapers and magazines form Mass Media, a significant force in modern societies.

2.2.2.3 New Media

In the late 20th century, technical developments in the field of digital data processing made possible the development of New Media.

The rise of New Media came first as a simple upgrade of the tools of Mass Media, making it quicker and easier to record, edit, and disseminate content. Events that had once been captured and communicated, after long delay, in words, images, or film, were now recorded and transmitted in real time. The lapse between an event and its reporting became shorter, to the point of disappearance, and the news was no longer what had happened, but what was happening.

The digital technologies that first transformed Mass Media, together with rapid advances in computing that transformed the handling of information, soon encompassed all media types, and engendered what became known as New Media.

2.2.3 Definitions of New Media

As noted above, there is both confusion and contention around the use and meaning of the term New Media. Popular definitions typically mention a number of features or characteristics, including digital information, the use of computers, and interactivity, and then list some examples. As New Media is a collective term,

this is an effective strategy, i.e., to briefly describe the principal qualities shared by the members of the group, and then to simply name the members.

Wikipedia recently listed the following examples of New Media: “Internet Art, Video games and virtual worlds as they impact marketing and public relations, Multimedia CD-ROMs, Software, Web sites including brochureware, blogs and wikis, Email and attachments, Electronic kiosks, Interactive television, Mobile devices, Podcasting, Hypertext fiction, Mashup (web application hybrid), Graphical User Interfaces” (30 Sept. 2007). In view of our specific interest in New Media as it pertains to the museum, we will draft our own definition, and attempt to identify relevant examples.

2.2.4 Our Definition of New Media

As a working definition, we might say that a New Medium is a medium that shares two or more of the following characteristics:

- 1) Creation and storage in digital formats
- 2) Use of computers to process data
- 3) Combination of media types, i.e. text, image, film
- 4) User control of access to content, i.e. interactivity
- 5) Virtual objects and/or spaces.

These characteristics are embodied to varying degrees, and in various combinations in the examples below.

2.2.5 Examples of New Media

Perhaps the most obvious essential feature that ties together New Media’s various manifestations is the digital form in which these various media objects are created or recorded. Their common digital form allows them to be manipulated and combined in ways that tend to break down the barriers between

traditional media like film, phonography, and print. All of the examples that follow, and their intercompatibility, are made possible by this shared digital form.

2.2.5.1 Hypertext

Hypertext, which might be more accurately called hypermedia because its application is in no way limited to text documents (Nelson 84-100), refers to the technique of joining a number of documents by linking words or symbols in one document to other documents. The protocol for creating hypertext documents is Hypertext Markup Language (HTML).

Although the most familiar implementation of HTML is the World Wide Web, on which millions of documents are interconnected, it is widely used in New Media to allow user-directed navigation through documents in different media. Hypertext has itself been described as “a meta-medium that would ingest and replace all older media.”

Hypertext is the popular form of computer-mediated communication that has raised perhaps the highest expectation for a transformation of culture. It has been hailed as a new form of literature, a new encyclopedia, a universal library, and as a meta-medium that would ingest and replace all older media (Krapp 359).

2.2.5.2 The World Wide Web

The World Wide Web (WWW) is a vast hypertext environment, a network of interlinked documents of every possible sort made accessible on the Internet. Websites, smaller hypertext environments that make up the constituent parts of the WWW, are access points to the WWW.

The WWW is not itself a media text. It is, rather, an interconnected system by means of which information can be both published and obtained. As such, it can be used both to access and to make available familiar forms such as photographs, radio programmes, musical tracks, video clips and

*even 'live action' from 'web-cameras' (web-cams) around the world....
What is new in terms of visual culture is the WWW site. This is not simply
an existing image delivered by new means, but a new form that does not
exists elsewhere....integrated portal to further texts and
locations...Fundamental to this is the concept of interactivity...
...three important features: integration, interaction, and impermanence
(Howells 232).*

Saving diverse media as data in digital form opens a number of possibilities. Along with the seamless integration of different forms of media, digitization also creates the potential for multi-channel access to separate banks of digital data. The potential scope of the New Media experience, combining a broad range of media types drawn from an even wider range of data bases, is almost limitless, and growing more so as more and different digital archives are made accessible on the WWW.

2.2.5.3 Cyberspace

While the terms *cyberspace*, *Internet*, and *World Wide Web* are often used interchangeably, they are not synonymous. The Internet is essentially made up of hardware and data transfer protocols, and the WWW is essentially made up of the documents that contain that data. Cyberspace is a much slipperier concept, as the thing to which it refers is largely illusory.

Cyberspace is the "place" where a telephone conversation appears to occur. Not inside your actual phone, the plastic device on your desk. Not inside the other person's phone, in some other city. The place between the phones. ...in the past twenty years, this electrical "space," which was once thin and dark and one-dimensional – little more than a narrow speaking-tube, stretching from phone to phone – has flung itself open like a gigantic jack-in the- box. Light has flooded upon it, the eerie light of the glowing computer screen. This dark electric netherworld has become a vast

flowering electronic landscape. Since the 1960s, the world of the telephone has crossbred itself with computers and television, and though there is still no substance to cyberspace, nothing you can handle, it has a strange kind of physicality now. It makes good sense today to talk of cyberspace as a place all its own (Sterling 4).

Although the reality of cyberspace may be problematic, the sensation of being or acting in cyberspace can be quite real. People commonly speak of “meeting’ or “getting together” in chat rooms, and virtual spaces are intuitively understood to exist in cyberspace, not in some net server’s memory device. Cyberspace as a place where one can spend time is clearly an illusion, but a very persuasive one.

2.2.5.4 Information Networks

The digital realm of cyberspace, supported by the networks of the Internet and WWW, can be seen as a metaphorical parallel to the physical world, i.e., open to exploration and full of nooks and crannies waiting to be discovered.

There are other networks, more gated communities of padlocked warehouses than public space. These areas of cyberspace are connected only within local area networks (LANs), or password protected on the Web, and are open to members, or subscribers, or employees, but not to the general public. Here access is controlled and the flow of information is often metered and billed.

2.2.5.5 Interactive Multi-media Products

Beyond digitization of content – which might be considered a simple technical development, largely imperceptible to the end user, like recording on magnetic tape instead of wax cylinders – one of the characteristic features of New Media is its quality of interactivity.

Interactivity in media, in the sense of user-controlled access to and navigation through content, is not itself a new thing. Reader control over a book, or a library of books, is close to total. The selection of content, its order, duration, beginning

and end time, etc. have always been entirely determined by the reader. “New media allow a level of viewer control over video that resembles the control over how one reads a book...interactivity that harkens back to much older media...” (Howells 227) Audio recordings can be started, stopped, repeated, and the order of parts can be controlled, however awkwardly. Radio and television have always offered some programme choices to the user, although their order was fixed by the broadcaster. What is new and exceptional in New Media is the viewer’s almost total control over complex multi-media content.

Multi-media *son et lumière* – vaudeville-style variety shows, or films that combine live action, text, and animated graphics – have long existed. The viewer experiences them in the same way as traditional theater or cinema, as a passive observer to an invariable programme or performance. In New Media, however, interactivity allows the user/viewer to navigate through the content, and direct his own multi-media experience. The nature of the experience is shaped by the viewer’s choices. The programme is personalized, and although the total audience is vast, the experience is an individual one.

2.2.5.6 Virtual Reality

...along with a database, navigable space is another key form of new media. It is already an accepted way of interacting with any kind of data, a familiar interface in computer games and motion simulators, and a possible form for nearly any computing practice (Manovich 252).

Just as the World Wide Web best exemplifies the logic of hypermediacy, virtual reality is the clearest (most transparent!) example of the logic of transparent immediacy (Bolter and Grusin 161).

In his book *The Metaphysics of Virtual Reality*, Michael Heim distinguishes between *weak virtual reality*, which can be characterized as the appearance of a 3D environment on a 2D screen, and *strong virtual reality*, characterized by total

sensory immersion. The latter often requires wearing a device like a head-mounted display, or 3D polarizing stereoscopic glasses, or haptic devices like gloves, in order to create a feeling of presence and control in actual space. Within the *weak* and *strong* virtual reality categories, it may be useful to define subcategories.

2.2.5.6.1 Weak Virtual Reality

Among the simplest forms of virtual reality is the virtual object – a digital model whose three-dimensional form can be manipulated to allow varying points of view and apparent viewing distances. Originally of practical interest primarily to architects and industrial designers, 3D modeling can be seen as a new, richer form of representation, combining advantages of technical design drawing and traditional hand rendering.

The digital modeling of tri-dimensional spaces and objects yields fully realized navigable hypothetical spaces and manipulable hypothetical objects, allowing designers and others to assess almost every aspect of design products before any physical model is created.

Virtual objects can be as simple as single transparent polygons whose edges are defined by lines, or as complex as an architectural space populated by a number of objects, each composed of multiple polygons, with surfaces texture or image mapped, and the whole “illuminated” with multiple light sources, complete with reflections, radiosity, transparencies and shadows.

Rome Reborn 1.0 is an example of a particularly large virtual object: a digital representation of the city of Rome as it was on June 21, 320 A.D., including some 7,000 buildings, 20 kilometers of city wall, roads, bridges, aqueducts, etc.

It is a short step from modeling a designed space or object before it exists in physical form, to modeling an imaginary space or thing that no longer exists or

will never exist in the physical world. This is 3D modeling as a finished product, not as representation of something to come.

Originally a practical requirement for assessing possible design options, the ability to manipulate point and angle of view was essential to fully exploiting the digital 3D model. It is a relatively small step from making discrete changes to one's vantage point, to choreographing (via pre-rendering or using algorithms that support rendering on the fly) continuous change of vantage point through space, over time. This allows the viewer to navigate through digital space and to manipulate digital objects, which became irresistibly appealing to many other prospective users, primarily video game enthusiasts.

Traditional cell-animated films often include scenes that simulate camera movement through space, but no navigable space actually exists. The camera's view at each moment is created as a 2D image; the scene cannot be "re-shot" with the camera following a different path, it must be re-drawn completely, as only the pre-selected view exists for each depicted element.

Modeling in virtual worlds is not limited to physical realities; biological and other processes can also be modeled. And sometimes the two realms overlap. Epidemiologists and public health planners have studied the "corrupted blood" epidemic that caused an unplanned die-off of avatars in *World of Warcraft* in September 2005. "By using these games as an untapped experimental framework, we may be able to gain deeper insight into the incredible complexity of infectious disease epidemiology in social groups," Lofgren and Fefferman said in a paper published in *Lancet Infectious Diseases*.

2.2.5.6.2 Strong Virtual Reality

....at the heart of VR is an experience—the experience of being in a virtual world or remote location (Rheingold 46).

It is perhaps the inevitable next step in the progression that Virtual Reality would take us into these inaccessible places, rather than simply allowing us to observe them from without, but the nature of truly immersive Virtual Reality requires an enormous investment in bulky, uncomfortable, and inconvenient wearable devices. There is very little truly immersive Virtual Reality currently available, and it often seems like a solution in desperate search of a problem.

...the promise of immersive environments, which still occupies that necessary place in the technical imaginary— just around the corner, at the intersection of Progress Boulevard, Consumer Crescent, and Disembodied Drive. VR remains a keystone of information technology's advance brigade – a locus of utopian dreaming (Hillis 351).

Immersive Virtual Reality is of interest in the discussion of New Media in the Museum, if only because it is often mentioned as a feature of the museum of tomorrow, but it might reasonably be argued that, due to technical and financial constraints, it has little real potential in the museum. We will see examples of technologies that approach or simulate true immersion.

2.2.5.7 Media-enriched Reality

New Media does not have to be either a discrete element in the environment, e.g. a CRT display, or an immersive environment of its own. New Media can be layered onto unmediated sensations in order to create a media-enriched reality. An old media example would be the announcer's voice at a ball game; it does not mask ambient sound or obscure its messages, but it adds a layer of audio content.

Increasingly common Head Up Displays (HUD) layer visual information on a transparent surface; a pilot or other viewer looks through the surface to see what is behind it, with additional content superimposed. More recent developments include Retinal Displays, which project visual data directly onto the retina with a

laser (Lake). These technologies are typically for highly specialized applications like flight, weapon, and target status info in jet fighters.

Aimed squarely at the consumer market is *exSpex*, a product under development by eSight Corp., which looks like a pair of sunglasses but remediates the view in front of its wearer, using image enhancement technology to help the visually impaired or others. The aim is to enhance visual experience at concerts or ball games, mediating an event that the viewer is witnessing to enrich the unmediated experience (Hill).

Media-enriched reality can be delivered in many ways. As you watch a significant event unfold before you, audio commentary can provide explanation and analysis, close ups and playbacks of important details can be projected onto giant screens, lulls in the action can be filled by music or other spectacles, *exSpex* or other HUD technology can superimpose additional information, etc. Many of these practices are already current, and to some extent, mediated events have become the norm, while “pure,” unmediated reality may be becoming an oddity.

There is a suggestion, at times explicit, that the ultimate aim of media is total or quasi total mediation – as an aspect of ubiquitous computing, or as the final fully realized form of the WWW – where the distinction between on-line and off ceases to exist and there is no unmediated reality. We will discuss this idea in Chapter 4: New Media in the Museum.

2.3 MEDIA ISSUES

A number of the issues that concern us here will crop up again in discussions of New Media in the Museum. Some of these issues are inherent in any discussion of media, while others are particular to New Media.

2.3.1 Mediation and the Media Object

As noted above (2.1.2), in its simplest form, the act of Mediation is performed on a source object, which exists in unmediated reality, and creates from it a media object. A tree is photographed: the tree is a source object; the resulting photograph is a media object. The media object itself becomes part of non-mediated reality, and subject to remediation: the photographic image of a room may include the photographic image of a tree that hangs on a wall in that room.

Media objects such as photographs are every bit as real as unmediated objects like trees, although reality does not imply physicality or permanence. The source object may be anything – a feeling, a thought, a fleeting shadow, etc. – and the media object may be a bronze sculpture or a spoken word.

The Media object is independent of the source object. It may be saved, shared, manipulated, or erased, and the condition of the media object tells us nothing about the fate of the source object.

2.3.2 Remediation, Immediacy, Hypermediacy

Like other media since the Renaissance – in particular, perspective painting, photography, film, and television – new digital media oscillate between immediacy and hypermediacy, between transparency and opacity. This oscillation is the key to understanding how a medium refashions its predecessors and other contemporary media. Although each medium promises to reform its predecessors by offering a more immediate or authentic experience, the promise of reform inevitably leads us to become aware of the new medium as a medium. Thus, immediacy leads to hypermediacy (Bolter and Grusin 19).

2.3.2.1 Remediation, Refashioning Content

The content of any medium is always another medium. The content of writing is speech, just as the written word is the content of print, and print is the content of the telegraph (McLuhan 23).

Media are continually supplanted by forms of media that are more accessible and better lend themselves to diffusion. The written word is not more meaningful than the spoken, it is just easier to share over distances of time and space. The printed book does not deliver anything more than the manuscript, it just delivers it to more people. Television did not improve on the quality of cinema (it was a smaller, monochrome picture with less rich sound), but a relatively wide selection of content was delivered to one's door, all day long.

Emerging media are typically applied not just to the unmediated world around us but are used to remediate the familiar content of established media. "The computer is offered as a new means of gaining access to these older materials, as if the content of the older media could simply be poured into the new one." (Bolter and Grusin 45) Even when New Media are applied to un-mediated reality, a host of formal and other conventions influence both the creators and the consumers of the New Media object.

Photorealistic computer graphics seeks to create a space that is purified of all references to itself as a medium and to other media, and yet never seems to be able to maintain that purity. Instead, it must appeal to us through the traditions of linear-perspective painting and photography. We cannot look at a digital image with eyes innocent of these traditions. Computer graphics specialists acknowledge their dependence on these traditions when they take as their model a painting or photograph rather than "real life"... (115)

2.3.2.2 Immediacy, Transparency, Objectivity

Acceptance of mediated reality, and enthusiasm for new forms of media, has always been closely linked to media's degree of immediacy, i.e. the quality of seeming unmediated. The media object is praised for "the illusion of three-dimensional space within which things appeared to exist as our eyes in reality see them" (Bazan 239) As we grow familiar with a medium, its quality of immediacy fades, and we become more aware of its limits.

The first viewers of the Lumière Brothers films were astonished by their "realness," and reacted as if to unmediated reality. Those films today charm with their quaintness and amuse with their crude and obtrusive falseness. We are unable to suspend disbelief for even an instant in order to believe in what they depict.

Media are always controlled by the people who wield them as tools, and every media object has a creator, whose vision has shaped the media image, even if involuntarily. This works against immediacy, by placing the media "artist" between the viewer and unmediated reality, and underlining media's artificiality.

...altered images become a problem only for those who regard photography as operating under the logic of transparency. If the viewer believes that a photograph offers immediate contact with reality, he can be disappointed by a digitally altered photograph. The reason is that the logic of transparency does not accord the status of reality to the medium itself, but instead treats the medium as a mere channel for placing the viewer in contact with the objects represented. Yet a digital photograph can be as transparent as an analogue one. (Bolter and Grusin 110).

"Objectivity," freedom from the artist's hand, is an attractive aspect of any new media. An important quality of photography during its early days was its seeming objectivity. A drawing may be truer to the artist that created it than to its subject,

but “the camera never lies.” For a time Cinema Verité generated a similar illusion of objectivity, but ultimately, the viewer became sophisticated enough to see the media creator behind the media object.

The quest for immediacy suggests that the mediation of reality implies some inevitable loss, some degradation, i.e., that the media object is less than the reality it depicts. This would suggest that we are willing to accept the photo only because we cannot have the photo’s subject, that the photo is the best we can do. The more immediate the experience, the less we regret the absence of an unmediated experience.

Hypermediation of course suggests the opposite, that media can enrich and improve the unmediated real, provide a richer, more engaging, more informative version, after the fact, or far away from where the events take place.

2.3.2.3 Hypermediacy

We are perpetually aware that what we are watching is a formal construct that draws attention to its own artifice (Howells 240).

With their fascination for mirrors, windows, maps, paintings within paintings, and written and read epistles, such artists as Gabriel Metsu, David Bailly, and especially Jan Vermeer often represented the world as made up of a multiplicity of representations. Their paintings were not multimedia; rather they absorbed and captured multiple media and multiple forms in oil....We can in fact find hypermediacy in individual works and individual painters throughout the period in which linear perspective and erasure were ascendant. One could argue...that hypermediacy was the counterpart to transparency in Western painting, an awareness of mediation whose repression almost guaranteed is repeated return (Bolter and Grusin 37).

Hypermediation is the seemingly inevitable tendency to maximize the content density of any medium with techniques like superimposition, multiple message streams, aggressive editing, etc. Historically, it has always appeared in every media, from illuminated manuscripts, paintings with multiple timeframes, pages with sidebars, etc. (Ernst 109)

...practice of hypermediacy is most evident in the heterogeneous "windowed style" of WWW pages, the desktop interface, multimedia programs, and video games.....privileges fragmentation, indeterminacy, and heterogeneity, and...emphasizes process or performance rather than the finished art object (Mitchell Reconfigured Eye 8).

In cinema, Hypermediation is characterized by choppy editing, dramatic zooming, abrupt transitions, overlapping timelines, etc. – techniques that are even more pronounced in television programming. (Bolter and Grusin 93) Contemporary New Media has retained, accentuated, and multiplied all the techniques of earlier media, combining them into a frenzy of hypermediation. Cinema's split screens kaleidoscope into multiple picture in picture, overlaying scrolling texts, animated graphics, and more.

As the density of content increases, any illusion of immediacy or objectivity recedes apace.

Hypermedia and transparent media are opposite manifestations of the same desire: the desire to get past the limits of representation and to achieve the real. They are not striving for the real in any metaphysical sense. Instead, the real is defined in terms of the viewer's experience; it is that which would evoke an immediate (and therefore authentic) emotional response. Transparent digital applications seek to get to the real by bravely denying the fact of mediation; digital hypermedia seek the real by multiplying mediation so as to create a feeling of fullness, a satiety of

experience, which can be taken as reality. Both of these moves are strategies of remediation (Bolter and Grusin 53).

2.3.3 Unification of Data, Convergence of Media

The technical convergence of the forms in which media objects are created and stored leads to a creative convergence in the ways media are organized for presentation. In turn this leads to a convergence in the way media are experienced and understood by the public. This involves both a dramatic evolution in the range of media tools available to the museum, and significant changes to the cultural context into which the museum's media offerings are launched.

2.3.3.1 Technical Convergence

Every traditional medium has its own unique technology to create, store, manipulate, and display content, and its own methods to reproduce its characteristic media objects. For example, pre-digital photography, typography, and drawing have no processes or equipment in common, nor do their practitioners share any common skills.²

As we have seen, all new media create, store, manipulate, and display data in the same form, i.e., as a string of digital bits. Digital data can be recorded, with a camera, scanner, microphone, or other device, or created with software controlled by a keyboard, mouse, graphic tablet or other interface device. Once the original, raw data is downloaded to a computer, it can be stored there, and all further manipulations can be executed on that computer using appropriate software.

Basic operations like selecting, copying, cutting, pasting – as well as more sophisticated manipulations like layering, scaling, using tools, and applying filters – are common to software applications that handle type, drawings, paintings, photos, video, sound, and others. Many of these applications permit diverse

media files to be linked, embedded, and otherwise combined into static collages, multi-media clips, and fully interactive multi-media products.

2.3.3.2 The Illusion of Multi-media

When Walt Disney Studios produced *Fantasia* in 1940, the combination of music, live action cinema, and animated cinema represented a dramatic creative innovation, although not a commercial success. The film is exceptional, not just because the musicians performing the soundtrack music are an important part of the image content, but because these and other images are composed to support the music. In conventional film practice, music is chosen or composed to support the narrative line, which is essentially visual. In *Fantasia*, the music forms the narrative line, and the images are composed to support it. *Fantasia* may be the first, and very early, example of a music video, a form that has since become common and is now widely distributed on the WWW (Howells 231-236).

“Rich multi-media” content is often referred to as one of New Media’s great advantages over old media, and in one sense, this is true. New Media does facilitate the combination of text, image, video, and sound within a single document or program, and this is often misleadingly characterized as multi-media. While the sources that it remediates are perhaps distinct media, the final product is not. An art performance that combines painting, sculpture, music, and dance would certainly offer a multi-media experience to viewers. Would the viewers of a video of that performance also experience a multi-media event, or would the only medium presented be video?

....in digital space: the difference between the aesthetic regimes only exists for the human user, simulating the audio-visual human senses under one surface. A close reading of the computer as medium, though, reveals that there is no multi-media in virtual space, only one medium, which basically calculates images, words, sounds indifferently, since it is

able to emulate all other media. The term multi-media is a delusion (Ernst 108).

Similarly, a museum visitor might walk around the skeleton of an elephant while looking at the text and images displayed on its base, and running her hands over a tooth, a tusk, and the casting of an elephant's footprint; the recorded sounds of elephants feeding, breaking branches, and trumpeting to one another fills the space from concealed speakers. A nearby screen shows the filmed action that corresponds to the sound track.

An alternative scenario would have footage of the live elephants, their footprints, tusks, teeth, and skeleton all included in a video that also incorporates the text, streaming across the bottom of the screen. Is this an example of multi-media, or simply a video?

In an important sense, the addition of more and more audio-visual material to a screen based mix does not contribute to a more multi-media experience, as all of this material is refashioned for presentation as one medium, screen based hypermediated video.

Stripping different media of their original distinctions, the interface imposes its own logic on them. Finally, by organizing computer data in particular ways, the interface provides distinct models of the world (Manovich 65).

2.4 NEW MEDIA AND THE PERCEPTION AND ORGANIZATION OF REALITY

2.4.1 Homogenization of Content, Loss of Meaning

2.4.1.1 Ambiguous Source and Authority

A researcher today can almost effortlessly access more information today than would have seemed possible even 20 years ago, although the quality of that information is open to serious question. Research no longer requires a trip to the library or archives; facts, figures, texts, images, audio, and video from thousands

of sources are all accessible from a computer workstation. Raw data, expert analysis, and partisan opinion are available on virtually any subject, as is the opportunity to discuss it with other interested parties.

Traditional publishing has always been laborious and expensive. Accordingly, authors chosen for publication have been judged and found worthy, their work having been considered intellectually, ideologically, or commercially significant enough to warrant the cost. Once a work is in print, booksellers and librarians in their turn will judge it worthy or unworthy. Although a million opinions may exist on a given subject, a researcher among traditional published sources will find primarily those that have passed these hurdles.

Web publishing is cheap, easy, and uncontrolled – the effort required to make a text available to the world being arguably less than the effort required to type it. As such, the distinction between published and self-published is not clear and confirmation of authority to address a subject cannot be inferred.

2.4.1.1.1 Understanding Media Objects Within Other Media Objects

iCarly, a new television show/website/webcast from Nickelodeon, is an example of the remediation and refashioning of content into a variety of forms. During the first episode of iCarly, video footage of its main character, Carly, is posted on a YouTube-like website. In response to its popularity, Carly starts her own weekly webcast, called iCarly, with a corresponding website called iCarly.com. and invites other kids to submit video.

The fictional webcast, as a show-within-a-show, makes up an important part of each TV show episode. Nickelodeon has created a real world (i.e. real Internet) iCarly website, that features segments from the TV show, but also solicits clips from viewers for potential use on future shows.

In other words, kids can watch the television show, watch a webcast imbedded in the television show, visit a website that overlaps with the

webcast imbedded in the television show, and then, if ambitious, create a video to be sent to the website, in hopes of being featured on a future webcast embedded in the television show (Frey).

Similarly, as museum visitors are presented with wider access to additional content, including raw data archives, and access to the “related sites” of other institutions, a dilution of authority is inevitable. If it is not the museum’s content, presented in the museum’s voice, whose content and whose voice is it?

While the unreliability of the information made accessible to the user is an important issue, the users’ lack of interpretive expertise or intellectual context for that information is even more apparent. When the expert is jettisoned (or redefined), his biases and hidden agendas go with him, but so do his knowledge and informed understanding of the material. The critical thinking required to productively deal with a mass of facts and figures is not contained within the data; it must preexist the data.

The user is left with unlimited raw data, and few tools with which to select, structure, and interpret it. Research risks devolving into an aimless and uncritical browse through a forest of anecdotes, factoids, and uninformed opinions – where the sheer volume of information obviates comprehension or conclusion.

An uncritical browse through random bits of information will naturally tend to favour those that stand out, either by their nature or their meaning: the surprising, humorous, or ironic; those that clearly support, or clearly undermine, common knowledge or a predetermined conclusion. Other finds may be even more appealing to a media-savvy and experienced user, related to the form in which the data is held. If a picture is worth a thousand words, how valuable is a film clip, or an audio recording?

A search might turn up an item composed of thousands of words of courtroom transcript in which a series of witnesses describe an event, and a second item

that is a computer animation of the events described in the transcript.

Presumably all but the most dedicated academic historian would choose to view the second, which adds significant layers of interpretation and remediation to content provided by the original source.

2.4.1.2 Discontinuous Space, Loss of Frame of Reference

If the World Wide Web and the original VRML are any indications, we are not moving any closer toward systematic space; instead, we are embracing aggregate space as a new norm, both metaphorically and literally. The space of the Web, in principle, cannot be thought of as a coherent totality: It is, rather, a collection of numerous files, hyperlinked but without any overall perspective to unite them. The same holds for actual 3-D spaces on the Internet. A 3-D scene as defined by a VRML file is a list of separate objects that may exist anywhere on the Internet, each created by a different person or a different program. A user can easily add or delete objects without taking into account the overall structure of the scene. Just as in the case of a database, the narrative is replaced by a list of items; a coherent 3-D scene becomes a list of separate objects (Manovich 257).

The process of making sense of the world around us involves integrating new experiences and new knowledge into the framework of the already known. Any experience of the real is real down to its smallest detail, and is conditioned by the real context in which it is encountered.

When we visit an historic building, we view it from the same eyelevel from which we view the rest of our world, and can intuitively know its scale. We perceive, without the need for thought or analysis, that a space is bright, musty, drafty, gloomy, calm, or beautiful, and are confident in these perceptions because they are based on a lifetime of empirical experience of these qualities and feelings. A

past experience of anything in the real world equips us to connect a new experience to that past, and to understand it.

When we visit a virtual building in cyberspace, we have no body of experience with which to make it meaningful. We come to cyberspace without our physical bodies, our memories, our habits and experiences. Our experience of one virtual building or room provides us with no meaningful memories or understanding with which we can measure the next virtual building or room we encounter.

Discussing Walter Benjamin's idea about aura, distance, and scale, Lev Manovitch notes that: "When photographs are brought together within a single magazine or newsreel, both the scale and unique locations of the objects are discarded – thus answering the demand of mass society for a 'universal equality of things.'" (Manovich 171-2)

To the extent that places in cyberspace are all part of a single fictional reality created for some specific purpose, e.g., the settings for a game like *World of Warcraft*, this discontinuity is not a problem. WoW is a closed system that does not pretend to address any aspect of the real world, or to provide intellectual tools that can be used anywhere else.

When spaces are created by the museum or others as a tool for the exploration of the unmediated real world, however, this discontinuity is a potentially fatal flaw that must be addressed. Virtual Reality will be discussed at some length in Section 4: New Media in the Museum.

2.4.2 Reality and Representation

2.4.2.1 "Realistic" Representations

With the Fine Arts, people struggled long and hard to achieve the illusion of reality. With photography, the illusion is guaranteed by the process. The relationship between the photograph and reality, however, is considerably less than simple (Howells 151).

As discussed earlier, immediacy or transparency refers to the self-effacement of a medium in favour of its source object or event, i.e. media objects not looking like media objects. A related idea is realism, i.e. the media object looking like the source object. Realism has long been an ideal of drawing and painting³, and was particularly so before the invention of photography, which took the game to another level.

We consider certain images to be “realistic” even though they are very different from our direct perception of the reality that they depict, and could not, under normal conditions, be confused with it. Reality is interpreted, represented, and communicated according to seemingly arbitrary conventions (Howells 139-143). By virtue of their familiarity with these conventions, visually literate individuals are equipped to judge the “realism” of the images they view. As media develops, the standards of realism advance, and images once considered realistic begin to seem mannered or highly interpretative. The level of realism conveyed to the viewer by a computer animation was perhaps once within the power of black and white etchings (171). The “realism” of an image is a subjective impression, not a measure of its ‘fidelity to an empirical reality’, i.e. its source object (Fiske 21).

2.4.2.2 Alberti’s Frame vs. Immersion

The visual culture of the modern period, from painting to cinema, is characterized by an intriguing phenomenon – the existence of another virtual space, another three-dimensional world enclosed by a frame and situated inside our normal space. The frame separates two absolutely different spaces that somehow coexist. This phenomenon is what defines the screen in the most general sense... (Manovich 95)

The frame as a delineator of two different orders of reality has its origin in Alberti’s *Della Pittura* of 1435-6 (Howells 139). An example of visual media, such as drawing, painting, etc. is a two-dimensional image on a surface. This surface is analogous to a window, i.e., we look at the media object on the surface as if we

were looking through a window at the reality that has been mediated. The painting framed on the wall acts as a window through the wall, with the frame separating the mediated reality of a landscape, still life, or other, from the unmediated reality of the wall.⁴ The frame delineates the area in which the rules of linear perspective operate, and this is an example of the function of frames in general: to separate one order of reality from another.

If artificial intelligence in the 1950s and 1960s refashioned the computer from a mere adding machine into a processor of symbols, virtual reality is now refashioning the computer into a processor of perceptions.

Virtual reality operates most often under the logic of transparency. For enthusiasts, the perfect interface is one in which the user, wearing a head-mounted display, feels as if she has fallen through Alberti's window and into a world of computer graphics. For them the immediacy of virtual reality comes from the illusion of three-dimensional immersion and from the capacity for interaction (Bolter and Grusin 162).

Truly immersive Virtual Reality breaks free of the frame that binds all earlier visual media, making it an example of a truly new media. The Virtual Reality user, equipped with a VR headset, is on the same side of the frame as the images. Strong, or immersive, VR, unlike Weak VR which is viewed on a screen of one sort or another, does not co-exist within an unmediated space, from which it is separated by a frame. No un-mediated reality intrudes into the truly immersive VR space, so no frame is required.

2.4.2.3 Photographic Truth

...theoretical approaches to photography are complicated by the fact that the photographic image is both reality and representation at the same time (Howells 166-7).

Before the advent of photographic techniques, the image within the frame was always produced by a human hand, i.e. its immediacy was recognized as artificial, and considered a measure of the skill of its creator. The fidelity of the image's relation to any physical reality could not be assumed, as it was understood that the artist had the ability to interpret reality, if not to invent it entirely. To have seen a painting of something was not deemed equivalent to having seen the thing itself.

Photography represents a dramatic break in the progressive development of more and more "realistic" visual media. Although the circumstances surrounding the creation of a photographic image are entirely man-made, the photographic image, unlike any other, is created by natural forces, not the hand of man. A series of discoveries, experiments, and technical innovations over many years were necessary before the camera, lens, photosensitive materials, chemical process, etc. were perfected (Howells 153-4). But once these circumstances are in place, the photographic image is created by its subject, or at least by the light reflected from its subject, not by the hand of the artist.

Talbot...described Lacock Abbey (which he photographed in 1835) as the first building 'that was ever yet known to have drawn its own picture'. It is an attitude that suggests that a photograph is an unmediated medium with a direct, uncomplicated authenticity and which provides straightforward evidence of the thing photographed. As it is a mechanical recording device, it can only record the truth (158).

As we have seen earlier, this seems to distinguish photography as the first "objective" medium, and gives rise to two significant ideas about it. First, that since the capture of reality is a quality of the medium itself, the photographer displays no artistic skill, and the quality of a photograph is simply a function of the quality of its subject. Second, and far more significant, is that the photo is an

objective record of unmediated reality – a “mechanical recording device” that can “only record the truth.”

This new status, as a recorder of “unassailable truth,” unique to photography at its birth, has also been shared by later “photographic” media: cinema and video. This represents an unprecedented level of immediacy: although the viewer is aware that he is looking at a photograph or a video playback, he feels and believes that he is an eyewitness to unmediated events or objects. According to André Bazin, ‘The photographic image is the object itself’....‘freed from the conditions of time and space that govern it.’....‘the logical distinction between what is imaginary and what is real tends to disappear’ (14-16).

To some degree, every photograph is authored – and some very much so
(Howells 222).

Obviously, the “objectivity” and “truth” of photographs has always been an illusion. Even the earliest and most primitive photos are the result of a series of choices, aesthetic or otherwise, made by the photographer. The camera is placed and oriented to capture a certain subject from a certain angle, choices made from the infinite number of possible subjects and views, and the photographer chooses the precise moment he wishes to record. The difficulty and cost of making a photo encouraged the photographer to not only make these choices very carefully, but to modify the scene to be photographed: items could be added and removed, or arranged more artfully. When human figures began to appear, they were typically posed by the photographer. Although many early photos strive for a “candid” and spontaneous look, they are neither.

This misunderstanding of the nature of the photographic medium has represented from the very beginnings a serious challenge to the viewer’s perception and understanding of reality. The history of photography includes countless examples of egregious image manipulations swallowed by a gullible public (Howells 223-4). As photographic technique has progressed, the potential

for image manipulation has grown, and yet the photograph still retains much of its power as an objective and truthful recording of reality.

For a century and a half, photographic evidence seemed unassailably probative....An interlude of false innocence has passed. Today as we enter the post photographic era, we must face once again the ineradicable fragility of our ontological distinctions between the imaginary and the real, the tragic elusiveness of the Cartesian dream (Mitchell Reconfigured 225).

...with the advent of digital technology the photograph has lost the simple relationship to the real that it previously enjoyed....In digital photography, "the image is recorded by photosensitive cells and never exists except as bits. Is such an image a photograph or a computer graphic? If the image began as a conventional photograph and was scanned into the computer and digitally retouched, is it then a photograph or a computer graphic? In what is called digital photography, the result is an image that is advertised as a photograph and meant to be read as such by the viewer. The digital photographer, who captures images digitally, adds computer graphic elements to conventional photographic images, or combines two or more photographs digitally, still wants us to regard the result as part of the tradition of photography. For the photographers and their audiences, digital photography (like digital compositing and animation in traditional film) is an attempt to prevent computer graphic technology from overwhelming the older medium (Bolter and Grusin 105).

Images in the post-photographic era can no longer be guaranteed as visual truth—or even as signifiers with stable meaning and value (Mitchell Reconfigured 57).

2.4.2.4 Mediation and Illusion

The presumption of faithful representation of reality from which photographic processes benefit is at its most dramatic at moments when new media are introduced. The illusion of immediacy is so strong that writers tend to adopt the language of non-mediated experience when describing their encounters with media objects.

American cultural commentator Oliver Wendell Holmes, looking through his own stereo viewer, June 1859, writes, "I pass, in a moment, from the banks of the Charles to the ford of the Jordan, and leave my outward frame in the arm-chair at my table, while in spirit I'm looking down upon Jerusalem from the Mount of Olives." (quoted in *New media, Old media* 33)

One hundred and thirty years later, Jaron Lanier, a developer of one of the first commercial virtual reality systems, describes the potential of virtual reality, "...you can visit the world of the dinosaur, then become a Tyrannosaurus. Not only can you see DNA, you can experience what it's like to be a molecule." (Ditlea 97)

2.4.2.4.1 Telepresence

The experience of telepresence can be particularly rich and compelling in Virtual Reality environments, and VR developers often speak of telepresence as if it were a phenomenon only available through New Media. Interactive media designer and theorist Brenda Laurel describes telepresence as "a medium that allows you to take your body with you into some other environment...you get to take some subset of your senses with into another environment. And that environment may be a computer-generated environment, it may be a camera-originated environment, or it may be a combination of the two." (Coyle 162). This, however, is not the case. An important role of media has always been to make accessible the inaccessible. From Marco Polo's travel writings, to radio reportage of the crash of the Hindenburg, to photos of the sea floor, traditional media have taken us to places we could not go and let us share experiences that were not

ours. Photography was touted in the 19th century as Virtual Reality is today, i.e., as the new medium that suddenly makes telepresence possible.⁵

The delivery of an entirely convincing experience of telepresence is a kind of Holy Grail for New Media developers, designers, and enthusiasts. As will be discussed later, this vision is often invoked as a feature of the museum of the future. A virtual museum experience might be expected to combine several immersive Virtual Reality experiences, like visiting some real place (e.g., Machu Picchu) or navigating through an imaginary place (e.g., a gallery of virtual sculptures), handling virtual artifacts, or experiencing their use.

2.4.2.4.2 The Illusion of Non-Mediation

At the scale of human experience, VR suggests that the question “How do we know what we perceive is real?” – a central question haunting theories of perception and epistemology since early modernity – might no longer be worth asking. This implicit dismissal of history and of the value of distinguishing between simulacra and reality today adopts other forms too, from postmodern critiques of ‘the real’ to televisual ‘reality television’ (Hillis 347).

Over the course of history, human experience has been increasingly mediated. More and more of the world has become accessible through media; persons and places we have never seen are entirely familiar to us through mediated versions. The advance of media technologies toward the dream of immediacy has made these experiences more and more “real.” As we grow ever more accustomed to an ever-more-mediated reality, the distinction between media and reality becomes less clear. Virtualisation in museums, schools, and elsewhere contributes to this trend.

In Australia, a recent television advertisement for a CD-ROM featured a girl who claimed that she had lived among native peoples, seen wild animals, and explored strange places. Her experiences had actually been

based on her use of the CD-ROM. While adults would be aware that this was a marketing strategy, it would be easy to assume that the differences between virtual and real were unimportant. Young children might be able to understand that the virtual experience and reality were different, but they might also not fully appreciate the extent of that difference (Russell).

2.4.2.4.3 Inverse Presence

This phenomenon of mediated experiences being mistaken for unmediated experience, the illusion of non-mediation, has a mirror image counterpart in “inverse presence.” Examples of this “illusion of mediation” fall into three categories: positive (when people perceive natural beauty as mediated), negative (when people perceive a disaster, crime, or other tragedy...as mediated), and unusual (when close connections between people’s “real life” and mediated experiences lead them to confuse the former with the latter).

“I couldn’t believe my eyes. I thought I was watching a movie.”

– Eva Greenwood, on watching through her apartment window as a man plunged to his death (Timmens and Lombard).

Spartan 117, the Master Chief, is the central figure in the *Halo* series of games for Xbox (*Halo: Combat Evolved*, *Halo 2*, and *Halo 3*). It is not surprising that the Halo story line and characters have been remediated into novels, comic books, apparel, and action figures. It has also been breathlessly announced that the Master Chief himself has become “the first video game character to be immortalized in wax at Madame Tussaud’s.” Perhaps more significantly, Master Chief may well be the first media object so honoured. Madame Tussaud’s business is the display of representations of famous people rendered in wax sculpture. (It can be assumed that the sculptures are based on images of the subjects, in a two-step mediation process: reality; mediation as photographs; remediation as waxwork). Unlike Brad Pitt, whose Madame Tussaud’s waxwork

could be considered a pale imitation of the real thing, there is no physical reality underlying Master Chief, and what Madame Tussaud's is displaying is not a pale imitation; it's as "real" as Master Chief can be. (xbox)

2.4.2.5 Virtual vs. Non-virtual Reality

Form is henceforth divorced from matter. In fact, matter as a visible object is of no great use any longer, except as the mould on which form is shaped. Give us a few negatives of a thing worth seeing, taken from different points of view, and that is all we want of it. Pull it down or burn it up, if you please....Matter in large masses must always be fixed and dear; form is cheap and transportable....Every conceivable object of Nature and Art will soon scale off its surface for us....The consequence of this will soon be such an enormous collection of forms that they will have to be classified and arranged in vast libraries, as books are now.

– Oliver Wendell Holmes, talking about stereo viewers in 1859 (59-60)

If the visual subsystems exist today, it's folly to assume that the computing hardware won't exist tomorrow. The notion of 'reality' will be utterly and finally obscured when we reach that point...[of generating] totally convincing reality within the information processing system....We're entering a Mythic age of electronic realities that exist only on a metaphysical plane (Youngblood 206).

Although it is not always clear in every text on this subject, there is a significant step between losing sight of the distinction between reality and simulation, or between a thing and its image, and arguing that that distinction is meaningless or undesirable. In both cases, the confusion may seem absurd on its face, but the attitudes represented are hardly promising for the valorization of museums and their collections.

Holmes's "enormous collection of forms" is a startling prefiguration of the museum as collection of virtual objects, although the dramatically powerful new medium to which he is referring is the stereo viewer. We are amused at his naïve enthusiasm for this primitive gadget, and the absurd idea that its images have as much value and interest as their source objects. 150 years in the future people may well look at current excitement about virtual museums full of virtual objects with similar feelings.

2.4.3 Database, Interface, and Narrative

Possibilities of random access inherent in digital data systems and the expansion of accessible data have led perhaps inevitably to fundamental changes in the structure of information content, from narrative to database, which Lev Manovich describes as fundamentally different ways of "making meaning of the world," as "opposites," or even as "natural enemies." (Manovich 225-232)

The difference between these two structural approaches – narrative and database – is extremely important in the museum context where "making meaning of the world" is often cited as our ultimate objective. There does not seem to be a plausible strategy for adding the database to a narrative structure; the database becomes the structure, and the narrative disappears.

Discussing Foucault's views on the archeology of knowledge, Wolfgang Ernst observes that "Whereas historiography is founded on teleology and narrative closure, the archive is discontinuous, ruptured." Like all data banks, "it forms relationships not on the basis of causes and effects, but through networks"; instead of being a medium of cathartic memory, "the archive is traumatic, testimony not to a successful encounter with the past but to what Jacques Lacan has referred to as the 'missed encounter with the real'" – that is, an allegory of the impossible bridging of a gap." (105)

The price of tapping into the vast information resources of the datasphere is not a rich multiplicity of narrative; it is the abandonment of narrative. The cost of this new way of “making meaning” may well be meaning itself.

....From one perspective, all new media design can be reduced to these two approaches: that is, creating works in new media can be understood as either constructing the right interface to a multi-media database or as defining navigation methods through spatialized representations. The first approach is typically used in self-contained hypermedia and web sites – in short, whenever the main goal is to provide an interface to data. The second approach is used in most computer games and virtual worlds....information access and psychological engagement with an imaginary world.... (Manovich 215-6)

It would be reasonable to ask whether providing an interface to a database helps to make its information meaningful, or merely helps to make its information accessible. For a researcher following a thread, confirming a hypothesis, or building an argument, access may be all that is asked, or all that is useful. But is this researcher the target audience of the New Media product?

....navigable space can legitimately be seen as a particular kind of an interface to a database... (251)

Navigable virtual spaces, whether immersive or not, are an intrinsic element of the Virtual Museum, and can be seen in two principle ways: first, as the source of a spatial experience, and second, as interface, i.e. as the way in which information content can be accessed, or the way it has been organized for access. This may represent, in some cases, a direct virtual parallel to the narrative space of physical exhibitions, but only in the case of the simplest, least content-rich exhibitions. As with other interface types, when the volume of information increases dramatically, the logic of the database takes over, and narrative collapses. When a coherent narrative is preserved by limiting content or

restricting access to it, the advantage of increased content that favoured New Media in the first place are no longer evident (227).

2.4.4 New Media's Impacts on Mental Processes

Lev Manovich places the processes of New Media in the context of a tendency, by cognitive psychologists beginning with Freud, to "equate mental processes with external technologically generated visual forms."

Interactive computer media perfectly fits this trend to externalize and objectify the mind's operations. The very principle of hyperlinking, which forms the basis of interactive media, objectifies the process of association, often taken to be central to human thinking. Mental processes of reflection, problem solving, recall, and association are externalized, equated with following a link, moving to a new page, choosing a new image, or a new scene. Before we would look at an image and mentally follow our own private associations to other images. Now interactive computer media asks us instead to click on an image in order to go to another image. Before, we would read a sentence of a story or a line of a poem and think of other lines, image, and memories. Now interactive media asks us to click on a highlighted sentence to go to another sentence. In short, we are asked to follow pre-programmed, objectively existing associations. Put differently, in what can be read as an updated version of French philosopher Louis Althusser's concept of "interpellation," we are asked to mistake the structure of somebody else's mind for our own (59-61).

The suggestion here is that, having abandoned any overt narrative in favour of the database's unstructured content, any attempt to knit content together through hyperlinking will have the effect of introducing a subliminal, possibly random, narrative of its own. Instead of addressing an author's explicit narrative with our own mental processes, we may be acquiescing to an obscure or arcane external mental process in the service of a narrative.

New Media's promised datasphere of open and expanded access – of a web of interconnected information – may in fact be discouraging personal idiosyncratic associational pathways in favour of one-size-fits-all thought patterns and associations.

The interface shapes how the computer user conceives of the computer itself. It also determines how users think of any media object accessed via a computer. Stripping different media of their original distinctions, the interface imposes its own logic on them. Finally, by organizing computer data in particular ways, the interface provides distinct models of the world....far from being a transparent window into the data inside a computer, the interface brings with it strong messages of its own (65).

Neuroscientist Prof Susan Greenfield, director of the Royal Institution of Great Britain, has argued that information presented in an increasingly standardized way could lead to "standardized brain connections" with a negative effect on the way we think and imagine. "I would argue that, if you just have in-your-face information, you don't have the growth of the imagination encouraged by a book." Having "second-hand images thrust in our faces" could harm our ability to speculate, fantasize and to invent. "You have to distinguish information and knowledge. Of course, people get information from the Internet but you can't necessarily get a framework into which to put the facts. That has to come from thinking, walking and living." (Highfield)

In addition to the homogenization of content discussed in *2.2.3.2 Illusion of multi-media*, the breakdown of narrative into database, and the sometimes arbitrary linking of one piece of data to another, but not to a third, may be promoting a disjointed incoherent view of reality itself.

2.5 SOCIAL AND CULTURAL IMPACTS OF NEW MEDIA

2.5.1 Blurring the Line between Producer and Consumer

Traditionally, primary sources were accessed, studied, interpreted, summarized briefly or not at all, and woven into a coherent narrative by specialists or dedicated generalist popularizers. These coherent narratives were then presented to the public in the form of books, films, lectures, exhibitions, or other; the primary sources were not readily available.

Development of the World Wide Web has made available a wide range of randomly accessible primary and secondary sources, empowering any web user, whether searching along a personally determined path, or no path at all, to explore to exhaustion virtually any subject.

This user does not have to go to the information; it comes to him. But much more significantly, he is not limited to the topics chosen by others, the sources they favour, the conclusions they draw, or the form in which they present them. The captive audience member has become a free agent. As the virtual experience becomes more user-directed, the possibility of a directed narrative within this realm seems to fade.

The replacement of analogue methods by digital recording of film and music is, on one level, simply a technical refinement within the recording industry, but its ramifications have been enormous. Previous methods created recordings that could only be manipulated and disseminated industrially, by the pressing of vinyl disks, the recording of audiotapes from masters, the reproduction of film and its projection in cinemas, etc.

By contrast, the recording and reproduction of music and video in digital formats makes it possible to store, copy, disseminate, and manipulate these files with hardware and software that is available to anyone. The power to collect, edit,

compile and distribute text, image, film, and music has been taken from the hands of an elite and distributed to anyone who wants it (Howells 230).

The creation and dissemination of “news” was once, strongly centralized in the hands of a powerful corporate elite, who held the reins of old media networks, which had the vast and varied resources necessary to gather, package, and disseminate information, through print, radio, or television.

The public feeds video reportage of important events to the mass media for diffusion, effectively reversing their relationship. The News Media does not inform the public; the public informs the media. We can see these images on the TV news, but we can also find them on many websites, in a diffusion that bypasses the traditional media entirely.

2.5.2 Blurring the Cyberspace/Physical World Boundary

On September 25, 1997, thousands of adventurers entered the world of Britannia for the first time. Many of them fell to the hazards of the wilderness, the perils of the dungeons, or even to the wiles of their fellows. But many of them found a home here - a home they have treasured for a decade.

– From a promotional page on the website of *Ultima Online*, a role-playing game (uoherald).

Like MUDs and MOOs, Ultima Online and other such game worlds promise transparent immediacy through real-time interactive graphics or text. (Yet promises of transparency and hypermediacy are surprisingly juxtaposed. Ultima’s virtual kingdom comes complete with “day and night” as well as sixteen-bit color graphics.) Like other manifestations of cyberspace, a networked role-playing game such as UO offers its players a world parallel to, yet distinct from, their contemporary social and physical space, a world with its own ecology, economics, and perhaps even

physics. The rhetoric of escape is common among enthusiasts for many forms of cyberspace; virtual reality, MUDs, MOOs, role-playing games, and even newsgroups and email. All of these manifestations are supposed to provide a new and authentic experience while at the same time they divorce us from the physical world (Bolter and Grusin 103).

The instant communication and wide access to it that characterize New Media, and specifically the world wide web, have made possible not only the dissemination of information among groups of like-minded users, but the formation of the groups themselves. Websites and blogs become rallying points, meeting places, forums for discussion, platforms for rabble rousing, and sources for the mass media. Individuals too widely scattered in physical space to organize effectively can come together and reach critical mass in cyberspace.

The web has become a public space in which political campaigns, protest movements, and community groups assemble, share data, and reach out to others.

According to film historian Anne Friedberg [Friedberg, Window Shopping], modern cinematic, televisual, and cyber cultures are characterized by a mode of perception which she calls "mobilized virtual gaze," which combines "a received perception mediated through representation," and "an imaginary flanerie through an imaginary elsewhere and an imaginary elsewhen (Manovich 273-4).

Individualized teaching at a distance has long existed through the use of mail, radio, print or audio-recorded lesson packages. Digital interactives on CD or the web have taken this to a new level, and cyber "classrooms" on the web allow real time interaction between teachers and students scattered over great distances.

Access to recorded lectures, other course material, and the contents of libraries and other archives dematerialize the university and render higher education

widely accessible. The requirement for researchers to physically access libraries and archives diminishes continually.

Experience in virtual worlds like Second Life may have an impact on people's real life relationships. Susan Greenfield, director of the Royal Institution, suggest that regular inhabitants of the virtual world may grow to prefer its liaisons to the messiness of "real-life" relationships. "Offering people the chance to have a permanent soap opera going on, in which they can participate, will be even more pervasive than reality TV such as Big Brother. This is the ultimate in that you can be involved, you can interact, but still you are hiding behind an avatar."

Greenfield wonders whether people who inhabit virtual worlds would come to regard real-life sexual relationships with some queasiness. "Could it be that in the future they will say, "A real relationship! Urgh, how horrible." (Highfield)

2.6 NEW MEDIA AND THE REAL WORLD

As we have seen in this section, media have always been in evolution, and "new" media have always arrived periodically to startle and amaze with their potential. Although in some respects New Media is just the latest in this long progression, the recent and ongoing transition from Old Media to New Media represents a fundamental change. Certain features of New Media, particularly the networking of data sources, the convergence of once separate media, and the increasing public access to both information and the means to process it, are unprecedented and transformative.

In the following sections we will look at the museum, and then at New Media's impact on the museum.

Notes, Chapter 2

¹ “The singular plurality of the phrase (“new media” is a plural noun treated as a singular subject) stemmed from its negative definition: it was not mass media, specifically television. It was fluid individualized connectivity, a medium to distribute control and freedom. Although new media depended heavily on computerization, new media was not simply “digital media”; that is it was not digitized forms of other media (photography, video, text), but rather an interactive medium or form of distribution as independent as the information it relayed.” (Chun 1)

² This argument is over simplified for the sake of clarity: photography and cinematography may share certain chemical processes, exposure calculation tools and knowledge, etc, but even in this example, what is shared is much less than what is unique to each medium.

³ Pliny the Elder (AD23–79) tells the story of a competition between two painters to determine which is the most skilled. Zeuxis unveils a still life that is so convincing that birds fly down to eat the painted grapes. The crowd is astonished, and cannot imagine that any painting could surpass this. The other painter, Parrhasius, is asked to pull back the drapes that conceal his painting. Parrhasius wins the contest when the crowd realizes that the drapes are his painting.

⁴ Exceptions to the convention of the frame exist, as in the case of *trompe l'oeil* architectural painting, where the frame is dispensed with in order to blur the distinction between unmediated architectural elements like walls, and mediated architectural elements like the pilasters and capitals whose images adorn those walls.

⁵ Maxime du Camp, Abu-Simbel 1850..."thanks to photography, they were able to see the wonders of the world for themselves. To be sure, there had been drawings and other 'artist's impressions' of remarkable sites, before, but the photograph had an authenticity that was lacking in fine art. Du Camp even included a man standing by the colossus to give the photograph a genuine sense of scale. In painting, scale could be exaggerated for effect, but, with photography, people thought that they could see the genuine vastness of the colossus 'with their own eyes'." (Howells 156-7)

Chapter 3: The Museum

3.0.1 Introduction

Having defined mediation, media, and New Media in Chapter 2, in this chapter we will examine the Museum and its functions. In so doing, we will explore questions related to Context, Interpretation, Meaning, and to the Museum Experience. Particular attention will be paid to the role of media in delivering exhibition content and, by extension, to the visitor experience.¹ This will set the stage for a discussion of New Media in the Museum in Chapter 4.

It is evident to most visitors that the museum is an increasingly media-rich environment, and that the media in question are evolving. It is perhaps less clear, however, that the museum inevitably mediates its content and might, itself, be considered a medium. In this chapter we will examine how traditional media are used in the museum and how the museum mediates in general

Similarly, as exhibitions contextualize the museum's collections and help visitors to make sense of them, it is important to recognize the museum itself as a context that imparts meanings. Caught up in issues related to the interpretation of collections, it is important to remember that collecting is itself a form of interpretation.

This chapter focuses primarily on the museum's core functions. In the course of its development the museum has performed other functions and played other roles which are neither media dependant nor directly connected to the core functions we'll identify.

Accordingly we must begin by questioning what the museum is, what it does, how it does it, and at the ways in which media are involved – with particular emphasis on the use of media in interpretation. Key issues related to reality, perception, experience, and mediation will be explored. This will lay the groundwork for a more focused look at new media in the museum in Chapter 4.

This chapter is particularly concerned with the artifact, and its centrality to the museum's function; with interpretation of the artifact, and with media's role in interpretation; and with the exhibition, as the setting for the experience of the artifact, and as the framework within which the artifact is interpreted.

In order both to delve deeply into various issues, and to keep them within a coherent contextual structure, this chapter is somewhat recursive, and key topics will be addressed more than once, initially in broad overview, and later in greater depth.

3.1 WHAT IS THE MUSEUM

3.1.1 A Brief History

The collection and display of objects of value, by virtue of rarity, beauty, or cost, has always been a prerogative of the rich and powerful; collecting has served as both a source and an expression of power. The spiritual, political, or cultural significance of the items collected were transferred to those who had the means to commission, purchase, or take them by force. The earliest ancestors of the museum were palace collections and royal treasuries (Woodhead and Stansfield 6).

As power devolved from the nobility and the Church to guilds, merchants, and towns, collecting became more decentralized. These new secular elites assumed many of the practices of the old, including the collecting all sorts of artifacts, and the commissioning of works of art. Individuals other than rulers began collecting. Objects from exotic sources spoke to the worldliness and knowledge of those who brought them back or traded for them. The study of natural and man-made artifacts, as well as of texts and images, was both a source and a demonstration of knowledge. The term museum, which had had various meanings in antiquity, began in Renaissance Florence during the 15th century, to be used to describe a collection, with "connotations of comprehensiveness and encyclopedic knowledge." (Lewis 7)

A common form of collection in the 16th and 17th century – and a direct ancestor to museums like the Ashmolean and the British Museum – was the Cabinet of Curiosities. The cabinet was just that, a heterogeneous assemblage of natural and manmade things chosen for their beauty, oddness, age, or other qualities that made them interesting.

The earliest palace and church collections, and later cabinets of curiosities, were not accessible to the public; they were for the pleasure of the owner/collector and such guests as he might invite. The Age of Enlightenment saw the first truly public museums, and the Ashmolean, British Museum, and Louvre set patterns that were followed in major cities throughout Europe. These museums had an explicit social role, and aimed to educate and raise the cultural level of the citizenry. They were not merely accessible to the public; they had explicit public missions to educate and edify the public. Ideals of democratization of culture required not just that the public be admitted, but that it be actively encouraged to visit. This evolution coincided with the advent of the purpose-built public museum building, intended to both communicate the civic nature of the institution, and to inspire the public to visit.

The 19th and 20th centuries, the “Age of Museums,” saw an enormous proliferation of public museums, which tended toward specialization, separating collections of Art, Natural History, Science and Technology, etc. into separate institutions ². Exhibitions and other programming continued to increase. From the late 20th century on, museums have been actively marketed in an attempt to increase their visitor numbers. Contemporary museums continually attempt to improve programming and expand services in order to address wider audiences and attract a larger public.

Existing museums continue to grow and major new museums continue to be created. New roles like *tourist destination*, *symbol of civic pride* and *catalyst for urban renewal* (among others) now complement the museum’s more established

educational and cultural mandates. National museums are being housed in new facilities – the most recent local example being the Canadian War Museum – and entirely new institutions are being created, like the Portrait Gallery of Canada.

Marketing techniques have become more sophisticated, and are used to both shape and promote the museum's products. In order to attract the funding, both private and public, that they require to operate and to evolve, museums must succeed in both attracting and engaging a large and varied clientele.

3.1.1.1 Evolution of Interpretation

Although there have been museum labels and museums affiliated with schools as early as the 6th century B.C. in Ur of the Chaldees (Lewis 7-8), the cabinet of curiosities would typically feature neither identifying labels for the artifacts, nor any systematic organization or display strategy. As a collection reserved for the private pleasure of its owner, or the admiring gaze of a few guests, there was no need for labeling or even systematic storage. Each item was an individual attraction, and either the educated visitor was flattered that he was expected to be knowledgeable enough to recognize and understand it, or the collector/host had the pleasure of identifying and explaining things for his guest.

For a public institution, particularly one with an educational mandate, this approach was clearly not adequate. Accordingly public museums have always taken pains not only to present their collections in a rational way, but to identify their artifacts and to provide additional information in support of their didactic function.

Although the quality of this information is rarely in doubt, its delivery to the public has often left something to be desired. At one time, text-heavy and inaccessibly abstract or technical information, delivered in a dry and pedantic tone, seemed the norm in museum didactic panels. By the early 20th century, however, it began

to occur to museum professionals that simply supplying accurate information may not be enough.

The visitor was assumed to be looking for more than a chance to see artifacts, or to learn facts. The challenge for the museum was to create a meaningful encounter for the visitor – a way to bridge the gulf that separates the visitor from the collection – so that the artifacts, as witnesses to culture, history, or the processes of nature, become meaningful. One of the most effective ways to do this is with a guide, who can present, explain, narrate, and answer questions, in effect providing interpretation of the artifacts tailored to the needs of each visitor.

For a number of practical reasons, this interpretation by a guide, which resembles the way a cabinet of curiosities would have been visited, cannot be the museum's principal way of delivering interpretive content. To reach large numbers of visitors, this content must normally be delivered by the use of media; initially text and images, later with recorded sound, film projections, etc.

Recently, museums have been increasingly seen as purveyors of "Edutainment" – leisure time activities with educational objectives. This has had a marked effect on media use in the museum. It recognizes that museums are in competition with other leisure time activities for the public's entertainment time and budget, which leads museums to emulate popular forms of media, like magazines and more recently, television and video games. It also acknowledges that, for the public, the didactic function of the museum is an essential component, and that the museum experience is a learning experience.

The desire to both entertain and educate the visitor has had a significant impact on interpretation and the use of media in the museum. In addition to favouring the development of more thematic, rather than collections-based, exhibitions, and more interactive visitor experiences, the educational component encourages the inclusion of more information. Recent public interest and enthusiasm for web

surfing and virtual worlds has affected museum thinking in ways that will be further explored in Chapter 4: New Media in the Museum.

3.1.2 Definition (Centrality of the Artifact)

There exist many aspirational mission and/or vision statements that describe museums and what they do, such as those of Canada's National Museums, but for our purposes we would be better served by a more concrete definition of what the museum is and does. Several are available.

A museum is a non-profit making, permanent institution in the service of society and of its development, and open to the public, which acquires, conserves, researches, communicates and exhibits, for purposes of study, education and enjoyment, material evidence of people and their environment.

–The International Council of Museums (ICOM)

Museums enable people to explore collections for inspiration, learning and enjoyment. They are institutions that collect, safeguard and make accessible artifacts and specimens, which they hold in trust for society.

–UK Museums Association

Although virtually all definitions of the museum refer to five core functions, namely Acquisition, Preservation, Research, Exhibition, and Interpretation, some of these functions are performed in other types of institutions. The key functions that characterize the museum (and may distinguish it from other venues, e.g. Libraries, archives, schools, theaters, cinemas, amusement parks, storage facilities, etc.) are the exhibition and interpretation of artifacts to the public.

Clearly, the artifact is the central nexus around which the five core functions revolve; it is the artifact which is acquired, preserved, researched, exhibited, and interpreted.

Although the relative weight of the core functions may vary, it is difficult to imagine a museum that does not preserve and exhibit artifacts. At its most basic the Museum is a place where one goes to see artifacts. This implies that an institution that displays artifacts without interpretation would, in spite of that weakness, still be a museum, but that an institution that displays interpretive material without artifacts would not (Cannon-Brookes 116).

“...the museum idea...requires the original material to communicate, and not some secondary source.” (Lewis 7)

As essential as Research and Interpretation may be, they are dependant on the artifact. Similarly, as important a part as Interpretation may play in the Exhibition of artifacts, Interpretation is dependant on the artifact, which is the one essential element in Exhibition.³

3.1.3 Five Core Functions

While museums may vary from one another in any number of ways, (size, age, public or private status, etc.) this is not our primary concern. That said, it is useful to identify the characteristics of museums that do concern us, primarily their general type and specific mandate. We will do this in terms of the Five Core Functions identified above: Acquisition, Conservation, Research, Exhibition, and Interpretation. The section presents a brief overview of Exhibition and Interpretation, each of which will be addressed in its own section later.

3.1.3.1 Acquisition

There are today a number of distinct categories of museums, distinguished primarily by the type of artifacts that compose their principal collections. These many types can be organized into a few broad categories: Museums of Art, History, Nature, and Science, and multiple role museums (Bassett and Prince 379).

This function, acquisition or collection, is rooted in the earliest, most basic form of museum: a repository for artifacts, a place to keep things worth looking at. This was long the standard model for Art Museums, which are usually strongly collections-based, and whose reputations, at least in the past, have often been based almost exclusively on the breadth and quality of their collections. Museological practice has been moving away from this model for some time, but many other examples can still be found. As noted earlier, at the other extreme are many Children's Museums, Discovery Centres, or Science Museums, which do not collect, and hold few if any artifacts.

3.1.3.2 Conservation

The function of conservation involves maintaining the integrity of the artifacts that make up the museum's collections. Conservation takes two main forms: the protection of artifacts against damage or loss, and the restoration of damaged artifacts to good condition. The first is of interest here, but only as it affects the exhibition function. The storage of collections that are not on display is irrelevant to this discussion.

Although the restoration of damaged artifacts might be considered to be a form of remediation, or to be based on an act of interpretation, an exploration of this would be both too complex and too obscure to really concern us here.

The protection of the artifacts exhibited to the public is almost entirely independent from questions of media use in the museum, but it directly affects the way museums exhibit artifacts. This involvement takes two forms.

3.1.3.2.1 Impact on Presentation, Mediated Encounter

Some of the most distinctive features associated with the presentation of artifacts in a museum relate directly to conservation requirements. Protection from theft, visitor handling, atmospheric contaminants, and other destructive contacts requires that most artifacts be displayed in sealed showcases, i.e. under glass.

Avoiding shocks or vibration requires security staff to discourage crowding or rapid movement. Protection from light damage requires that artifact lighting be kept below certain levels; efforts to optimize viewing within these limits result in even, low light levels on artifacts, and even lower levels elsewhere.

Meeting the practical requirements of conservation typically creates a churchlike ambience in which artifacts play the role of cult objects or sacred relics. For reasons that are purely functional, i.e. without intentional symbolic or didactic intent, the visitor encounter with an artifact is mediated and contextualized in a way that is completely unlike an encounter with the same object in its natural surroundings.

3.1.3.2.2 Museum as visual realm

What may be the most significantly unnatural aspect of this encounter is due to the requirement that artifacts be displayed under glass. Consequently, our fundamental interaction with objects in a museum setting is visual, and even visual access to the artifacts is limited. The form and placement of display furniture (cases, stands, etc), as well as specific lighting arrangements, reduce artifact viewing to certain angles at certain distances only, and always through glazing, with its intrinsic reflections and colour bias.

The visitor experience of the three dimensional artifact is, in many ways, similar to experiencing a photograph of the artifact. This is an example of the seemingly inevitable mediation of the artifact by the museum, but may also be a source of confusion regarding the essential difference between an artifact and an image of that artifact, i.e. between an unmediated object and a media object. (see 3.4.1 and chapter 4 on this issue)

3.1.3.3 Research

*There are two sides to the relationship between exhibitions and research.
On the one hand, a proposal to create an exhibition is a challenge to*

engage in original research. On the other, fruitful research on some collection or category of object may best be presented in exhibition form (Greenaway 145).

Museum collections and archives are valuable resources that are often consulted both by independent researchers and museum curatorial staff, whose responsibilities include collection-based research. Research activity levels at a museum may range from none at all, through limited research as required for exhibition development, to pure research leading to publication rather than exhibition.

Typically, the interpretive content of exhibitions is a mix of original research and material from secondary sources. For the purposes of this thesis, the distinction is of no particular importance. Although interpretive content is an important component of exhibitions, the research involved in its production does not concern us here.

3.1.3.4 Exhibition

... an exhibit as a display of objects for the purpose of communicating with visitors. Primarily through exhibits, museums communicate information about historic, artistic, scientific or technologic objects to visitors. The visitor experience is dependent upon the interplay of the personal, social and physical contexts of the visit (Alexander).

A museum's efforts to make its collections available to the public typically take the form of permanent installations and temporary exhibitions. In programming terms, permanent collection installations are normally considered distinct from temporary, often thematic, exhibitions. In practice, the rotation cycle for permanent installations at one museum may well be shorter than the typical duration of temporary exhibitions at another, and the distinction is not particularly

meaningful. For the purposes of this paper, we will refer to any structured display of artifacts and interpretive material as an exhibition.

As museums promote themselves more aggressively and measure success by the number of visitors, a programme of changing exhibitions can be a powerful draw both to bring visitors into the museum for the first time, and to insure repeat visits.

As stated earlier, the collection is the essential core around which the museum is organized. The basic function of the exhibition is to make the museum's collections, and to a lesser extent its knowledge, accessible to the public. This implies much more than simply opening the museum's vaults to the public. Real public access requires that collections be not just visible, but be presented in a way that allows the public to understand and appreciate them. This requires that artifacts be grouped and situated within contexts in which their meaning is accessible to the public.

The exhibition is the structure within which artifacts are organized, contextualized, and interpreted for presentation. By means of exhibitions, the museum mediates the visitor's experience of the artifact – both to help the visitor discover its meaning, and to arrange those meanings into coherent narratives.

This will be explored further in Section 3.3, Interpretation, and in 3.5, The Exhibition.

3.1.3.5 Interpretation

Historically, the public offerings of some museums were limited to access to their collections by way of permanent and temporary exhibitions, which provide identifying data only (maker, name or description, date, culture or period of origin, and accession number) for the artifacts displayed.

In recent years, recognition of the educational role of museums has contributed to the increasing importance of information and Interpretation in permanent and temporary exhibitions. Research on visitor habits, preferences, and learning styles, along with visitor studies linked to specific exhibitions, have contributed to the rise of professional interpretive staff. The importance of interpretation varies from one museum to another, often in proportion to the accessibility of their collections, and the institution's desire to more actively engage its audience.

This will be explored further in Section 3.3, Interpretation.

3.1.4 Museum as Context

Just as the grocery is a context in which food is displayed for sale, and displaying something there certifies it as food in the public's mind, the museum is a context in which significant things are held and displayed. Anything displayed in a museum will be seen as a significant thing, and worthy of attention. An artifact acquires authority simply by virtue of being in museum, and anything displayed in an art museum will be seen as art. Examples abound of both inadvertent validation of false or misidentified artifacts, like the Metropolitan Museum of Art's Etruscan Terracotta Warriors, and deliberately provocative exploitation of the museum's authority, e.g. Tracy Emin's *My Bed*, exhibited at the Tate Gallery in 1999.

The museum itself is a context that implies significance and creates meaning not just for the artifacts that are presented, but also for the contexts (intellectual, physical, visual, and emotional) in which they are presented. The museum authenticates implicitly, not just artifacts, but facts, ideas, images, meanings, and everything else that it presents.

Identical exhibitions, presented in a shopping centre, a corporate headquarters, and a national museum would have profoundly different impacts and meanings. A short film about dinosaurs, presented before the main feature in a commercial

cinema, would have none of the authority of the same film shown in the dinosaur gallery of a Natural History Museum.

The museum setting is not a matter of happenstance; the museum setting is one of the essential components of the museum experience.

3.1.4.1 Collecting as Interpretation

A collection is not an unbiased sample of the things that make up the world; it is a reflection of the choices made in assembling it. Even the vastest collection contains a tiny fraction of all the things that might have been collected. Each artifact is a thing plucked from among thousands that were not chosen.

When a thing is selected as a typical example, or a skillfully made example, or a beautiful example, of something, it reflects a judgment made about the type, or about skill, or about beauty. When a series of tools are selected as representative of the evolution of that class of tool, they will reinforce, as artifacts, a particular idea of that evolution.

Collections are often composed of exotic things from foreign cultures; what we know of those cultures is often largely based on things we have seen in museums. The authority of the museum may lead us to assume that the collector really understood the difference between the best and worst examples of something. Perhaps what seemed good to him was considered poor stuff by its creators and users, but it shared certain qualities with “good” things from his own culture. What ethnographers know of the cultures in which they specialize may be based on old collections of things no longer made by that culture.

3.1.4.2 Interpretative Bias

The information that is presented with an artifact, or that makes up the interpretive content of an exhibition, is even more subject to bias, intentional or inherent. The selection of information from the almost infinite quantity available, is both positive and negative; data is selected for inclusion and for exclusion.

Selection for inclusion may or may not reflect conscious bias or hidden agendas, but it clearly shapes, or even creates, the meaning that the visitor assigns to the artifact.

Selection for exclusion may be passive or unaware, i.e. the information presented may represent all the information known or understood to be relevant by the researcher or interpreter, but it is as determinant as included information in creating meaning.

The way in which information is presented also allows a wide range of effects on the visitor. Point of view, voice, language, etc. all can all dramatically affect the impact of a fact or story.

3.2 THE ARTIFACT

Since we have posited the artifact to be at the center of the museum's exhibition and interpretation functions, it would be useful to define and describe the artifact before moving on to address Exhibitions and Interpretation in greater depth. Suggesting that the collection and display of artifacts is both the origin and *raison d'être* of museums raises a number of important questions. They fall into three groups:

First: Does the actual artifact have some irreplaceable quality, some primacy or authority tied to its authenticity? Is the artifact essential evidence, an unmodified piece of reality, and the raw material from which meaning must be derived? Does an artifact have intrinsic meaning or value?

Second: Does an artifact require interpretation? Can interpretation be objective or true? Can more than one interpretation be true to the artifact? Is the interpretation, information, and other context not just a form of packaging for the real, the artifact?

Third: Is it possible that today the artifact has become just a sort of fetish? Could the desired experience and meaning be delivered without artifacts? Is this meaning or value inextricably linked to the physical object itself, or can it be carried by a representation or reproduction?

In this section, we will explore these issues, the nature of the artifact itself, and its defining characteristics, in order to lay the groundwork for further discussion of the Interpretation and Exhibition of artifacts.

3.2.1 Definitions: Artifact and Work of Art

3.2.1.1 The Artifact

Artifact: any object made, modified, or used by people

This definition, from the Society for American Archeology, is concise and clear, but perhaps too restrictive. Clearly the stones, seashells, and skeletons in natural history museums qualify as artifacts, despite the fact that their modification or use by man is limited to their use as museological specimens. This line of thought leads to another definition:

Artifact: A physical object in a library, archive, or museum. (Arms)

This definition goes directly to an essential truth about artifacts: although the museum does not create the thing that is an artifact, it does create the artifact by collecting it. When a rock is accessioned into the collection, it becomes an artifact; when that rock is de-accessioned and discarded, it ceases being an artifact and returns to its status as a simple rock.

The adjective “physical” is perhaps problematic. When a song is recorded for a museum of ethnography, it becomes an artifact, albeit mediated by the recording technology. The disk on which it is recorded is a physical object, but it is not an artifact (although it might qualify as an artifact in a museum of recording technologies). The song is an artifact, although it is not a physical object. Some

of the issues that this example raises will come up again in relation to questions of mediation and authenticity.

An ostensibly narrower definition, which purports to define social artifacts only, might come close to serving as a definition of all artifacts, as the museum clearly creates and uses artifacts in the service of some need.

Social artifact: any product of individuals or groups (social beings) or of their social behavior. Artifacts are the objects or products designed and used by people to meet re-occurring needs or to solve problems. An example of a common social artifact is a document. (Wikipedia)

3.2.1.2 The Work of Art

Just as not all artifacts are man made, not all man made artifacts are art. The definition of what is and is not art has never been entirely easy, and became less so in the 20th century as artists first consciously pushed art's limits outward, and then challenged and subverted the very idea of such limits.

The qualities that are generally considered to distinguish artworks from other man-made things are the creativity and aesthetic intention of their makers. Historically, a work of craft such as a basket or pottery jar was judged by the quality of its execution, not the originality of its conception, and it was not expected to touch a viewer emotionally, intellectually, or spiritually. A work of art is expected to touch a viewer in these ways, and although the technical virtuosity displayed in a painting or sculpture may elicit great admiration, it can never substitute for original vision or emotional or spiritual power.

To be concerned solely with an aesthetic function is a characteristic of Fine Arts. When the aesthetic function is combined with some other purpose, in the case of furniture, tableware, or buildings, the resulting artifact is an example of Applied (or Decorative) Art, or Craft. Like the definition of art itself, the boundaries

between Art and Craft have become less and less clear in the course of the 20th century.

Art collections are usually made up exclusively of works of Fine Art, Applied Art, or both. Non-Art Historical collections often include works of both Fine and Applied Art, as examples or illustrations of the material culture of a time and place, or as contemporary images of their subjects.

3.2.2 Qualities of Artifacts

Many of the identifiable physical or other characteristics of artifacts are of limited relevance to this paper, which is concerned with those characteristics that most directly affect the exhibition and interpretation of artifacts, and, by extension, the meaning communicated to the visitor.

Every artifact has meaning, every artifact tells a story or many stories, often stories with many levels. For most artifacts, this meaning is more or less hidden from the average viewer, and understanding is dependent on interpretation.

There are other artifacts that seem self-explanatory, or to not require supplementary information or interpretation. The viewing of works of art, jewelry, flowers, might be considered by some to be a purely aesthetic experience that needs no further explanation. Similarly, objects already familiar to the public raise few questions.

There are a number of characteristics of artifacts that directly affect the need for Interpretation, characteristics shared to some degree by every artifact. Some of the most significant characteristics are described here, supported by examples of artifacts in which these characteristics are in evidence.

3.2.2.1 Communicativity

“Objects of art were made to be looked at, and looked at they are accordingly. Objects of science were not made to be looked at, and looked

at they are nevertheless." – Benjamin Ives Gilman, 1918 (quoted by Bassett and Prince 379)

Some things are created primarily in order to communicate something to a viewer; others are created for purposes that involve virtually no communication. This quality might be described as an artifact maker's ability to make the artifact speak for itself, without need for Interpretation. Works of art are at the high end of this scale; it can be assumed, for example, that a painting is intended to communicate something about its subject, about its creator, or about painting itself. Tools are at the low end of this scale; it can be assumed that a wrench is intended to communicate little or nothing.

3.2.2.2 Accessibility

Accessibility refers to the ability to be understood or appreciated with little or no interpretation or contextualization, at least to most members of the dominant culture. An unfamiliar example of a familiar class of object, or an object whose function is simple and apparent, like an automobile, a woman's purse, a pitcher, or a hammer is easily readable, i.e. immediately recognized and understood. Religious or political symbols and paraphernalia, or specialized tools typically are not. The level of interpretation required to make an object meaningful would seem inversely correlated to its level of accessibility.

3.2.2.3 Autonomy

Autonomy refers to an artifact's potential to be understood standing alone, the possibility of effective interpretation without additional artifacts or physical context. A complete work of art, or a tool, like a shovel or saw, that is used on its own is entirely autonomous. A part of a whole, like a shoelace without a shoe, or one piece from a set, like a single fish fork, would require some evocation of the missing whole in order to be easily understood or appreciated.

3.2.2.4 Appeal

Appeal is the simple ability to attract the attention or interest of visitors, by virtue of physical or other characteristics, like size, colour, opulence, familiarity or strangeness, etc. This effect is very relative: the same samovar that is the largest and brightest artifact in a gallery of teapots might be the smallest and duller artifact in a gallery of samovars. The Royal Carriage in the Hermitage Museum is at the very high end of this scale; many mineral samples would be at the very bottom.

3.2.2.5 Meaning and Significance

An artifact lends itself to any number of interpretations, and its significance may be directly related to the context in which it is understood. Although the potential meanings of any artifact are almost without limit, it is clear that some artifacts are more significant than others. A .44 caliber ball may be exhibited as an example of a typical use of cast lead, a common type of 19th century ammunition, the product of a certain factory, a part of a famous person's personal collection, etc. These and other multiple overlapping meanings contribute to the artifact's significance to the viewer. If this ball is also the bullet that killed Abraham Lincoln, it acquires another meaning and becomes an object of great significance. An apparently identical ball, found without documentation or provenance in a history buff's desk drawer would have little or no significance.

3.2.2.6 Aura

In *The Work of Art in the Age of Mechanical Reproduction*, Walter Benjamin describes the "aura" of an original work of art as the sense of awe and reverence that we feel in its presence. He attributes this aura, not to the intrinsic qualities of the artwork, but to extrinsic factors like its history, and to its recognized value and significance as an original object. A reproduction can deliver the appearance of the original, but not its aura (Benjamin ch. 2).

Although Benjamin is talking only about works of art, the principles should apply to any original or unique object that has a history, and some recognized value and significance.

3.2.2.7 Interplay of These Qualities

The qualities of Intentionality, Accessibility, Autonomy, Appeal, and Significance are all present to varying degrees in every artifact, and although they are a matter of subjective judgment, the varying balance struck by these qualities might be said to give every artifact a distinct character profile. A few examples show how these profiles might vary.

A Fabergé egg would have enormous initial appeal to almost any visitor, and would be complex, detailed, and aesthetically sophisticated enough to sustain prolonged viewing. As an objet d'art, it would be both communicative and accessible. Although part of a series of similar objects, each egg is an autonomous piece. The egg is evidence of great wealth, refined taste, and exquisite craftsmanship, but as a purely decorative bauble, made to be given as a gift, the egg is not particularly meaningful. Although contextual information could be provided about Peter Carl Fabergé, his other eggs, the arts of goldsmithing and enameling, Czarist Russia, Easter traditions in the Russian Orthodox Church, etc., the object itself is accessible enough that few visitors would demand it. As one example among thousands of the wealth and extravagance of the Romanovs, but not itself the cause or result of great historical forces, the egg is not particularly significant.

We might score it: **Communicativity: 9/10, Accessibility: 10/10, Autonomy: 9/10, Appeal: 10/10, Meaning/Significance: 1/10.**

Like the Lincoln pistol ball, a Moon Rock is a very significant artifact that is virtually identical to millions of completely insignificant objects. If a piece of moon rock were exhibited, it would have no intrinsic appeal that could be counted on to attract or hold the visitor's attention, and any visitor who glanced at it would be

unlikely to remember it. Only a visitor who was aware of the provenance and authenticity of this piece would understand or appreciate the unique experience of seeing it.

We might score it: **Communicativity: 0/10, Accessibility: 1/10, Autonomy: 1/10, Appeal: 1/10, Meaning/Significance: 10/10.**

3.2.3 Meaning Dependant on Context

In all cases where the artifact is not so highly communicative, accessible, autonomous, and appealing that its meaning and significance are readily apparent, contextualization must be provided. In some cases, context can be physical, and appropriate settings or other artifacts can provide sufficient cues to understanding. In most cases this will be impractical or impossible, and context, or interpretation, must be provided by the use of media.

Interpretation is addressed specifically in 3.1.3.5 and 3.3, and is a key issue throughout 3.5.

3.2.4 The Non-Artifact

When an artifact is not available, or is not presentable, facsimiles are sometimes used. For ethical reasons, these are clearly identified as reproductions of known objects, or conjectural interpretations of objects of which no complete examples exist. These objects are generally referred to as *reproductions*.

In some cases, objects are created in order to provide a context or setting for the display of artifacts, e.g. pieces of furniture that are historical artifacts may be presented in an architectural setting in which the floorboards, wallpaper, and millwork are all reproductions that approximate the furniture's original setting. Similarly, a bread basket might be displayed holding simulated loaves of bread made of plaster or plastic. These objects are generally referred to as *props*.

A third category is made up of the two and three-dimensional representations that are not reproductions or copies. They are sometimes created to provide

visitors with the accessible physical presence of something that may or may not have ever existed, or something whose scale or other physical attributes would make it impossible to present. Among countless models of buildings, dioramas of sites or environments, an outstanding example of this is the Squid and Whale diorama in the Milstein Hall of Ocean Life at New York's American Museum of Natural History. In order to distinguish them from reproductions and props, it may be useful to refer to the objects in this category as *models*.

These reproductions, props, and models may present important advantages over artifacts – over and above giving presence to things that are not available. For didactic purposes, they could be bigger, or more brightly coloured, or more clearly formed or articulated, than any actual artifact. They might be presented without elaborate environmental or security conditions or, by multiplication, in many places at once. They could allow the visitor to approach, to circulate around, and to manipulate, even in destructive ways, in order to ‘experience’ the artifact more completely.

Although there is a long history of the use of three-dimensional non-artifacts in museum exhibitions, questions about their use have a new relevance with reference to virtual objects and settings.

In practice, reproductions, props, and models. are widely used. It may be argued that this is particularly appropriate, or unavoidable in many cases, for reasons mentioned above, but there are some dangers associated with this.

First, that although most visitors will look at the thing displayed, and assign to it some meaning, not all will read the label that identifies it as a reproduction, or will not appreciate that no reproduction is perfect. The visitor's observations or assumptions about the original may be false, based on some aspect of the copy that is not true to the original. The outcome is not that a visitor has missed discovering some element of truth, but much worse, that a visitor has been misled, and comes away having learned a non-truth.

Secondly, the authentic artifact is forced to compete with inauthentic reproductions that, as we have seen, may be more flawless, more accessible, or more appealing in any number of other ways. The status, the impact, and the drama of the artifact may all be diminished by this juxtaposition, which in turn diminishes the museum itself in its role as the holder of these unique and significant things.

The use of reproductions may have the potential to degrade the public perception of the museum's *raison d'être*, i.e., its role as the unique place that the public may encounter rare and important artifacts.

The situations into which the product of mechanical reproduction can be brought may not touch the actual work of art, yet the quality of its presence is always depreciated. This holds not only for the art work but also, for instance, for a landscape which passes in review before the spectator in a movie....The authenticity of a thing is the essence of all that is transmissible from its beginning, ranging from its substantive duration to the its testimony to the history which it has experienced. –Walter Benjamin (ch. 2)

3.3 INTERPRETATION

We have briefly mentioned Interpretation as one of the museum's core functions, but now that the artifact which is to be interpreted has been defined and described, we can discuss Interpretation in greater depth and detail.

3.3.1 Intro: The Need for (and Inevitability of) Interpretation

Interpretation in the museum is both indispensable and inevitable. On the one hand, it is an essential part of the museum's exhibition function, as it is clear that the public would be ill equipped to recognize or interpret most of the artifacts, collections, and research data that they might encounter in the museum, and as we have seen, real access is more than simply physical.

On the other hand, even in cases where museum collections are presented with virtually no interpretive content, this cannot be considered an interpretation-free installation. In the absence of the deliberate intellectual and emotional context that is communicated by interpretive content, the museum's own inherent context will shape the visitor's response to what is exhibited. The museum is not a neutral space in which objects are randomly encountered. The physical conditions in which the encounter takes place are a reflection of the museum's culture and attitudes, as is the choice of artifacts displayed.

3.3.2 Definition of Interpretation

Freeman Tilden, who is widely considered to have more or less invented the modern profession of interpretation, describes it as:

An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information."

(2)

.... Facts are demonstrably empirical events whose occurrence can be proven using evidentiary methods. Analysis is the method of determining or describing the nature of a thing by resolving it into its parts.

Interpretation is the attempt to give the meaning of something. It follows that facts lead to analysis, which leads to interpretation. And it follows that each step in the process is more subjective than the preceding step.

In this context, history is inductive in its methodology, in that it accumulates the facts, tries to determine their nature and their connectivities and then attempts to weave them into an understandable and meaningful mosaic (McFee).

There is something of a chicken and egg relationship between the artifact and its meaning. Interpretation might enable the meaning of the artifact to reveal itself, or interpretation might use the artifact as a tool to reveal the meaning of something else. One might ask: what is being interpreted, and what are interpretation's tools? If the artifact is being interpreted, the tools are the additional data being communicated, the interpretive messages. If the artifact is a tool of interpretation, as Tilden seems to suggest, then something other than the artifact is being interpreted. In either case, the artifact is an essential part of the interpretation process, and its central place in the museum has already been argued. As it does not seem essential to resolve this in order to continue, the working definition provided below will fit either or both sides of this question.

Interpretation is the process that places an artifact in an intellectual and emotional context that makes it meaningful, and allows the artifact and its meaning to contribute to that context. An artifact can be seen in a number of different and overlapping contexts.

3.3.3 Information or Interpretation

... Most of the word information contains the word inform, so I call things information only if they inform me, not if they are just collections of data, of stuff (Wurman 16).

In the literature, there is a distinction made between information and interpretation (Freeman 18), although the two are clearly related. We will use the term Interpretive Content to refer to any information, in whatever form (text, images, etc,) that is formatted and presented in order to contextualize or describe one or more artifacts. Raw data, in the form of spreadsheets, unedited notes, and other archival material could not normally be considered interpretive content.

3.3.4 Principle Functions of Information

There is a confusingly wide range of types, levels, and functions of information that can be used to interpret and contextualize individual artifacts or groups of artifacts in the context of an exhibition. For our purposes, we can limit the classifications to three principle functions:

- 1) *Identification*: information that labels or specifies in the way that, for example, “19th century lignam vitae cabinet maker’s mallet from London” specifies a time, a material, a tool and its user, and a place.
- 2) *Explanation*: information that clarifies. An example might be “lignam vitae is commonly used for this purpose because of its great weight and resistance to checking,” “the mallet was used to strike chisels and gouges.”
- 3) *Contextualization*: information that describes a wider reality, such as “The Arts and Crafts movement promoted a return to the use of hand tools in cabinetmaking, which had been largely supplanted by steam driven machine tools during the industrial revolution.”

Effective communication of information, in the museum as elsewhere, is normally achieved through the use of media.

3.4 USE OF MEDIA

3.4.1 Information Content, Physical Context, Artifact Simulation

The museum has always been first, a repository of things, and second, a repository of knowledge related to those things. There are limits to what can be communicated by built context, and some recourse to communication media will be required for any exhibition. The form of traditional media most closely associated with museum exhibitions is the printed word, followed by reproductions of drawings, maps, diagrams, and photographs.

Media have been used since the earliest times to convey information: the facts and figures that identify, define, describe, and explain the artifacts exhibited. Depending on the volume and complexity of an exhibition's messaging, i.e. the quantity of information content to be communicated, media may range from a minimal use of printed text to a vast and elaborate multi-level delivery of text, image, video, and sound.

Communications media may be used to simulate or suggest physical context. Although various media are the vehicles of choice in the communication of most other contexts, i.e. intellectual, emotional, etc., their use as physical context is normally considered an expedient that economizes on space, money, or other resources. (see 3.5.4.3) Printing a period photograph life size as a backdrop for a display of furniture is far less difficult and expensive than building a drawing room or other setting.

In traditional museum practice, photographs have stood in for artifacts only when the artifacts were too big to display, e.g. ships, buildings, etc. A photograph is not normally considered to be equivalent to an artifact. An exhibition about porcelain might well include many photographs of porcelain, but it could not dispense with real artifacts, and it is unlikely that any museum would try. This issue will be discussed at some length in Chapter 4. In the following section, we will be looking at various types of media commonly used in the museum, and their strengths and weaknesses.

3.4.2 Types of Media

3.4.2.1 Text

Words have always been the primary vehicle for transferring knowledge in the museum, in the form of artifact labels and explanatory text panels – augmented, when necessary, by images of various kinds.

That the printed word remains the dominant medium is due to a number of obvious advantages that it offers. The research documents that are often the source for most of an exhibition's information content are primarily in the form of text, and can be excerpted without requiring complex or expensive remediation. Factual information can be presented in a concise and accurate form, and its physical supports are simple and inexpensive to produce.

Extensive text can be printed and integrated into an exhibition environment in a variety of ways without calling undue attention to itself. The same edited final exhibition texts can be easily remediated into audio-visual or satellite media productions, or their texts can be remediated into exhibition text.

3.4.2.2 Photographic Images

Delivering information content with photographs offers a number of significant advantages over text. The text-weary visitor may welcome the chance to access content through photographs, as will the visitor whose language skills do not allow easy access to the meaning of text messages. The legibility of photographs is largely unaffected by the age, education, or cultural background of visitors.

A photographic image can often convey complex information much more succinctly than text, particularly in the case of contextual information. A single photograph can convey not only how an artifact was used, but by what sort of people in what sort of setting: period, social setting, wealth, etc. – to a level of detail that would otherwise require thousands of words.

Photography offers an even more compelling advantage due to its assumed relation to unmediated reality. (This is discussed at some length in 2.2.2.2 Immediacy, Transparency, Objectivity, and 2.3.2.3 Photographic Truth) A photograph of an object balanced on woman's head has far more authority than a statement that the object was commonly carried balanced on a woman's head, even if no explicit claim is made for the photo's veracity, and the statement is

attributed to an acknowledged expert. Photography benefits from an assumption of objective fidelity to reality, and the messages it conveys have enormous authority. This authority is even greater when the photographic image is obviously very old.

The weakness of photographic information is its lack of precision. A photo may show people who seem to be well-off Europeans, from an earlier time, playing cards; a text can state that they are lawyers from Brussels, photographed in 1895 while playing whist. A photo can depict an elderly gentleman but text is required to identify him as Leo Tolstoy.

3.4.2.3 Maps and Other Diagrams

Maps and other diagrams share an advantage with photographs in that, unlike text, the type of document is evident at a glance. Without reading the map, the visitor knows that it is there to communicate spatial and geographical information. Unlike text, one does not have to decode the map to know that it is a map.

Diagrams allow more schematic, abstract, or hypothetical images than is possible with photos, but otherwise share photography's potential for language and culture-free transmission of information content. And like photographs, they are a welcome break for the text-weary visitor.

Unfortunately, the skill required to read a map or a diagram is greater than that required to read a photograph, and maps may not effectively deliver information to all visitors.

3.4.2.4 Audiovisual material

Audiovisual productions are a more recent addition to the exhibition's traditional repertoire of media. They allow presentation of video and sound recordings, both of which are new types of content. They also permit the remediation of photographic content into slide shows or video, which allows much greater

quantities of these images, without changing or augmenting the quality of the material. Text content can also be remediated this way to similar effect.

This sequential presentation on a screen can save space and visual clutter while increasing the amount of information delivered. Presenting text on a screen however cannot be considered to provide relief from excessive text content.

The line separating these types of old media from New Media are not particularly clear, and many of the downsides of audio visual media are the same as those for New Media, namely noise, motion, disruption of visitor flow, etc, and will be discussed in Chapter 4.

3.4.2.5 Satellites: Books, Film, and other Media Products

The exhibition is perhaps the museum's most important product, but it is certainly not its only product. The exhibition is itself often part of a group of related media products including catalogues, posters, and various other print pieces. Web-based and other New Media satellite products will be discussed in Chapter 4.

Satellite media products are often remediations of exhibition content, or background research that was considered too long, complex, or limited in appeal for inclusion in the exhibition itself. Printed handouts are often added to exhibitions to fill gaps or bolster weaknesses in content that only become apparent after the exhibition has opened.

3.4.3 The Medium Can Be (or Bury) the Message

There is a tendency to imagine that the more interpretive content the better, on the theory that those visitors who want more can use it, and those who do not will simply ignore it. There are potentially two problems with this approach: that excessive information will dilute or confuse messaging, and that the visual weight of media objects will overwhelm artifact content.

The question of excessive information working against clarity of messaging is treated in 2.3.3, and will be discussed further in Chapter 4. Ideas related to the balance of artifacts and media objects are addressed in 3.5.3.2 and again in Chapter 4.

3.5 THE EXHIBITION

The essential element that makes an exhibition different from a book, a film, an illustrated lecture, a catalogue, or a computer game is the artifact – referred to by Tilden as “the Thing Itself” (3). Given that the exhibition is organized around artifacts, one might ask what distinguishes an exhibition from a collection, or an arbitrary sample drawn from a collection. As noted above, the visitor’s encounter with artifacts might seem at first glance to be an unmediated experience, bias free and neutral, but we have observed that this is not the case. The initial selection of an object for collection as a museum artifact, the choice of an artifact for exhibition, the choice of the artifacts to be exhibited with it, the display conditions, and design treatment of its physical setting all reflect assumptions, judgments, and attitudes about the artifact, its significance, and its meaning. There may be a great deal of ambiguity in the expression of these assumptions, judgments, and attitudes, but they shape, even if only in a subliminal way, the visitor’s experience of the artifact and of the exhibition.

The underlying reality upon which the museum’s intentions and objectives are either achieved or missed is that the visitor is free to choose. The visitor chooses to come to the museum, to visit the exhibition, to examine the artifacts, read the texts, watch the videos, etc. – or he chooses not to. Visitors accept the museum’s offerings on their own terms, not the museum’s, and use them as they see fit.

A fundamental difference that distinguishes the exhibition from many other cultural products like film, theatre, or illustrated lectures, is the way in which the museum visitor controls his or her own access to content. Museum visitors move through time and space to access exhibition content along their own itinerary and

at their own pace. The visitor views, studies, contemplates or skips over content, speeds past some things, stops to reflect on others, doubles back to reconsider. Visitors find meanings and make connections that are entirely their own, and each visitor experiences his or her own version of the exhibition.

This section will give an overview of the Exhibition, and discuss some issues regarding it, in order to lay the foundation for the discussion of New Media in the Museum which follows in chapter 4.

3.5.1 Shaping the Experience, Mediating the Encounter

The primary aim of the exhibit development process is to provide an exhibition environment that will enhance the visitor experience, by providing a physical context that will help visitors to construct their own interpretation from the exhibits (Caulton).

An exhibition traditionally puts objects 'on view', inviting the visitor to inspect and contemplate them, guided by the epistemologically privileged museum authority. But what is observed in the museum today is no longer unequivocally an object; objects have been reconstituted as sites of experience, and museums increasingly hold themselves accountable for delivering experiences (Hein 5).

The exhibition is the setting in which visitors encounter artifacts, and it creates a system of contexts within which artifacts are experienced and understood. These contexts exist on a number of levels, and intersect in complex ways.

There are many types of context, and many ways of communicating them. An intellectual context is composed of ideas, of facts; a physical context is composed of things, of spaces, and of display conditions; a visual context is composed of appearances and images; an emotional context is composed of moods and feelings.

The museum's product is an experience for the visitor, which satisfies both the visitor's expectations and the museum's intentions. Any discussion of the visitor experience should begin with a look at both the nature and essential features of the experience that the museum purports to provide, and some understanding of visitor's intentions, needs, desires, and various agendas (Perrot and Mura).

In the marketing of experiences, the museum offers just one of many competing leisure-time activities available to the public, and is in competition with other suppliers of experience: the cinema, theatre, professional sports, amusement parks, and other museums.

As discussed in section 3.1.3.4, the exhibition's objective is to mediate the visitor's encounter with artifacts, images, and ideas in order to enhance the quality and meaning of the experience, and to communicate, intellectually and emotionally, a coherent set of messages. Exhibition design is the process that aims to marshal and choreograph the various elements in order to create this coherence, creating a new context, communicating meaning and mood.

Exhibition design is closely related to interpretation, as it relates to the organization and communication of exhibition content. At the risk of oversimplifying, it could be said that while interpretation focuses on the conceptual organization of museum content and its intellectual context, exhibition design focuses on the spatial organization of content and its physical context.

3.5.2 Project Definition

3.5.2.1 Institutional Objectives, Authorial Intentions

Every exhibition is created in order to address institutional objectives. These include general objectives relating to the institution's mandate, and more narrow objectives that are specific to the exhibition itself. In addition to addressing the mandate's core aims, institutional objectives may range from the most basic, e.g. boosting attendance, or bridging a gap in the schedule, to very focused, e.g.

targeting a specific audience that is under-represented among the museum's visitors, addressing a topic that is currently "hot" in order to generate publicity, pandering to a prospective sponsor or donor, etc.

An exhibition concept is typically developed by one or more individuals, who may carry out or direct the research on which the exhibition will be based, and who plays an active role as it is scripted and designed. This role may be played by a Curator acting alone, or it may involve an Interpreter, a Designer, and others. The underlying *raison d'être* of the exhibition is sometimes referred to as Curatorial Intention. Because many thematic and other exhibitions are not primarily curatorial endeavors, it might be preferable to use a term like Authorial Intentions instead.

There is a very wide range of possible authorial intentions that might motivate an exhibition. They range from the very simple, i.e. to display a little known or rarely seen collection or part of a collection, which is typical of most permanent collection installations, to the presentation of a complex narrative or thesis, as in most thematic exhibitions.

The authors may wish to reassemble objects that have been scattered over time, or match up things with the sources that inspired them, or display a developmental sequence, or demonstrate family resemblances, or illustrate historical events, etc. These intentions normally involve an effect on the visitor: proving a point, telling a story, explaining a process, amusing or moving the visitor, etc.

3.5.2.2 Point of View and Voice

Unmediated objects and events are seen and understood differently by different viewers, and objectivity is rarely possible. Every witness has a point of view determined by his physical, psychological, and cultural position. The way in which

objects or events are mediated is strongly affected by point of view, and an exhibition's authors bring a point of view to their work.

Authors may openly acknowledge their own point of view. A curator who is an art historian may try to demonstrate that an unknown painter was an important influence in his time. This is one person's thesis, is presented as such, and the visitor is free to be convinced or not.

In other cases, such as historical exhibitions, an attempt is made to adopt an objective, neutral point of view. A particular narrative is presented as a sequence of objective facts. When specific facts are in dispute, contending versions may be presented in parallel. When the point of view of the authors is reasonably congruent with the point of view of the general public, an impression (illusion?) of objectivity may be created.

On the other hand, a natural history exhibition team might try to explain photosynthesis or plate tectonics; these are widely recognized natural phenomena, and a certain degree of real objectivity might be possible.

In all cases, information that is communicated to someone is also communicated by someone. In a metaphorical sense, someone is speaking.

3.5.2.3 Types of exhibitions

There is a wide range of types of exhibition, and every exhibition differs from others in so many ways that their variety may seem infinite and beyond categorization or comparison. There are, however, a certain number of definable characteristics that are shared, to a greater or lesser degree, by all exhibitions, as well as a number of variables that can be described for purposes of comparison. The character of any individual exhibition is determined by the relative importance of each of these factors, or the way in which these variables are weighted.

Although there are many variables related to objectives, subject, scope, target audience, architectural setting, budget, etc, this paper is primarily concerned with factors related to content and interpretation. The intention here is not to create a taxonomy of exhibitions, or a repertory of museological practices, but to develop a simple functional understanding of the exhibition, focused on how exhibitions work.

3.5.2.4 Display Strategies

Mise en Situation and Mise en Valeur

Artifacts are normally displayed using one of two broad display strategies – *Mise en situation* and *mise en valeur* – which are related to two communication strategies, and may be considered to respond to a perceived greater or lesser need to communicate.

Mise en situation refers to an attempt to recreate, or at least evoke, the context in which an artifact was made, or used, or found, in order to communicate information about its making, its use, or its history. *Mise en situation* is an appropriate strategy when the artifact's value is seen as its ability to illustrate or explain a small part of some larger story, rather than to move or delight the visitor on its own.

By contrast, *mise en valeur* refers to a presentation strategy that attempts to present the artifact to its best advantage, typically alone or as part of a small group or artifacts, in a neutral setting. This display strategy is typically used for works of art and objects of great significance or value. The intention is to present the artifact as an individual object of study or contemplation, not as one of many small pieces that illustrate a story.

Mise en situation communicates history, use, and provenance through physical context, *mise en valeur* requires separate means to communicate these things.

As we have seen, an original or natural context appropriate to the artifact can be physically recreated or represented in three dimensions as a *mise en situation* – which does not typically involve the use of media, e.g. period rooms.

Alternatively, the same original or natural context can be represented by the use of media such as photography, cinema and video, and sound recordings. This may be either assembled in a full-scale simulation of an original context surrounding the artifact, or presented as a media object alongside the artifact.

Typically, many fine art or other artifact-based exhibitions do not attempt to contextualize the artifact as part of a larger reality (*mise en situation*), but place the artifact within the museum's own context (*mise en valeur*). This approach involves using the museum's own formal and symbolic vocabularies to communicate importance, rarity, relationships, and hierarchies while creating a mood specific to the museum itself, rather than to the artifact or to the subject of an exhibition. This is related to qualities of the artifact discussed in 3.2.2, specifically Communicativity, Autonomy, and Appeal.

3.5.2.5 Communication Strategies

The communication of content within an exhibition may be achieved in a number of ways; in turn, these ways may be explored and understood in a number of ways.

As exhibition content may be considered to fall within two categories – artifact content and information content – the communication strategies in the exhibition also fall into two broad categories: communication by physical context, and communication by media. As any media objects used in the exhibition become part of the physical context, and media objects are sometimes used to represent a physical context, this distinction is not entirely clear.

Although a *mise en situation* display strategy may seem to clearly imply a communication strategy based on communication by context, the first may not

entirely presuppose the second. Similarly, a *mise en valeur* display strategy does not preclude communication by context, nor necessitate extensive use of media. In practice, a mixed approach is almost unavoidable, and some media use may be part of evoking context, e.g. a photographic mural instead of a reproduction period room. Similarly, display conditions like height, viewing angle, lighting, etc. may be used to communicate an artifact's importance, use, or its intended effect on the viewer, without attempting to recreate an original context.

As a practical distinction, *communication by context* is almost always non-verbal and static, while *communication by media* is verbal, dynamic, or both. Communication by context has the advantages of immediacy and accessibility, while the use of media permits a much greater volume of information to be delivered.

3.5.2.6 Layers of Mediation, Levels of Interpretation

Mediation is not a simple yes/no condition; there are degrees of mediation that separate the media object from its source. We have seen that taking an object from its context and presenting it in another is an act of mediation; altering its viewing conditions, e.g. removing it from the daylight ground to spotlight it in a showcase carries the mediation further. Creating a physical context for it, either a gallery setting or a conjectural reconstruction of a context in which it once existed, mediates it even further.

Some of these acts of mediation are the quasi-inevitable results of collecting and preserving artifacts. Some may be the result of the semiconscious habits and cultural tics of museological practice, or simply the impact on visitors of the museum environment. Other acts of mediation are efforts to interpret artifacts or contexts within the framework of exhibitions.

There is a point at which it becomes difficult to distinguish between acts of mediation and acts of interpretation or, to put it another way, interpretation may

seem to be just a form of mediation. It might be argued that every artifact is at the centre of an infinite number of layers of contextualization and interpretation, both intended and implied, so that no direct unmediated experience of the artifact can ever really be possible.

3.5.3 Structuring Content, Crafting the Narrative

Exhibition content must be shaped, from a mass of artifacts and information into a coherent narrative. The organization, both conceptual and spatial, of content within an exhibition can be described by its characteristic aspects, some of which, like Articulation, Linearity, and Multiplicity, can be plotted as points along scales, and others, like Order, that are specific categories from a finite but undefined set.

Articulation: the degree to which the whole is subdivided: from a single monolith, to a number of completely independent parts.

Linearity: the degree of rigidity of the sequential order of content: from the non-linear, e.g. a display of representative pieces by a group of craftspersons; to the strictly linear, e.g. "How wooden shoes are made: 10 steps from log to shoes."

Multiplicity: the degree to which the sequential order is singular or composed of multiple parallel strings, e.g. the development of human language could be told as a single progressive narrative, from the earliest beginnings to the present, but at many points the progression occurs independently in different places. The narrative line is composed of threads that may sometimes join, at other times moving in parallel through time.

Order: the type of sequential logic of content: content order may be chronological, geographical, alphabetical, or sequenced according to an almost infinite number of other variables, e.g. societies along a scale from least to most democratic; visual art pieces from most to least representational, firearms from smallest to largest caliber, craft pieces from least richly to most richly decorated.

Within a single exhibition, two or more types of order may be combined, e.g. an exhibition of cooking vessels may be in three zones: Paleolithic, Neolithic, and Iron age; each of these zones may be in three sub-zones, Asia, Africa, and Europe; within each sub-zone, content may be organized chronologically.

3.5.3.1 Exhibition Content

Although a number of elements are present to some extent in every exhibition, their relative importance varies a great deal. The essential features of any exhibition can be identified as *Content, Context, and Organization*. Content is primarily made up of artifacts and information, and both Interpretation and Design are concerned with the organization and communication of that content.

The relative importance of artifacts is one of the essential defining aspects of an exhibition. Most exhibitions fall somewhere along a continuum between the purely *artifact-based exhibition* with minimal messaging, and message- or *theme-based exhibitions* with few or no artifacts. The relative importance of the two components, irrespective of the exhibition's size or density can vary a great deal.

Many exhibitions, particularly of fine arts and various "treasures," are organized entirely around the featured artifacts, sometimes to the exclusion of any but the most minimal information or interpretation. Extreme examples are permanent installations in which a museum's entire collection is on display, e.g. the Barnes Collection.

These are referred to as *artifact-based exhibitions*, to distinguish them from *theme-based exhibitions*, which in some instances do away with artifacts altogether. Those artifacts that are present in thematic exhibitions are sometimes relegated to the role of illustrations or examples for a narrative, or included, sometimes as an apparent afterthought, to make a museum exhibition out of what would otherwise be a pure multi-media presentation.

The Information content of an exhibition can also range from the very minimal, e.g. fine arts installations where each work is identified only by title, artist name and dates, media, and provenance, and little or no general information is provided. At the other extreme are markedly didactic exhibitions like the Smithsonian's "Vikings: the North Atlantic Saga," with 17,000 words of historical, social, and technical information.

Art Gallery exhibitions often consist of the presentation of a selected group of art works, with minimal intellectual context provided in text panels and artifact labels, with little or no other context or interpretation provided. The content is almost exclusively the artifacts themselves, the artifacts are relied on to deliver their own message, and interpretation may be considered superfluous or inappropriate.

At the other end of the spectrum are Science and Technology exhibitions, in which complex and data-rich intellectual context and interpretation are presented with a variety of media, reproductions, and props of various kinds, often very interactive. Artifacts may be few or entirely absent, and new media productions may be the focus of the exhibition. Interpretation and messaging drive the exercise.

In New Media art exhibitions, the artworks (artifacts) themselves may be new media productions, presented with the title and artist's name as the only additional information. Any interpretation or messaging are carried by the artwork, and there is no artifact independent of the artist's own interpretation and messaging.

In Conceptual Art installations, there may be no discernable artifacts or context, and no apparent interpretation or messaging, only the space itself, perhaps with its lights on a timer, or its walls painted a specific colour, or its floor covered in sand, etc. This could be described as context without content, the museum's space as the exhibition.

3.5.3.2 Balancing Artifact and Information

As was mentioned in section 3.4.3, there is often a tendency to imagine that the more interpretive content the better, on the theory that those visitors who want more can use it, and those who do not will simply ignore it. There are potentially two problems with this approach: that excessive information will dilute or confuse messaging, and that the visual weight of media objects will overwhelm artifact content.

The question of excessive information working against clarity of messaging is treated in section 2.3.3, and will be discussed further in Chapter 4.

From a design standpoint, this excess of information content gives rise to a different problem, which has to do with display conditions for the artifact. Particularly important or precious artifacts are sometimes displayed alone, spotlighted in the centre of an empty dark space, in order to attract and hold all attention. Artifacts overwhelmed by information content or other media objects illustrate the opposite condition. Few or small artifacts in a sea of media objects may lose all presence, and risk passing completely unnoticed.

3.5.4 Creating Physical Context: Narrative Space

3.5.4.1 Intellectual to Architectural: Narrative to Narrative Space

The carefully orchestrated use of printed words, drawings, graphics, still and moving images, sounds, and multi-media productions allows the museum to effectively deliver to the visitor a rich and varied context, or web of interrelated contexts, for the artifact.

Although the recreation or simulation of physical context is a major issue in exhibition design strategies, it is one very specific facet of a much broader question. As noted in 3.5.1, there are many types of context, and many ways of communicating them. An intellectual context is composed of ideas, of facts; a physical context is composed of things, of spaces, and of display conditions; a

visual context is composed of appearances and images; an emotional context is composed of moods and feelings.

The most extreme type of physical context is the immersive environment, which is a context in which the visitor circulates, rather than just a context in which the artifact is displayed (Bitgood). The immersive environment may itself be an artifact or a collection of artifacts; historic buildings and towns are often exhibited this way. Carcassonne in France and Upper Canada Village are examples of variations on this theme. More common are purpose-built environments that recreate lost towns, like Colonial Williamsburg in the U.S, where 88 original buildings are among more than 400 conjectural recreations.

In the book *Information Architects*, Ralph Appelbaum drew on his recent work for the American Museum of Natural History and the United States Holocaust Memorial Museum in describing the role of the information architect. He stated,

We look for architectural and environmental metaphors for the key pedagogical concepts behind an exhibition, so that space traditionally left neutral is given voice. This approach casts a broader information net to engage the receptivities of different visitors. We feel the results are seen in people's sense of immersion, attention span, and enhanced memory of their engagement in activities such as reading more on the subject, visiting related sites, or becoming more involved with the museum (150).

The fundamental challenge of exhibition design is the translation of an intellectual structure, the exhibition's storyline or messaging structure, into a physical structure that can be experienced by the visitor. A narrative line becomes a circulation path; themes become spaces; and ideas become experiences, transforming the rhetorical to architectural.

The negative spaces that separate one exhibition element from another are not random leftovers from the organization of positive spaces, they are the

constituent parts of a continuous circulation space that ties those elements together. The structure of the individual paths that make up the circulation space reflects the narrative structure of the exhibition. Circulation options reflect narrative options, multiple paths correspond to multiple narratives.

3.5.4.2 Appropriate Media

We have seen in Section 2 that the same content or message can be delivered by a number of different media, and have addressed some of the advantages and disadvantages of various traditional media in section 3.4.2. In addition to these, there are a number of considerations that might guide media choices in the exhibition.

Visitor profiles, particularly in terms of languages skills and education levels, and authorial intentions may favour an information-rich exhibition in which a great deal of text material is presented, or a less challenging mix of short texts and many images.

In cases where artifacts are either small in number or in size, information content in the form of photographic images may be scaled up to provide visual context as well as information content. Similarly, audiovisual media can serve to create a more dynamic or playful environment...

3.6 THE MUSEUM: ENCOUNTERS WITH ARTIFACTS AND MEANINGS

We have seen in this chapter that the museum's unique role among memory institutions revolves around the artifact, its exhibition and its interpretation.

Although the museum mediates in a number of ways the encounter between the visitor and the reality to which the artifact is witness, the ideal to which this encounter aspires is a direct encounter with unmediated physical reality.

The meaning of things is largely dependent on context, and the museum's role involves contextualizing the artifacts and interpreting them for the visitor.

Interpretation involves communicating various types of information, and media have always played a central role in that communication.

In the next chapter, we will see how the arrival of New Media has changed the way interpretation is delivered, and ways in which it may continue to change this and other aspects of the museum.

Notes, Chapter 3

¹ A member of the public who experiences an exhibition is referred to as a visitor, in terms like “the visitor experience,” and “visitor outcomes.” It is understood that this refers to a person actively seeking a museum experience, and not the tourist who stops in just long enough to buy a postcard and use the washroom.

Although research allows some generalizations to be made about museum visitors as a group, e.g. that their income and education levels tend to be higher than those of the general public, individually they are a relatively heterogeneous group. When developing exhibitions or other products, the needs of the extremes must be addressed as well as those of the average. Visitors cover a wide range of ages, and levels of education and cultural awareness, as well as varying levels of interest in, and cultural familiarity with a given subject.

Visitors may go to an exhibition individually or in family or other groups, and the members of a group can be expected to be as diverse as visitors in general.

² Museums serve a number of functions for the societies that support them, on city, regional, and national levels. The historical role of the museum in the democratization of education and culture, and as a tool of social and political development, has always been both symbolic and functional.

Museums serve as a setting and symbol of social status within their communities, with social and cultural elites volunteering on their boards, attending balls and other functions, and contributing time and money to their museological activities.

Museum buildings are important architectural attractions, development tools, and civic symbols. Major museums are increasingly seen as important attractions for tourism, and as leisure resources for local populations.

As important as it is, none of these roles and functions are directly germane to either the central functions of the museum, nor to the place traditional and new media play, and with the exception of marketing issues, they will not be explored further.

³ A seeming exception to this principle would be “Interpretive museums,” like the National Constitution Center in Philadelphia, the United States Holocaust Memorial Museum, the Griffith Observatory in Los Angeles, etc., which have few artifacts, but do have stories to tell or information to impart

I would argue that these exceptional cases tend to fall into two main categories. Some institutions rely on props, reproductions, and recreated environments to augment the few artifacts that they do display, and might be considered museums with a less than ideal balance between artifact content and media content. Other institutions do not in fact pretend to be museums at all, as many acknowledge with names like Discovery Centre, Exploratorium, etc. They offer a museum like experience, but are not museums.

Chapter 4: New Media in the museum

...seeing Holbein's The Ambassadors come up on the screen is a tepid encounter compared to walking through the neoclassical spaces of the museum and coming face to face with the painting.... (Borgman 199)

Art museums are places of real experience. They must remain places where their primary function is the immediate experience of all kinds of works of art (McPhee 30).

... all this technological information is floating inconsequentially in cyberspace. It takes an actual time and place to gather an audience, it takes an audience to create a sense of expectation.... (Borgman 227)

Borgman is talking here about a one-woman theatre piece by Lynn Redgrave, but his point is that even when all the content, and more besides, is available on the web, its presentation as a real event in a specific time and place is a far more compelling offering to the public.

The museum's strength as an attraction, and its value as an institution, are directly based upon the unique role that it plays among memory institutions, a role based on the specific functions of conserving and exhibiting artifacts and interpreting their meaning. The museum has the wherewithal to create a unique cultural experience based on encounters with artifacts in a context that reveals and communicates meaning.

The museum's significance in the future will be assured by its continued success in delivering this experience, and anything that enriches or promotes its ability to interpret its collections to a larger public increases its value and contributes to assuring its future. It follows that anything that replaces, dilutes, or cheapens this experience is a threat to the museum's success or even survival.

William Mitchell wonders what will play “architecture’s fundamental representational role” in the cyber world; “how should we make social organization and power legible?” (*City* 103) The analogous question in our case is what will let us know that we are in a museum, and not a dollar store, a flea market, or Toys R Us. What will tell us that we are in the presence of significant things?

Information can illuminate, transform, or displace reality....Without information about reality, without reports and records, the reach of experience quickly trails off into the shadows of ignorance and forgetfulness (Borgman 1).

People will actually think Elvis is there. It's going to be, 'Oh, wow,' I can tell you that (Sillerman).

New Media has clearly arrived in the museum, as it has in every other area of contemporary life. Minimally, a museum, like any other business, agency, or organization, is expected to have a website, communicate by email, handle its information digitally, and conduct its business operations with industry-standard software and hardware. More importantly, however, as a leisure-time destination and purveyor of entertainment, a museum is expected to deliver an interactive mixed-media experience commensurate with what entertainment has become (Marty).

Within the world of museum professionals, the scramble to be relevant, to educate, to entertain, to be at the leading edge, and above all to catch and hold an audience, has resulted in an active embrace of the new – and New Media is the new.¹

A search of the 1534 museums listed on *Museums in the USA* web site reveals twenty with the word virtual in their name, and fifty with the word virtual in their description (*Museums in the USA*).

This section will look at how New Media has arrived in the museum, how it plans to grow, and hopefully what it brings. The issues raised in the previous chapter, particularly those related to the museum's essential roles and functions, and the uses of media in these roles and functions, will inform this discussion.

4.1 NEW MEDIA AS EVOLUTION AND EXTENSION OF TRADITIONAL MEDIA

Information technology should be seen as a means, rather than an end in itself, which can enhance the experience of the real thing in meaningful ways (Mintz).

4.1.1 Crossing the Line Between Old and New Media

The transition from old to new media in the museum is in many cases almost imperceptible. As contemporary as they may feel to visitors, automated slide shows, audio environments, video clips, and even mixed media *son et lumiere* displays are all examples of pre-digital (i.e., old) media. In many cases the transition from old media to new may slip under the radar as a simple equipment upgrade: the same images that were projected as slides last year have been digitized for an LCD projector, with no significant change to the visitor experience.

4.1.2 More of the Same, but Better

The benefits of the new technology may be limited to improvements in ease of use, efficiency of delivery, lower cost, a reduction of heat and noise, etc. Digital word processing and typesetting make even the oldest of old media easier to deliver. Inkjet output of digital files allows more, larger, and more complex graphics. Digital audiovisual recording and editing becomes easier, while playback equipment and media grow steadily smaller and cheaper, allowing it to be used more frequently in exhibitions. None of these changes is particularly radical.

4.1.3 Information Content: the Bottomless Cup

The digitization of information handling, however, has had a profound effect on the quantity of information content that can be created or gathered from existing sources and formatted for presentation. The practical limits on information content are related to integrating it into an interpretive structure, designing a delivery method, and meeting the cost of delivery. Information itself is available in almost infinite quantities.

The quantity of information can work against the quality of information, and unlimited *information content* buries meaning in superfluous data. When New Media is used to deliver information content it can enrich the visitor experience by informing the visitor's encounter with the artifact; it makes the museum experience more powerful and compelling. New Media can exacerbate the problem of balance between *information content* and *artifact content*, by making content delivery so dynamic, interactive, or visually rich that it overwhelm the artifacts.

4.2 NEW WAYS TO DELIVER INTERPRETIVE CONTENT

4.2.1 Multiple Channels, Multiple Message Streams

A single, text-based message channel typically delivers the information content of a traditional exhibition. The possibilities of delivering information on distinct layers or of distinct types was limited to what could be made distinguishable by different graphic treatments. This was sometimes confusing, often visually cluttered and aesthetically weak.

The Audio Guide provided the second channel in traditional exhibitions; while the technology was limited and awkward it accommodated alternate message streams. Audio input had the considerable advantage of making interpretative content readily available in multiple languages, as well as to different audiences (e.g., to children). Its utility was limited by the lack of visitor control beyond an

original choice and simple stop/start controls. Moreover, the audio guide headphones tended to isolate the listener and limit social interaction.

New Media opens up a variety of channels and message streams, and allows visitor to toggle between them. A number of new audio guide delivery systems allow a wider range of content and greater user control. Narrowcasting allows audio content to be delivered to headphones when the visitor arrives in a target zone, allowing automatic audio delivery at exactly the appropriate moments of the visit. The *guidePORT* system at the Biodome in Montreal is an excellent example.²

Richer media can also be delivered to handheld devices, whether user controlled or triggered, like the *guidePORT* system, by passing into specific message zones. The screen of a hand held device allows delivery of text, photos, animation, etc, as well as audio (Spasojevic and Kindberg).

These are examples of what is often referred to as *augmented reality* (AR): interpretive content that enriches the experience of the real. Participants in AR learning environments can interact physically, in a way that cannot be achieved in a virtual environment. With augmented reality, many of the dramatic advantages of New Media are fully exploited to enrich the visitor experience without detracting from or attempting to replace the encounter with artifacts.

4.2.2 New Media Elements, a New Ambiance

The typical face of New Media in the museum is not static texts or images, no matter how they are generated or displayed, but mixed media involving images, video, animations, and sound, and interactive hypertext environments, particularly those linked by the web.

While devices carried or worn by visitors often include headphones, which tend to isolate the visitor, others, including ambient soundscapes, screen based interactives, video presentations, etc. typically do not. The introduction of these

types of New Media into the museum gallery creates a fundamental change in the ambiance of exhibitions. The noise and movement of the New Media exhibition are dramatically different from the tranquil and almost reverent ambiance of the traditional museum gallery.

4.2.3 Radical Departures in Message Delivery

New Media offers possibilities for interpretive labeling, for linking information content to artifacts that was unimaginable yesterday. In one example, individual fish at the Underwater World aquarium on Singapore's Sentosa island have been internally tagged with microchips using radio frequency identification technology. Visitors can see the name, species and other information displayed on a screen whenever any of the 20 tagged fishes swim past a sensor. "Gone are the days when visitors are happy looking at animals and matching them with the information on the sign boards," said Peter Chew, sales and marketing manager (*Fish*).

4.3 INTERACTIVITY

4.3.1 New Media and Traditional Interactivity

As interactivity is one of the most frequently identified features of New Media, it is not surprising that New Media has had a great impact on interactive exhibition elements. *Interactives* in exhibitions are not new, but they have become much more common, and their use much more extensive.

Unlike old-fashioned mechanical interactives, which were much better suited to young visitors, screen based interactives make it easier to address different ages and levels of knowledge. This is consistent with a significant change in the nature of the experience that the museum attempts to deliver; the visitor is not a passive spectator, but an active explorer.

4.3.2 Interactive Information Retrieval

Museum exhibitions have become interactive in a more fundamental way as well. Presenting much greater amounts of interpretive information and allowing the visitor to follow his interest transform the exhibition into an interactive information environment.

Museums have traditionally communicated collection-based and associated information through a variety of media, but the advent of new technologies now presents opportunities to develop new means of communication by which visitors explore the richness and diversity of collections at their own pace for their own requirements (Fahy 87).

4.3.3 Interactive Interpretation and Physical Artifact, an Example

The Maiasaur Project, at the Royal Ontario Museum during the mid-90s, presented a dinosaur skeleton and an interactive programme of computer generated animations of the dinosaur walking, feeding, etc. together in a gallery. The animations may have seemed very crude and schematic to anyone who has seen the Jurassic Park movies, but they were sufficiently engaging to cast the actual skeleton into the shade, allowing interpretive media and interactivity to overshadow a real artifact.

4.4 ORGANIZATION, STRUCTURE, AND COHERENCE

The use of New Media tends to have a number of specific impacts on the organization of exhibitions, due to both the interactive potential of New Media, and to its ability to marshal very large quantities of information. The sheer mass of data, which encourages *information content* to overbalance *artifact content*, promotes an idea-based model of exhibition, i.e. a story told with media, illustrated with a few artifacts, even when the quantity and quality of available artifacts would allow a story to be told with artifacts. The media object replaces the artifact.

As Lev Manovich notes, “Many new media objects do not tell stories; they do not have a beginning or end; in fact, they do not have any development, thematically, formally, or otherwise that would organize their elements into a sequence. Instead, they are collections of individual items, with every item possessing the same significance as any other.” (218)

One result of this disorganization of reality is, according to Stephen Fjellman, that “...decontextualization makes it difficult for people to maintain a coherent understanding about how things work. Meanings become all jumbled together....Differences are glossed over, and 'differences that make a difference,' as Gregory Bateson has put it, are neutralized. Disconnected information passes in front of us at high speed.” (30-1)

There is a difference between complexifying the narrative and abandoning the narrative – the museum can offer the visitor choices regarding level of information, voice, specialized interest, etc, without sacrificing narrative structure or authorial direction. Both the quantity of information and the nature of New Media encourage exhibitions structured as database instead of narrative, and experienced with interface navigation instead of physical navigation. The visitor is encouraged to follow his own path through the mass of information and experience available.

Click, click through cyberspace; this is the new architectural promenade.
(Mitchell City 24)

In allowing the visitor to curate his own exhibition and create his own narrative, the museum abdicates its role as interpreter of ideas, and teller of stories. In an attempt to avoid being just a warehouse of things, it can become just a warehouse of data.

4.4.1 Narrative Gives way to Database

For we dream in narrative, daydream in narrative, remember, anticipate, hope, despair, believe, doubt, plan, revise, criticize, construct, gossip, learn, hate, and love by narrative. In order really to live, we make up stories about ourselves and others, about the personal as well as the social, past and future (Hardy 13). _

As we have seen in Section 2, the information structure under-girding many New Media products is the relational database, which is not consistent with the narrative structure of the traditional museum exhibition. Unlike narratives, which normally structure a finite amount of information necessary to advance the narrative, databases are capable of expanding to accommodate increasing amounts of information.

The quantitative change in exhibition information content, which is often cited as a positive development, must almost inevitably result in a qualitative change in the organizational structure of the exhibition content, from a composed, more or less linear, narrative to a more or less randomly accessed collection of blocks of information.

4.4.2 Create Your Own Exhibition

Build your own virtual exhibitions from over 82,000 digitized works of art from the collections allows you to become your own virtual curator!
(Fine Arts Museums of San Francisco)

Brad Johnson, creative director of a web development firm, has suggested that “the evolution of interactive media means the story no longer focuses in one direction, from the one to the many. We provide the characters, the stage, music, information, imagery and atmosphere that visitors use to weave their own story” (Johnson)

This is a recurring theme in futurist descriptions of the evolution of museums, that the visitor will be able to “curate his own exhibition...browsing among the artifacts that interest him,” and browsing among the information that interests him as well. The act of pulling together artifact and information content to compose an exhibition will be delegated to the visitor. Why this is any more desirable than readers composing their own novels, or cinema goers editing their own movies is never made entirely clear, and the museum goer might be excused for seeing it as a development along the same lines as being invited to pump his own gas or ring up his own groceries.

4.4.3 Authorial intentions?: Losing the Narrative Thread

In view of its unstructured form, with unfettered access to the collection, and to the museum’s research archives, it might well be asked if what the visitor is experiencing is an exhibition at all. Certain key elements, like curatorial intention, interpretive messages, and conceptual organization, may be absent from this exercise.

4.5 NEW MEDIA, REPRESENTATIONS, AND REPRODUCTIONS

4.5.1 The New Photography: Objectivity and Realism

An obvious face of New Media in the museum involves digital imagery, both still and moving, captured images of the real, and increasingly convincing rendered images of the imaginary. Perhaps surprisingly, in a period when it is common for digital photographs to be expertly but obviously manipulated for dramatic, comic, or surreal effect, photographs are still commonly assumed to bear true witness to objective reality. As the techniques of digital image manipulation become more sophisticated, the line between the real and the imaginary fades away.

While visitors may not be ready to swear that what they see is true, they, like the Lumière brother’s patrons, react viscerally to it. When the image is moving rather than still, the effect is even stronger. Although people understand the difference between documentary and fiction, and the details of its special effects are well

known, commonly held ideas about shark behaviour owe much more to *Jaws* than to all the magazine articles, TV documentaries, aquarium displays, and natural history exhibitions combined.

This raises a number of issues: to what extent is mediated presence integrated as eye-witness experience? To what extent does the public make a critical distinction between manipulated and unmanipulated images? Does a critical assessment of source affect the impact of images? Because the intuitive authority of the image can be augmented by the cultural authority of the museum, the museum's moral responsibility in the selection and use of these means is considerable.

4.5.2 Faking the Context, Not the Artifact

As mentioned earlier, the only artifact that readily lends itself to faking by New Media is an artifact that is itself a New Media object. The issue of objective fidelity to reality is raised, however, by the use of New Media imagery, including virtual objects and spaces, for interpretive or contextual purposes.

While a traditional three-dimensional reproduction may have communicated a false reality as an artifact, the digitally manipulated image or film has the power to communicate a false reality as contextual or interpretive information.

The potential of fake, modified, or misidentified artifacts to mislead the viewer is as old as collecting, and has a long and colourful history; P.T. Barnum's "Barnum's American Museum" was a sort of permanent side show specializing in such crowd pleasers (Cook). Manipulated, misrepresented, or otherwise deceptive photographs have a history as long as photography itself, e.g. the Cottingly Faeries, or the Politburo in the time of Stalin (Howells 223-4). The marriage of the authority of photographic images with New Media's power to create and manipulate still and moving images and sound creates an enormous potential for communicating false realities to the museum visitor.

The issue here is not one of deliberately manipulative propaganda; it is as easy to lie in a typewritten text as in an interactive video programme. The issue is concerned with New Media's capacity to create "realistic" experiences of false messages. The typewritten text invokes no particular claim to faithfully represent some aspect of un-mediated reality, but a computer simulation of an event may well be taken for a record of that event. The disclaimer "Simulation Only" does not necessarily reduce the impact of the simulation itself.

Media, in delivering information content, create intellectual, emotional, and other contexts for the artifacts and ideas of an exhibition. Media are also used to create physical context in exhibitions, ranging from simple theatrical backdrops to Virtual Reality environments. This can be a very effective way of delivering a meaningful physical context, but there are risks of overshadowing, or distracting from, artifacts. The newness of New Media can make the media more interesting than the context being represented.

Physical contexts are by definition concrete, material things. New Media can evoke, depict, or relate physical context, but has trouble simulating, and can never really be physical context.

4.5.3 Virtual Reality, Virtual Unreality

Virtual reality may also become significant within the museum context. In computer-centered worlds, visitors may be able to experience through their senses the exploration of a sea bed, a Roman coliseum or the museum stores (Fahy 167).

The same issues of objective fidelity to reality are raised by immersive virtual environments, although perhaps to an even greater degree. A visitor experiencing a virtual Temple of Ramses at Abu Simbel could never imagine that he is in the actual temple, but may well imagine that perceptions of the virtual temple correspond to perceptions of the actual temple. More importantly, the

subjective sensations of the virtual temple, i.e. its look and feel, its mood and atmosphere, may be taken as true to the sensations experienced in the actual temple.

This example of the illusion of presence – the feeling of “been there; done that” in a person who has neither been there, nor done that at all – represents an evolution of the museum from a unique place where one encounters the specific and real, to just one more place where one encounters the generic unreal.

4.5.4 *Strong and Weak Virtual Reality*

As discussed in Chapter 2, Heim makes an important distinction between what he calls *Weak Virtual Reality* – which can be characterized as the appearance of a 3D environment on a 2D screen – and *Strong Virtual Reality*, which is characterized by total sensory immersion and which may involve wearing a device like a Head-Mounted Display, or 3D polarizing stereoscopic glasses, or even haptic gloves, in order to create the illusory experience of actual space (Heim).

Clearly, *Strong Virtual Reality* is more of a hypothetical ideal than a realizable option in the delivery of on-site museum experiences. In the world of web delivered virtual products, it is perhaps even less likely. *Weak VR* experiences are already available, and various technologies continue to develop.

The European ARCO Consortium (Augmented Representation of Cultural Objects), and its spin-off *Virtual Expo Web*, has developed technology to produce web based virtual exhibitions using VRML. A number of virtual tours of historic buildings and museum galleries are available.

An example of a VR installation that straddles the line between Strong and Weak VR is the Virtual Room in the Science and Life Gallery at the Melbourne Museum in Australia (*VRoom*).

It is a rear projected, stereoscopic display system on eight screens that make up an octagonal “room,” which might more accurately be described as a showcase. Visitors circulate around the octagon and view it from outside, rather than experiencing it from the interior. This allows viewers wearing polarized lens glasses, to look into a virtual diorama, with the eight individual screens creating the illusion of continuous 360° viewing. Inside the Virtual Room, two synchronized projectors project two images, each with a different polarization, onto each screen (Kenderdine and Hart). The 3D glasses provide viewers with an illusion of moving three-dimensional dinosaurs, in an effect well known to aficionados of ‘3D movies’ like Disney’s 2007 release *Meet the Robinsons*.

The large scale of the screens and their physical disposition, which suggests that they are adjacent windows into a single virtual environment, might create the illusion of an immersive experience. The visitor is however, looking into a representation of space on a flat screen, and not navigating through a virtual space.

4.5.5 Artifacts and Media Objects

Although the processes of Collection, Preservation, and Exhibition can be seen to contribute to the museum’s inevitable mediation of reality, the artifacts in collections are normally considered to constitute an unmediated body of physical evidence, an unmediated sample of reality.

Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence in the place where it happens to be (Benjamin ch.2).

The far reaches of reality and the cultural landmarks that used to lend it coherence are being swept off their foundations by information technology....Once digitized, an altar piece can easily be moved from the National Gallery CD to the virtual reality of the church in the Upper Rhine

Valley where once it was the center of worship. But the virtual church itself is as free-floating a cultural item as the altar. Whatever is touched by information technology detaches itself from its foundation and retains a bond to its origin that is no more substantial than the Hope diamond's tie to the mine where it was found (Borgman 5).

A clear distinction has always been recognized between the artifact that is a chair, and the media object that is a photograph of a chair. Although photographs of chairs would very likely figure among the information content of an exhibition of chairs, they would run little risk of being considered to be chairs. New Media, and particularly Virtual Reality, seems to have clouded this distinction, even for some museum professionals. A virtual model of a chair, presented on screen, projected holographically, or physically generated by fast prototyping technologies, is not a chair, and has been stripped of some of the essential qualities of a chair.

Referring to Walter Benjamin's ideas on reproduction and the source object, Lev Manovich writes "When photographs are brought together within a single magazine or newsreel, both the scale and unique locations of the objects are discarded – thus answering the demand of mass society for a "universal equality of things" (171-2). The virtual chair, however it is presented to the viewer, has been subsumed into this homogeneous universe.

4.6 THE VIRTUAL EXHIBITION

The Virtual Exhibition has apparently become an extremely popular museum product, although it is not entirely clear what a Virtual Exhibition is. It can be the extension of physical exhibition, or can stand-alone, existing only in a digital form. The closely related subject of Virtual Museums is addressed in section 4.7.

In order to our focus our overview of currently available Virtual Exhibitions, and winnow out those that are not museum related, a few simple criteria, borrowed from Namjin Park (2003) are applied to the selection. For our purposes we will

assume that a virtual exhibition is either a) museum-based or b) on-line, and contains art and/or artifacts, exhibit labels, audio-video tools, and games or activities related to exhibitions.

Although virtual exhibitions can be distributed on CD-ROM, over the World Wide Web, or over an intranet within a physical museum, they are primarily seen as a web product, and are typically accessed through a museum's website.

4.6.1 Projecting the Museum Outside its Walls

There are two distinct potential user groups for Virtual Exhibitions: those looking for information (i.e., researchers) and those looking for an exhibition experience (i.e., visitors).

For the researcher, the Virtual Exhibition may be an excellent resource that can be searched, and this usefulness is independent of any physical version of the exhibition. When the virtual version persists after a physical exhibition closes, the information content remains available to researchers who missed the physical exhibition during its run.

For the visitor seeking an exhibition experience, on-line virtual versions can be very effective in giving prospective visitors an idea of whether the physical exhibition merits a visit, or what background research might be useful before visiting. It may also allow a recap or more careful reading after the visit.

The Virtual Exhibition without a physical component is another story. It is not really an exhibition at all, as it offers no encounter with artifacts. It might more accurately be called a Virtual Magazine Article, or a Virtual Coffee Table Book.

This remains true even when the Virtual Exhibition uses technology to create weak or strong virtuality, because the media object – whether it's a simple photograph or a full 3D model that can be sensed haptically – replaces the artifact experience with a media experience.

This is related to a “Crisis of Representation, [the idea that] language is not an adequate tool for representation, and unfortunately, neither are other, for instance graphical, methods of representation. The representation is fundamentally flawed by the fact that it is not what it attempts to represent, it is something other.” (Klastrup)

4.6.2 As Documentation of, Complement to, or Competitor for the Physical Exhibition

There are two ways in which the Virtual Exhibition may be related to a physical exhibition. The first and simplest is as documentation of an existing exhibition, which is recorded in QuickTimeVR or similar format. The exhibition *The Lands within Me: Expressions by Canadian Artists of Arab Origin* was presented at the Canadian Museum of Civilization from October 19, 2001 to March 9, 2003; an online version is available which includes its various texts plus QuickTimeVR panoramas of each space (*Lands Within Me*).

The second is as a complement to an existing exhibition, and alternate way to access content. For the exhibition ‘010101: Art in Technological Times’, which opened on March 3, 2001 at the San Francisco Museum of Modern Art, five contemporary artists were commissioned to create websites as part of the exhibition’s content, and Perimetre-Flux was commissioned to create a website to deliver interpretive content. This included artist’s statements, moderated discussion forums and announcements of related programming events.

In the 010101 SFMOMA galleries, visitors will find a range of such video works, sculptures, design projects, computer-driven installations, traditional drawings and paintings, and new art works commissioned for the gallery.

The project, through Perimetre-Flux, sought to unify the gallery exhibition and the website – “to unify the real and virtual spaces of the exhibition in such a way as

to arrive at a condition of perceptual collage wherein both venues of the exhibition may be experienced as a seamless landscape.”

Six years later, the website continues (SFMOMA), with its animated web graphics, somewhat confusing dynamic rollover buttons, and numerous short scrolling texts, as well as what seem to be the commissioned artist’s web pieces and voiceover commentary as content. A few static renderings of gallery views are the only record of the physical exhibition.

4.6.3 Is this an Exhibition, or the Image of an Exhibition?

Particularly in the case of a VR record of an actual physical exhibition, we can compare the two versions. The first has all the qualities that we associate with a museum exhibition; the second is a digital record of this exhibition. When a three-dimensional multi-media installation is remediated as a two dimensional single media document, one might well ask whether this digital record is itself an exhibition, or merely the image of an exhibition.

In the case of an exhibition that falls in our third category, the absence of a physical version does not prevent the same questions from being asked. It may be argued that an image of something that never existed, except as an image, is only an image, and not the thing depicted, in the same way that a rendering of a building that was never built is not a building, it is a picture of a building.

4.6.4 Identifying Purpose

As earlier discussed in relation to physical exhibitions, an essential aspect of the Virtual Exhibition is the objectives and intentions that motivate its creation. The Virtual Exhibition might aim to add other dimensions to a physical exhibition, as catalogues or other satellite products do. Or it may be seen as another form of exhibition, with objectives and intentions of its own, independent of any physical exhibition.

The *Mesoamerican Ballgame*, an award winning Virtual Exhibition, began life as an adjunct to a traveling exhibition; among the content it delivers is a page that lets prospective visitors know when and where the physical exhibition will be presented. Unfortunately, the last chance to visit was in Newark, New Jersey, in 2002. The Virtual Exhibition of the *Mesoamerican Ballgame* is still available online, now as an example of a stand-alone.

4.6.4.1 Promoting Access, Enhancing the Experience

When the Virtual Exhibition is essentially a remediation of a physical exhibition (as in the case with *The Lands within Me: Expressions by Canadian Artists of Arab Origin*) it might be used by the museum going public in a number of ways, none of which is strictly analogous to visiting a physical exhibition. In cases where the Virtual Exhibitions and the physical exhibitions are simultaneously accessible, sampling a number of Virtual Exhibitions on the web would allow one to pre-select which physical exhibitions to visit; looking more deeply might help prepare for the visit, particularly for teachers or guides who may be called upon to interpret. Reviewing elements of an exhibition after visiting would allow a visitor to better understand or simply to recall pleasant discoveries, and this remains true after the physical exhibition is not longer available.

For scholars, students, or the simply curious, the Virtual Exhibition would allow the selective mining of content in a way that physical exhibitions do not.

Researchers are particularly well served by the creation of a permanent version of the museum's ephemeral intellectual/cultural product.

4.6.4.2 Obviating Access, Creating the Experience

An exhibition that is purely virtual has obvious advantages over the physical exhibition that go beyond savings of the time, expense, and administrative load associated with construction, fabrication, printing, transportation, security, etc. There is no spatial constraint on content, and interpretive content may be made

available in any number of languages. No artifact is too big, fragile, or valuable to be represented, and in fact, the artifact does not even need to exist at all.

Moreover, a virtual exhibition can be made available on the web, allowing access to worldwide publics who may never have the opportunity to visit the museum itself. Virtual Exhibitions need never end, and can be visited 24/7 over the course of years. But the question raised in 4.6.2 remains: is what we are making available an exhibition, and is this a museum experience?

4.7 THE VIRTUAL MUSEUM: PROJECTIONS AND REALITIES

Technological trends on the horizon - virtual reality and 3-D imagery - will only encourage the moulding of digital museums into close simulations of their real-world counterparts.... It is easy to envisage a virtual museum in which the armchair visitor can: travel through simulated galleries; observe, circle around, and manipulate objects; and have immediate access to catalogue data, or audiovisual materials showing the objects in context of use.... to work one's way through museum galleries and to select artifacts from display cases and rotate them....Furthermore, it is not difficult to imagine a further extension of this metaphor, in which the intelligent agent software has a front-end interface that takes human form: guide, interpreter, or curator (MacDonald and Alsford).

The term Virtual Museum is used to refer to two very different things. Visionaries have long used the term Virtual Museum to refer to what they saw and promoted as a utopian vision of the museum of the future. It is often described as a totally virtual, immersive experience. I have found no actual examples that come even close to this today, even as *Weak VR* experiences.

The web however currently hosts many examples of a more prosaic genre of Virtual Museum. Apparently based on the idea that the place one finds virtual

exhibitions must be a virtual museum, they are essentially web sites or portals with menus that access a number of Virtual Exhibitions.

4.7.1 Virtual Museum, or Just a Catalogue of Virtual Exhibitions?

It is not entirely clear whether the intention behind of the idea of the Virtual Museums is to someday really create a Virtual Museum, or simply to provide a conventional website or portal that gives access to a number of “Virtual Exhibitions,” virtual gift shops, and other features. As this type of “Virtual Museum” aspires to be neither truly virtual, in the sense of VR, nor a museum, it will not be discussed here beyond citing a well known example, namely the *Virtual Museum of Canada* (www.virtualmuseum.ca), which includes 200 plus virtual exhibits, 70 plus online games, resources for teachers, an image bank with over 580000 documents, and a feature called “My Personal Museum” that invites one to “Create your own museum!” The Community Memories section “enable[s] smaller Canadian community museums, who are mostly volunteer run, [to] create online exhibits.” Both the *Community Memories* and *Personal Museum* features create something much closer to a scrapbook of digital images, with captions, than a museum or exhibition.

4.7.2 Rendering Other Functions Virtual

A true Virtual Museum might reasonably be expected to integrate Virtual Exhibitions into an overall virtual museum experience, as described, for example, by MacDonald and Alsford. A Virtual Museum might include a lobby or rotunda where visitors could see what exhibitions and events are available, and find directions to other services and attractions, like a library, gift shop, membership office, and coming events board. The Virtual Museum would have a distinctive style and ambiance, or look and feel, to reinforce the visitor’s sense of being in a specific place.

The *Virtual Smithsonian* (<http://2k.si.edu/>) makes a very weak gesture in this direction by structuring its galleries around a rotunda. This is not composed of

virtual spaces however; it is a static image of the rotunda in which each of three banners over doorways are hot links to static images of galleries in which each of four banners over doorways links to a small Virtual Exhibition. Neither the spaces nor the artifacts shown are virtual 3D, and no other museum functions are offered.

4.7.3 Identifying Purpose

As discussed earlier in relation to Virtual Exhibitions (and before that with respect to physical exhibitions), an essential aspect of any virtual product is the objectives and intentions that motivate its creation. Is the Virtual Museum created in relation to an existing physical museum, as a tool for promotional or other purposes, or is the Virtual Museum an independent institution, a museum like other museums, but existing only in a virtual form?

4.7.3.1 Promoting Access, Enhancing the Experience

...Sainsbury Wing of London's National Gallery. Near the entrance there is a room called the Micro Gallery, containing computer workstations from which visitors can explore the entire collection in hypermedia form. As they do so, visitors note items they will want to see in the original. At the conclusion of the virtual tour, they get a printed plan for a correspondingly personalized tour of the actual museum. An overlay of virtual space this changes the use of the actual space (Bertol 81).

The *Micro Gallery*, which opened in 1991, was replaced in 2005 by *ArtStart*, a similar in-house "multi-media" resource. The very high resolution of the images, and the touch screen technology used would probably make it difficult to make this resource available on-line, but its features seem to be consistent with the type of Virtual Museum being discussed.

The virtual version of an existing physical museum could be expected to serve many of the same purposes as the virtual version of an existing physical

exhibition. Tourists choosing which museum to visit while in town could visit the institutions' virtual versions while planning their trips, comparing not just the exhibitions available, but other events, the bookshop, restaurant, etc. A visitor to the physical museum could relive aspects of the experience later by visiting the virtual version.

As either a promotional tool, or as another aspect of the visitor experience, the Virtual Museum would seem to add significant value to its host museum. In order to be effective however, its quality would have to be comparable to that of the museum itself, i.e. it would have to communicate to prospective visitors the scope and quality of the host museum. The *Virtual Smithsonian* is a very disappointing experience on this score.

4.7.3.2 Obviating Access, Creating the Experience

In a virtual museum digital images of paintings, videos of living organisms, or three-dimensional simulations of sculptures and works of architecture (perhaps destroyed or unbuilt ones) stand in for physical objects, and a temporal sequence on the display plays the role of a spatial sequence along a circulation path (Mitchell City 59).

Digital architecture does not create enclosure; even in virtual reality, where the sense of "immersion" is fundamental for the complete perceptual experience, the immersion is still only illusory since the solidity of the enclosure is different from that perceived (Bertol 57-8).

According to Hani Rashid, the principal architect at Asymptote Architects and producer of the *Guggenheim Virtual Museum*, "The virtual museum is an ideal space for the deployment and experience of art and events created specifically for the interactive digital medium where simultaneous participation, as well as viewing, is made possible for an audience distributed around the globe." (Andia and Busch)

The Virtual Museum that that thinkers like MacDonald and Alsford, or Mitchell imagined, i.e. a stand-alone institution that exists only in cyber space, raises exactly the same questions as were raised by the stand-alone Virtual Exhibition. Can the museumgoer find in a Virtual Museum the thing that she goes to museums to find? Is the virtual museum experience a museum experience at all?³

Are visiting a museum, reading an illustrated book, watching a documentary film, or visiting a Virtual Exhibition on-line equivalent experiences?

The Mission Statement of the *Truly Virtual Web Art Museum* in its entirety reads, "HTML and VRML exhibits of digital art MADE FOR contribution to Web community's cyberculture IN virtual museums that truly exist only through the magic of the Internet." In this case, the "museum" seems to be a simple menu page that gives access to a number of Virtual Exhibitions.

4.7.4 Virtual Reality and the Experience of Non-mediated Reality

In cases where Virtual Reality is used to promote an accessible physical museum, it may help to draw visitors, but when a virtual media object replaces the artifact, or a virtual environment replaces physical context, it could encourage visitors to stay away in favor of a weaker experience on-line. Delivering a shadow of the museum to the individual at home might be seen as encouraging a culture of passive consumerism, just as blurring the distinction between real things and simulacra could be seen as encouraging a culture of illusion.

Although the experience of the virtual object may inform the experience of the real object, the virtual object may also de-dramatize and debase the experience of the real object, as McLuhan wrote, "...the tourist who arrives at the Leaning Tower of Pisa, or the Grand Canyon of Arizona, can now merely check his reactions to something with which he has long been familiar, and take his own pictures of the same." (178) Albert Borgman addresses the same issue:

...The leveling of the distinction between direct and indirect knowledge and of the difference between the nearness and farness of reality is...a reflection of the historic decline of meaning. Cultural landmarks, dimensions, and distinctions are dissolving (15).

Virtual Reality takes people further from reality, and blurs the line between illusion and reality, real experience and vicarious experience. As we saw in 2.3.2.4, there is real potential to create the illusion of experience-based knowledge.

As long as we remain in a cocoon of virtual reality or behold and control actual reality chiefly through information technology, the world out there seems light and immaterial (Borgman 221).

The relationship between this “light and immaterial” world and ourselves seems tenuous, as does its relation to any directly perceived physical reality. As Borgman points out, irreality was not always so free of context and connection: “...the builders of baroque and rococo churches had ceilings open up onto celestial spaces and sculptures suffused with supernatural light. Yet churches and theatres had unequivocal and even prominent moorings in actual space, and they would command attention rather than invite manipulation. Thus both fantasy and spectacle used to defer to the authority of the real world.” (187)

The difference was once seen as important. William Mitchell talks about the “distinction between voyeurism and engagement” and cites Paul Virilio on the debate among 17th century theologians on the question of a Catholic’s obligatory presence at Sunday Mass. Was a Mass seen through a telescope valid? They concluded that it was not. Mitchell wonders about “immersive, multi-sensory, telepresence at Mass.” Isn’t Mitchell asking whether a better telescope might somehow make a level of mediation disappear? (*City* 59)

There often seems to be an assumption that the difference between the real and the unreal is just a question of resolution or bandwidth. Robert Markley describes the futile pursuit that this assumption engenders.

Because the real is always a function of technological mediation, no standard of verisimilitude (number of pixels per screen, storage capacity, RAM, or processing speed) or technological breakthrough can ever render media completely transparent. Consequently, the desire for the real depends on an ever expanding use of financial resources, raw materials, and intellectual and manual labor to approach asymptotically the idea of unmediated experience. (37)

4.8 THE MUSEUM OF THE FUTURE: PROJECTIONS AND FANTASIES

In current museum practice, New Media has arrived, and museum professionals continue to experiment with extending its use. In the theoretical realm, there is a great deal of enthusiasm for the idea of the Virtual Museum, the museum as multi-media funhouse, the museum as a primarily web-based entity, etc. These ideas are less often espoused by museum professionals addressing museum problems, but are prevalent among technology enthusiasts. The highly mediated or entirely virtual technologies imagined to unlock the future of the museum often seem to be examples of a solution in search of a problem.

Namjin Park lumps the acquisition of knowledge and experience together when she predicts that “Once museums accept the notion of a future in which individuals are more inclined to acquire knowledge and experiences through computer mediation, more institutions can be expected to divert money and effort to the digitization of their information resources.” (Park 15)

“A Visit to the [hypothetical] Natural History Cyberspace Museum” describes a physical museum where visitors circulate among the exhibits “wearing special glasses, earphones, and sheer gloves of translucent material” and may sit down

to enter immersive VR “habitat cyberspace[s]” where the visitor approaches, touches, takes the viewpoint of, and even “becomes” one of the dinosaurs on display. This “habitat cyberspace” contains reams of information, virtual scientists who deliver lectures and answer questions, creatures that can be inhabited by the visitor and interact with other creatures, etc. This is *Strong Virtual Reality* at its strongest, and one might excuse the poor artifact in such a museum for feeling a little dull and inanimate (Kellogg and Carroll).

These ideas come a little closer to realization in the “distributed haptic museum” described by Toshio Asano. This is another hypothetical Virtual Museum with touchable artifacts, but based on existing technologies, and which “lets multiple users such as visitors, presenters, researchers, and curators access touchable exhibits via the Internet; that is, the users can touch the exhibited objects by using haptic interface devices (the *PHANTOM DESKTOP* of SensAble Technologies, Inc.) and watch/listen to presentations made by an avatar acting as a presenter.” This might be seen as something like the “Natural History Cyberspace Museum” packaged for takeout and home consumption (Asano).

Hiroaki Nishino, in a project for the Department of Computer Science and Intelligent Systems at Oita University, conceptualizes a virtual museum network that includes not only virtual 3D artifacts that can be viewed and manipulated haptically, but also generates 3D physical reproductions (for display?), and provides studios where craftspeople can create new works “via immersive virtual environment” (Nishino). It is not clear whether these new works are intended to be purely virtual or 3D physical as well.

Many ‘museum of the future’ concepts are based on views of the museum as a clearinghouse for information or a source for images of things, which is clearly a limited view of what museums are and do. But there is also a marked tendency to fantasize applications of leading edge technology in pursuit of objectives that are, to say the least, bizarre or incoherent.

4.9 AN OVERVIEW OF NEW MEDIA AND VISITOR EXPERIENCE

In this chapter, we have seen some of the ways that New Media has affected the museum, and ways in which New Media in the museum may continue to evolve in the future.

The impacts of New Media in the museum discussed here tend to fall into three broad categories: the ways in which New Media has affected the delivery of interpretive content; the way in which New Media has affected the visitor experience, i.e. the encounter with artifact content; and finally, the way in which New Media has affected public perception of, and access to, the museum.

New Media's impact on visitor experience, which is perhaps the most important of the three, is a central concern of this research, and it may be useful to summarize here some of our observations regarding it. As noted in Part 3, the visitor experience takes place within three intersecting realms: the intellectual, the emotional, and the social.

Intellectual outcomes have to do with learning, knowledge, and understanding. We have seen that, by making vastly more information available, and by facilitating access, New Media can be seen to promote knowledge acquisition. By favoring a searchable database structure, rather than coherent narrative, New Media can also be considered to promote knowledge at the expense of understanding.

Emotional outcomes have to do with impressions, feelings, and moods. To the extent that New Media presentation of information content is richer and characterized by immediacy, it can be argued that this content is at least potentially more emotionally engaging. To the extent that New Media distracts from, overshadows, or replaces the artifact, New Media use can be considered to

represent a risk to diminish the emotional component of the exhibition experience.

Social outcomes have to do with sharing, communicating, and connecting. For exhibition visitors in groups, particularly groups of adults and children, use of old media is often occasion for interaction and sharing. One person reads text content to others, or explains content; details are pointed out to others, questions are asked, and personal knowledge shared. We have seen that many New Media applications promote more individual, less socially interactive, uses. User-controlled screen-based content delivery is accessed by one person at a time; others may watch, but the user doesn't typically read or interpret for them. Although arguably more a hypothetical than real application, Virtual Reality with haptic interfaces represents the most extreme form of this tendency, which by its very nature isolates users from one another, or strongly mediates their interactions.

As more New Media elements are introduced, and as opportunities grow to assess their impact on the visitor experience, some of these negative impacts may be expected to counter balance the more utopian visions of hyper-mediated Museums of the Future.

Notes, Chapter 4

¹ "Conferences such as *ICHIM Conferences on Hypermedia and Interactivity in Museums*, which started in 1991 and *Museums and the Web*, which was established in 1997, underline the importance of new technologies to museums. The utility and the potential benefits of emerging technologies like Virtual Reality (VR) (Pletinckx 2000), (Roussou 2001), Augmented Reality (AR) (Brogni et al. 1999) and Web technologies (White et al. 2004), (Sinclair and Martinez 2001) to museums have been well documented." (Sylaiou et al)

² Employing antennae, radio transmitters, receivers and pre-recorded audio, *guidePORT* is a wireless visitor information system that senses a visitor's location and delivers - via a wearable headset/receiving unit - explanatory audio that corresponds to exactly what's being viewed.

In the BioDome, 45 individual identifiers that trigger the receivers and initiate a rapid download of the correct digital audio file are hidden under exhibit pathways or in small crevices. The audio information pertaining to the exhibits, which totals 80 minutes in all, is stored in transmitters that cover 13 cells on the exhibit floor. As visitors walk the floor, the digital audio delivered to the receivers changes as they move from cell to cell to correspond to what they're seeing.

Associated with each cell and each of five program types (French, English and Spanish languages for adults; French and English for children), are a base transmitter and an antenna. A total of 55 antenna units and 13 associated radio transmitters are deployed to cover the massive exhibit area. All audio files reside digitally in the base transmitters and are continuously broadcast into their cell.

Because the receivers are continually downloading audio pertinent to their location, visitors are free to move from zone to zone in any pattern they wish. As they leave one zone, the audio for that area fades, and the audio pertaining to the new area is phased in from the beginning. The only interaction involved is using buttons on the receiver to stop and restart the audio and to adjust volume.

Using special software features in *guidePORT* that precisely track visitor movements, BioDome can readily determine the most popular exhibits and the ways in which traffic flow can be maximized (Sennheiser).

³ If the objective of book buyers is to find and purchase a particular book at the best price, as conveniently as possible, then online book buying is a wonderful innovation, and the bookstore may be a doomed institution. If, on the other hand, the book buyer seeks the pleasure of whiling away the time while browsing at random among the thousands of books at a favourite store, handling dozens of books, scanning tables of contents, reading the odd passage, and perhaps buying some happy discovery, online book buying has nothing to offer.

Actually, there seem to be two distinct needs being met by online and traditional bookstores, and both forms will most probably continue to exist. Major league baseball has been broadcast on the radio since the 1920s, and on television since the 1940s, and the seats at ballparks continue to sell out.

Chapter Five: Conclusion

Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information?

– T.S. Eliot, *The Rock* (1934)

5.1 MY THESIS

This study began with the idea that any discussion of New Media's effectiveness must begin by identifying the purpose to which it is put, and that the potential utility of New Media in the museum depends on its ability to address the museum's specific needs, and deliver outcomes consistent with the museum's objectives.

Chapters 2 and 3 of this study present a general overview of mediation, New Media, and of the museum, in order to identify the essential aspects of each. Chapter 4 builds on this foundation by looking at current and projected applications of New Media in the museum.

My thesis is that New Media can extend and deepen the museum's effectiveness, but should not be confused with an un-critical attempt to radically transform the museum, or to render its current form obsolete. When used appropriately, New Media has the potential to enhance the museum experience; when used excessively or inappropriately, however, it can degrade the museum experience. In short, my thesis is that, while New Media has an important and potentially transformative role to play, the museum of the future is not a virtual museum.

5.2 MAIN POINTS

5.2.1 New Media

We have seen the power of traditional media to represent, reproduce, and communicate aspects of reality has been vastly increased by the technologies of

New Media. In the museum, as in almost every area of cultural activity, New Media has occasioned dramatic changes. In addition to significantly increasing the speed and power with which information of all types is created and disseminated, New Media has altered in many ways our perception of information and the reality it represents. The authority of information, the “realism” of images, the structure of knowledge, and other fundamental issues have been raised.

5.2.2 The Museum

We have identified the creation of a visitor experience as an important function of the museum: an experience of place, of event, but primarily an encounter with the real in the form of artifacts and collections. It is the exhibition that provides the emotional and intellectual context in which these artifacts are experienced, and this context is largely composed of information and interpretation, delivered by various media.

Presumably similar narratives could be communicated in other ways and without artifacts. In the absence of artifacts, however, a museum would have no great advantage over other potential creators of narratives, and the final product would have little relation to the museum’s functions. In addition to the tasks of presenting and interpreting artifacts, the museum’s absolutely fundamental role includes holding these artifacts in the first place, and through research, being able to attest to their nature, provenance, and authenticity.

5.2.3 New Media in the Museum

While New Media has the potential to be a powerful addition to the museum’s repertory of interpretive tools, and can promote and enhance the museum experience, we have seen in Chapter 4 that New Media applications have great potential for both positive and negative impacts.

By making vastly more information available, and by facilitating access, New Media can be seen to promote knowledge acquisition. On the other hand, by

privileging a searchable database structure over than coherent narrative, New Media might be considered to promote knowledge at the expense of understanding.

To the extent that New Media's presentation of information content is richer and characterized by immediacy, it can be argued that this content is at least potentially more emotionally engaging. But, to the extent that New Media distracts from, competes with, overshadows, or replaces the artifact, New Media can only diminish the emotional component of the exhibition experience.

For exhibition visitors in groups, particularly groups of adults and children, use of old media is often occasion for interaction and sharing. Often, New Media applications promote more individual, less socially interactive, uses. Virtual Reality with haptic interfaces is the most extreme form of this tendency, and tends to isolate users from each other.

When the New Media experience can be made more engaging than the artifact experience, the artifact tends to become an optional adjunct to the multi-media main event. When New Media is used, not to communicate context, but to simulate the artifact content, it tends to reduce the exhibition to just another multi-media product. It is hard to imagine this being a winning strategy on any level.

5.3 CONFLICTING VISIONS

5.3.1 Visions of the Museum of the Future

William Mitchell is just one of many who have written descriptions of the virtual museum, where "digital images of paintings, videos of living organisms, or three-dimensional simulations of sculptures and works of architecture (perhaps destroyed or unbuilt ones) stand in for physical objects, and a temporal sequence on the display plays the role of a spatial sequence along a circulation path." (*City* 59)

There is an assumption that we are moving inexorably toward these Museums of the Future, because they clearly represent progress. Although a need is recognized to address issues of design or appropriate technology, and many are being addressed in bold and futuristic tones, the underlying assumption often seems a foregone conclusion. Some, it would seem, have seen the future, and it is virtual.

5.3.2 Disillusionment of the Present

On the other hand, public enthusiasm for new media experiences seems to be waning for a number of reasons. The cyber world may have a parasitic relationship to the real world; by feeding off of reality, some believe that it drains reality of life. Randall Denley, in a column titled 'Suffocating in the Electronic Bubble,' (*Ottawa Citizen*, 21 October 2007) writes "The more time we spend in cyber world, the more boring the real world looks. Our threshold for stimulation has become so high that little in real life will get the adrenaline pumping. Thanks to the wonders of technology, we have seen everything and experienced nothing."

But disillusionment works in both directions. Namjin Park, in a small study of reactions and attitudes to virtual exhibitions, found that interest in visiting virtual exhibitions was inversely proportional to familiarity with them, i.e. when the novelty wore off, so did much of the appeal.¹

And as Velarde has pointed out, "After twenty years' barrage with the flat image, it is likely that the museum visitor is craving to see something real and round. ... It cannot be satisfactory to sit in the man-made twilight of television and then to make the brave step outside and through the door of a museum to see yet more of the same thing. It is essential to think in terms of giving the visitor something he cannot get at home, at school or from a library or shop...." (394)

5.4 NEXT STEPS

5.4.1 A Fundamental Discussion of the Museum

What I think these divergent visions really speak to is a real need for a fundamental discussion of what the museum is and can be. This discussion should begin with an attempt to identify the unique nature and role of the museum in society, i.e. what are the qualities and contributions of the museum alone? What does the museum do that no one else does?

Nothing so engages the fullness of human capabilities as a coherent and focused world of natural information. No amount or sophistication of cultural or technological information can compensate for the loss of well-being we would suffer if we let the realm of natural information decay to one of resources, storage, and transportation (Borgman 220).

I have attempted in Chapter 3 of this thesis to begin this discussion, and in Chapter 4 to assess various New Media applications in terms of how they address the museum's goals and objectives. This paper represents a very preliminary sketch toward this discussion.

5.4.2 Assessment Tools for New Media in the Museum

Museums compete for the public's allegiance with other manufacturers of illusion such as movie and television industries, theme parks, and the advertising industry. In that light, museums must become as discriminating in the selection of the experiences they provide as they were formerly solicitous of their collection and care of objects (Hein 8).

A striking feature of current applications of New Media in the museum, as well published descriptions of future projects, is their lack of apparent suitability to their intended content, or to stated objectives. Often, the use of New Media seems driven by a desire to be at some leading edge, or to attract a public

perceived as particularly receptive to New Media, rather than by any formal assessment of requirements.

Effective use of New Media in the Museum would be greatly aided by the development of conceptual tools to aid in assessing needs in order to optimally match content, desired outcomes, and media. Although the research required to develop such tools was beyond the scope of this enquiry, perhaps some of the issues identified and explored will prove useful.

Notes, Chapter 5

¹ 76% of her subjects said that they would have rather seen the exhibitions in a museum, but many indicated that they were more interested in didactic content and interactives after having visited the Virtual Exhibition.

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