Hypermedia History: Changing Technologies of Representation for Recording and Portraying the Past

> For the last twenty years neither matter nor space nor time has been what it was from time immemorial. We must expect great innovations to transform the entire technique of the arts, thereby affecting artistic invention itself and perhaps even bringing about an amazing change in our very notion of art.
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> – Paul Valery, Prologue to Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction' (1955) [1]

Technologies of representation are not just instruments of recording and reporting. Their basic attributes determine what it is actually possible to conceptualise, capture and articulate. Photography, to take a classic example, transformed people's outlook on the world because it could provide an unrivalled visual framing of actuality. It had no equivalent in the prior traditions of visual communication. Technological invention spurs social change. By focussing on 'technologies of representation' I am not only concerned with the technological *means* that underpin specific forms of representation, although these fundamentally define the range of options available, but also with the ways of seeing and understanding that they open up.[2] Tomas describes these beautifully as "a new type of amniotic environment for vision".[3] This may be a completely new way of communicating (such as made possible by the invention of the printing press) or it may be an extension of a way of seeing from an earlier mode (such as photography reconfiguring the tradition of painted panoramas in the nineteenth century). The expression 'technologies of representation' allows us to collapse the usual distinctions between form, content and delivery and to support the view that any form of representation involves a technology of showing or telling (a system); and this in turn influences the way texts are received and contextualised.

Digital media and networked communications underpin a very new technology of representation that is the focus of this paper. I will refer to this as 'hypermedia',

although it goes by other names such as ‘new’ media, ‘multi’-media, or ‘interactive’ media – a range of terms which themselves indicate an unstable sort of newness. There is a plethora of expressive and communicative forms that are being enabled by hypermedia. These offer new ways of conceiving, organising, and articulating knowledge. A special attribute of hypermedia is that it is not a stand-alone technology of representation: it brings together previous modes; it is a mechanism for their combination.

This paper opens with a discussion of the relationship between technological innovation and the study of history. This is followed by reflections on hypermedia in the context of earlier technologies of representation, from the time of the printing press. The second half of the paper is structured around three emergent traits of hypermedia textuality: *convergence*, *manipulation* and *navigation*. The discussion focuses on the changing relationship of the text, the author and the reader/viewer/user in digital modes of historical representation. While the examples referred to relate to digital history, much of the discussion can be applied equally to other kinds of cultural production ranging from informational resources to experimental artistic expression.

History and Technology: A Provocative Conjunction

The primary topic of history – social change – shows technological innovation as ever present but also fleeting, often exaggerated, and always on the way to being a new bursting bubble. So there is a particular set of challenges in discussing what is new in the representation of history in the ‘new’ media. The study of history is not alone in being influenced by the reconfiguring processes that occur when new technologies of representation take hold. However, history illustrates particularly well the

transformative effects of new opportunities for representation. There are two main reasons for this.

The first reason is that a major focus of history is on the evolution of societies in response to processes that are bound up with technological development. Paradoxically, historians have been cautious in their approach to the use of technological innovation in their own discipline, especially when it has threatened the conventional ways in which is history has been recorded. History has tended to stand at arm's length from the immediate practical reconfigurations of technological change; the discipline constituted its own practices as standing outside of technological innovation. As a guardian of culture and heritage and a promoter of the long view of social change, history has formally sanctioned new technologies of representation only when they have matured to the point that they can be considered as platforms for reliable and authoritative information and interpretation. For history to adopt today's very latest technologies of representation for its own use (at this very early stage in their development) is to effectively take historical scholarship out of its comfort zone and to bring it face to face with the very processes of change it seeks to document.

Secondly, past experience shows that history has in the course of time taken hold of and made very good use of new technologies of representation once they have matured (I am thinking in particular of the photographic record and of documentary film and television). We can assume that in the future it will be as commonplace for history to be presented via hypermedia as through established visual documentary forms. With this in mind, it is worth looking ahead to consider how new technologies of representation might aid the study of history.

Contextualising Hypermedia

It has been a shortcoming of much new media theory that discussion has tended to focus specifically on new media forms in isolation rather than in the context of a longer history of representation. Innovation is never fully new; it builds on previous advances. A series of recent books show that the concepts of hypermedia and of networked communication have had antecedents over the course of four centuries and more.[4] This rush of critical energy has begun to address the shortcomings of the kind of media theory that was formulated at the time when postmodernism was questioning the traditional basis of western historical thought. Media theory had a large task in the 1990s: it needed to bridge the gap between computer programming and cultural production and make that bridge the focus of a new area of study. The shortcomings I refer to may be the result of the challenge posed by any newness: when something is very new it is difficult to characterise its newness because it has not settled into an identifiable shape. The ground is still shifting. However, the nature of its novelty is best understood in the context of its historical antecedents.

The advent of the printing press must surely be the most important moment in the history of technologies of representation. For the first time it was possible to read a text that had been distributed in multiple copies in other places. The capacity for mass distribution had global repercussions. Among them was the new possibility for formal study of the past based on documents that could be shared and interpreted in different ways; they could be scrutinised and either accepted or disputed. This was an accelerator of modern historical thought and a key driver that would centuries later lead to the development of a discipline of history. Print also meant that the very arrangement of the world could be represented in reproducible cartographic records.

Cartography was a mode of representation upon which even empires were founded. This is a very specific example of the way the printing press influenced the course of global social developments.

More than 500 years later print is now so accepted that it is a seamless surface. This is because print has been such a stable technology for so long. The print genres that developed in the eighteenth and nineteenth century in particular (such as the modern novel, the modern biography, and the great historical narratives of nation and state) exert an unspoken power. Printed texts now bear very few marks of the time of their production (apart from trends in fonts and subtle changes in the quality of print reproduction), few signs of what Foucault refers to as the "stamp of our age".[5] So it is that I can write a paper that on the surface may look much like a paper written any time in the twentieth century. Readers of the future will look to the layout of this text – as they will to a website created today. But in this paper they will find fewer clues to the time in which it was produced. In the website, if indeed it still exists at that time, they will find the awkwardness of HTML coding and all the nuts and bolts that make the digital product work in an online environment at this particular moment in time.

It is important to note that as new technologies of representation have emerged they have not generally superseded or even eclipsed previous forms. For example, far from seeing the 'death of the book', as many had predicted when electronic publishing became widespread, the book form has remained remarkably resilient. It shows how multiple technologies of representation can co-exist. It may also be a sign that hypermedia has not yet matured to a point where it can seriously challenge the primacy of print. Likewise, photography did not lose its popularity when the moving images of film emerged as a technology of representation (intriguingly, in 1915 D. W. Griffith predicted that children soon would be "taught practically everything by

moving pictures" and "never be obliged to read history again").[6] There have always been in-between phases too, such as the transition from silent film to sound film. With the development of film, the still images of photography could be animated, to tell history as a visual and aural kind of simulation – something that both confused and expanded notions of history telling by offering the possibility of vivid, life-like re-enactment. Documentary film has evolved, through its many sub-genres developed over time, to something that has its own long heritage. Technologies of representation do not start and finish in eras. They exist as continuities, building on what has come before.

Often it is the social context that changes more than the technology of representation itself. For example, painting, up until the end of the sixteenth century "imitated space"; its representation "was posited as a form of repetition".[7] The history of realist art shows that it was not so much the technology of painting that changed over time but the role of realist representation in society. Hence realist illustration came to be used as a technology of emerging scientific ways of seeing and empirically documenting in the eighteenth century. Photography, of course, began another episode in the history of realism. There are many more examples that could be drawn upon to show the transformative social effects of new technologies of representation. The telegraph, which first enabled electronic communication, altered the relationship between time and space and the structure of social 'awareness' itself.[8] One needs look no further for an insightful social commentary on the birth of the tape recorder at a time when it was in its infancy than Beckett's play *Krapp's Last Tape*.[9] The tape recorder was a technology which came to have a major impact on the study of history because it allowed oral storytelling traditions (especially significant in the case of

Indigenous cultures) to produce durable representative records in their own right in the form of oral histories.

Hypermedia builds on previous technologies of representation in a unique way by acting as a mechanism for their assemblage via a digital interface. That combinatory impulse (of *multi*-media) also has its own long genealogy in disparate prior formats. Norman Klein traces the combinatory impulse back to 1671 with the earliest known attempts to create immersive environments using optics and mirrors and even further to prototypes in Florence and Rome around 1510.[10] The concept of networking also has its own long history through different forms of social organisation and connectivity.[11]

Convergence

> The reader is the space on which all the quotations that make up a writing are inscribed without any of them being lost; the text's unity lies not in its origin but in its destination. Yet this destination cannot any longer be personal: the reader is without history, biography, psychology: he is simply that *someone* who holds together in a single field all traces by which the written text is constituted. Which is why it is derisory to condemn the new writing in the name of a humanism hypocritically turned champion of the reader….
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> – Roland Barthes, 'The Death of the Author' (1968) [12]

Convergence has many meanings ranging from technical goals at the core of future digital communication to social processes associated with globalisation.

Digital convergence describes the bringing together of information and communication systems that have previously used very different technological paradigms and platforms. The vision is that telephone, television, video, radio, newspaper and other forms of print will ultimately all operate using a unified system facilitated by a single network infrastructure. Hypermedia is a template for digital convergence and the internet is a working network platform.

Considered in social terms, convergence can refer to the increasing interaction of peoples and cultures that is linked with globalisation and networked communication. When the internet was first widely available and networked society became a reality for many people in the western world, it promised to create a global super-community. One effect has been a levelling out of cultural difference (similarly, convergence is connected with a breaking down of the distinctions between established knowledge disciplines). But conversely diasporic communities have been united and have built up even stronger collective identities using electronic communications. The status of the individual in society has certainly changed. Individual lives have been affected by a "mediated globalisation".[13] Access to networked communication has also created new distinctions, notably between the information-rich and information-poor.[14] The internet is of course a remarkable tool for historical research. It may be the main reason for the surge in interest around family history over the past decade.

Dominant technologies of representation encourage specific genres to develop. The kind of convergence I am particularly interested in here is the kind that leads to the loss of context and genre brought about through the intermeshing of established technologies of representation in hypermedia. Until now, there have been three very distinct modes of historical presentation: in dense textual form, in highly visual, filmic genres, and in oral history audio form. What I refer to as hypermedia textuality is made possible by digital convergence but it is a separate concept. The new textuality of hypermedia is full of the traces of the older genres (with remnants of their traditions of production and reception) but it masks the distinctions between them.[15]

This convergent aesthetic could be thought of as a return to the nineteenth century with its spectacular display of knowledge in the age of the great exhibitions

and encyclopaedias of culture, language and knowledge. The internet itself can be thought of as a vast cabinet of curiosities. Barbrook and Cameron's vision in 'The Californian Ideology' (1995) was that convergence would create something which, as they put it, "is more than the sum of its parts".[16] Indeed, online resources now bring together all kinds of documents, information and reflections in super-archives that raze the traditional hierarchies of collecting. But what sets hypermedia apart is its reliance on the database. The database is one of the mechanisms for digital convergence. Lev Manovich has argued that the database itself is the most fundamental aesthetic element of today's electronic media.[17] Databases drive multimedia products; they also drive online information spaces. Databases communicate with one another through evolving protocols that allow information to be recognised by different kinds of database systems using middleware programs and standards.

The database project, the September 11 Digital Archive http://www.911digitalarchive.org example, preserves farewell voice messages from those who suffered in the New York World Trade Centre tragedy, alongside emails from people who were far from the scene of the catastrophe, and it also includes archived website reportage of the event in the months following. Put together it comes as close as possible to delivering an electronic impression of the immediate period of shock and then the mourning in the months following. These kinds of archival projects may be immensely valuable to future historians. Already the searchable function of the September 11 Digital Archive allows users to see patterns between the material that would not have been possible using a different technology of representation. Encyclopaedic information resources have been given a re-birth because the technology of representation makes them so much more flexible and

useful than they were in print form. It is up to the user to decide what the search terms are. 'Entries' do no exist in a prepared (for example, alphabetically listed) way. Instead, the act of searching *produces* the entry.

Using new forms of representation requires striking a balance between being (unavoidably) experimental and being relevant, informative and authoritative. For the study of history this balance is yet to be found. In its current proto-genres, hypermedia tends, as a general rule, to simplify the portrayal of historical complexity. This is largely because users expect 'chunking' of information as in most websites. Users have learnt that sitting in front a computer screen and accessing the internet creates the expectation of less text, more images, and endless links to other places. Many celebrate the freedom of amorphous hypermedia textuality (anything seems possible; the palette is full of options). And yet, when stable genres are not readily available, the context for a work is not clear. The result is that the work is often considered experimental and received as unreliable.

We have perhaps reached a turning point, however. It is a sign of the growing maturity of internet that major collecting institutions and reference works such as the newly launched *Oxford Dictionary of National Biography* online (www.oxforddnb.com) and *Australian Dictionary of Biography* online (www.adb.online.anu.edu.au) make available full text of the reference works in electronic form. This development can be likened to well-to-do neighbours moving into an unruly neighbourhood. The *Oxford DNB* and the *ADB* are working to create website links to the databases of other respected online resources so that users can follow verified routes to reliable information and linked entries.[18] The interoperability of these major databases will mean that users need no longer try their luck with Google™ to find verified historical information. This kind of convergence of

resources will slowly dissolve barriers between collecting institutions (another traditional context for historical study) and will give rise to super-gateways to verified information.

The main criticism of this approach is that the original context of historical material will come to appear to matter less, and this decontextualising will be exaggerated by the seamless linking of the materials of collecting institutions through advanced search and retrieve facilities. A sixteenth century book was originally printed on a particular sized paper but now its physical form and its grain is lost – the user zooms in on its every detail but always through the frame of the computer screen; a painting was originally produced in oils – in its digitised version the relief is lost; an object in a natural history museum was once delicate and the only one of its kind – now it is eternally preserved in an infinitely reproducible VR panorama.

Manipulation

> **Manipulate**
> 1. To handle, esp. with dexterity; to treat with manual (and, hence, any mechanical) means 1831.
> 2. To handle or treat.(questions, artistic matter, resources, etc) with skill 1856.
> 3. To manage by dexterous (esp. unfair) contrivances and influence 1864.
> (*OED*)

The ability to flexibly manipulate – alter, update, recompile – digital information is unique to hypermedia. In the most basic sense, digital documents are manipulable by virtue of their defining characteristic, that is, the ability to update and add to without, for example, reprinting, republishing and all the costly, time consuming processes involved with the technology of print. This has practical, cost-saving implications for historical scholarship. Electronic publishing means there is no need for new ‘editions’ (although some electronic publishing continues to adhere to this tradition – a lingering

trace of an earlier technology of representation). E-books, because they avoid the massive costs of print runs, are more affordable and also more accessible (e-books have surprisingly little market demand – readers still prefer print).

Perhaps the most fascinating and also the most disturbing example of the impact of manipulation for historical study is the Wikimedia software that powers the online resource Wikipedia (www.wikipedia.org). Wikimedia software is an open source framework that allows online users to edit web based documents in plain text rather than in HTML. Wikipedia is an encyclopaedia that contains much accurate information along with inaccurate and particularly slanted viewpoints. Users have the chance to add to or 'correct' entries. In the worst cases this has resulted in identities being misattributed or invented. There was a famous case in 2005 where an individual was linked to the Kennedy assassinations through a false Wikipedia entry that was not removed for 132 days despite legal action being taken.[19] By then the false information had been repeated by numerous other websites. The author was never known and could not be traced because users who post information are not liable for that information; and Wikipedia itself is claimed that it was not responsible for the content (but eventually agreed to remove it). When the ability to manipulate is put in the hands of the public, information is democratised, it is in the realm of common consensus. Historical interpretation, however, has never been verified by common consensus; the interpretation of history has always been in the hands of experts.

While manipulation has produced practical benefits, it also threatens to destabilise the historical record and the notion of the original and authentic ("To manage by dexterous (esp. unfair) contrivances and influence 1864"). The idea of the value of the original document is entrenched in a long tradition of historical research.

If the manipulated copy comes to stand for the original, supersedes the original, it undermines historical authority and complicates historical research.

Photographic manipulation illustrates this well. In the twentieth century there were notorious cases where photographs were 'airbrushed' (to use a term drawn from an older technology of representation) – so that people were erased out of existence or repositioned against altered backdrops. With the ability to easily manipulate a digital photograph, the hitherto unquestionable resemblance of the photograph to its subject is at stake. Digital images are routinely altered, whether it is for glamorous enhancement or political reasons. The news media regularly report cases where war photographs have been altered to present a politically cleansed vision of conflict. The ability to manipulate an image in fundamental ways is now being built into the very devices that are used to record. Without the need for any computer-based software manipulation once the photograph has been taken, the new line of Hewlett Packard 'R' and 'M' series cameras are claimed to be first to 'thin' the photographic subject for a more pleasing effect (a feature that is being especially marketed to women who are seen as the traditional record keepers of family photographs and who are anticipated to use this feature more readily than men).[20] The original exists only fleetingly; it is bypassed in favour of the manipulated version.

The activity of changing an image so that the altered version replaces the original brings up the question of simulation, of copies, and the nature of the original. "Simulation", writes Jean Baudrilliard, "threatens the difference between "true" and "false", between "real" and "imaginary".[121] Photography provided a visually literal impression of the world. The moving images of film with sound produced an even more realistic replication of the world. Today's 3D digital environments are advanced

spatial simulations of actuality that take the visual record into a new realm. This technology is used for history in the form of virtual heritage and archaeological computing using GIS technologies. It has been a helpful tool for visually reconstructing past cultures and places. Each technology, in succession, has appeared to allow for a more accurate way of portraying the world through reconstructing its detail in ever more sophisticated ways.

Photography is recognisable as distinct because it produces still images; this is the constant that defines this technology of representation. The technology underpinning the recording of the images has changed but the technology of representation has been altered less. And yet, the photograph could never fulfil the role of providing an exact replica anyway – in much the same way that history writing has never been able to show things simply 'as they were'. Representation has always been this way, but we have not always seen the mechanisms of manipulation as clearly as we do with hypermedia. They have been disguised by the familiarity of technologies of representation and the genres they support. In photography there has always been manipulation, through framing and point of view, filters and focus, and selected lenses to control what is seen and how it is seen. Focusing the lens one way means missing out all that falls outside of the frame. Nevertheless, digital manipulation of images means that even that frame may accommodate erasures and additions that undermine their value as representations *as though through human eyes*. People have inevitably lost some trust in photography. Trust and manipulation rarely go together.

Manipulation is a trait of a larger pattern in cultural production whereby – as part of what can be thought of as a postmodernist aesthetic – existing information is being re-combined to form new cultural products. The most obvious example is the

sampling of music. This has led to controversies over copyright, artist permissions, and the ethics of using cultural material out of context. Electronic musician Moby was the subject of such controversy when he used archival recordings of African songs in his 1999 album *Play*. What digital media allows for, and what sampling illustrates so well, is the impact of the removal of cultural products from their original context to a new context. Authenticity and verification are particularly important in online information resources and indeed in any online communication. For the study of history and historical material, the lack of verification has been one of the most contentious aspects of using the internet for research.

Navigation

> We can easily imagine a culture where discourse would circulate without any need for an author. Discourses, whatever their status, form, or value, and regardless of our manner of handling them, would unfold in a pervasive anonymity. No longer the tiresome questions:
> 'Who is the real author?'
> 'Have we proof of this authenticity and originality?'
> 'What has he revealed of his most profound self in his language?'
> New questions will be heard:
> 'What are the modes of existence of this discourse?'
> 'Where does it come from; how is it circulated; who controls it?'
> 'What placements are determined for possible subjects?'
> 'Who can fulfil these diverse functions of the subject?'
> Behind all these questions we hear little more than the murmur of indifference:
> 'What matter who's speaking?'
>
> - Michel Foucault, 'What is an Author' (1969) [22]

A radical shift is taking place whereby the reader as 'user' is now playing a far greater role in the determining the outcome of the reading experience. The debates of the 1960s around the 'death' of the author were prophetic. Of course there are still real authors who continue to produce text. There are now also hypermedia architects who 'author' software and information spaces within which these texts are linked and combined. But users too have become authors. In hypermedia there is no longer an

emphasis on an overarching narration. *Navigation is supplanting narration*. The user picks pathways through the information, following a route that (depending on the number of options and combinations available) is very unlikely to be shared by the next user, nor indeed by any other user. By doing this they become the author of their own text.[23]

Twentieth century poststructuralist theory exposed the power of narrative and questioned that power by showing that the politics of authorship and perspective run through all forms of writing however neutral or objective they may seem. The field of postcolonial theory and the revisionary historiography of figures such as Hayden White and Robert Young led to a widespread scepticism about the nature of history as an enterprise.[24] It may be that navigation supplanting narration is the best hope yet for the kind of historical representation that is not controlled by a single political perspective and hidden authorial slant. Users can decide for themselves what to take in; they can investigate material in a way that actually mirrors the process of historical research rather than re-producing one definitive or intended version.

To illustrate this point I turn to the kind of digital history that is sometimes referred to as ‘interactive documentary’. I must emphasise that this is a particularly experimental form for which there are no agreed definitions. Some examples are designed for online delivery. Others are only available in fixed media format on CD and DVD because they are graphically intensive and often include navigable 3D environments much like computer games.

When they are available online they typically resemble informational websites. The BBC and ABC (Australia) have produced a number of examples referred to as interactive documentaries, multimedia documentaries or online documentaries. However, I am most interested in the possibilities of navigation

offered by the kind of interactive documentaries that are currently only available in CD or DVD format. We may not even want to call these works history – they come out of niche areas as diverse as database narrative, interactive cinema and media arts. This is an experimental field but one which represents very well the convergence of genres in the one hypermedia format.

Ross Gibson and Kate Richards' *Life After Wartime* (2003), available on CD-ROM, is a database of photographs of crime scenes in Sydney post-World War 2.[25] In this example, the database story-engine gives the user the framework but also the freedom to act as detective, assembling the images and textual and sound accompaniments in various permutations. A reviewer of this work noted that Gibson describes the process of user construction of material as "the speculative investigation of actuality" and that this was a significant extension of John Grierson's famous definition of documentary as "the creative treatment of actuality".[26] The viewer/user is put in an active role responsible for narrative construction (in this case with the motive of solving a mystery) rather than being passive consumer of the creative work.

A conventional approach to documentary would mix observational and interview-based approaches. The voice of a narrator would be heard throughout and it would provide a linear linking mechanism for the reader/viewer to follow the thread. User-navigable interactive documentaries often include video interview segments but these segments are not linked by a narrative voice or even by sequential links. They are typically linked by way of a spatial interface. This is often a map with hotspots that take the user to information associated with places on the map.

The 3D navigable spatial format commonly employed in interactive documentaries clearly illustrates the way in which navigation has the capacity to supplant narration. Some of the most experimental and also the most sophisticated

examples of the interactive documentary genre are those that have been produced since 2000 by the Labyrinth Project at the Annanberg Center for Communication, University of Southern California (directed by Martha Kinder). I refer here to only one example of the many that could be selected. *Mysteries and Desire: Searching the Worlds of John Rechy* (2000), created by Marsha Kinda and John Rechy, is an abstract reflection on the life of the celebrated gay Mexican-Scottish writer.[27] The navigable environment includes no textual information about Rechy. There are segments of voiceover narration that are only activated when the user clicks on hotspots embedded within images that in turn are part of montages of photographs. These segments are not contextualised; in fact it is not clear who narrates them. There are many different voices and sometimes there is simply silence. One of the powers the user has in the navigable interface is that they can cut from one speaking voice to another without completing the segment. It is not even possible to identify all the voice over segments without 'playing' the work like a computer game – revisiting it for hours on end to identify its hidden secrets. A framing theme in this work is gay 'cruising'. This is reminiscent of Barthes, who when he used the term meant something quite different: that the reader needed captivating ("I must seek out this reader (must 'cruise' him) without knowing where he is. A site of bliss is then created").[28] In *Mysteries and Desire* the tables are turned. The user navigates to capture information and builds their personal narrative frame. There is no narrator to guide them and there is no hidden author seeking them out, luring them in.

Navigation of virtual environments has a distant relation in Quintilian's theories of the first century AD that explained memory as an architectural art, a spatialising impulse to locate, explain and contextualise. It shows that the activity of navigating through concepts is a basic way of building knowledge. As Giuliana Bruno

summaries this theory, “one would imagine a building and implant the discourse in site as well as in sequence: that is, one would walk around the building and populate each part of the space with an image; then one would mentally retraverse the building, moving around and through the space, revisiting in turn all the rooms that hand been ‘decorated’ with imaging”.[29]

Conclusion

It is fitting that as I write this conclusion to a paper on technologies of representation, the Australian newspaper *The Age* reports that television in Australia is fifty years old today. The front page article, which has the headline ‘Television Fifty Years Today, But Will it Last?’, questions the future of the broadcast medium in an era when television’s uniqueness is being eroded by every move towards a convergent media future. Convergence has meant that newspaper and television programming are no longer separable from internet programming, with major implications for cross-media legislation.[30]

Digital *convergence* has created a common platform and an architectural space within which hypermedia can combine various media forms. It is enabling new encyclopaedia forms of knowledge to emerge but it is also resulting in a decontextualisation of information and a challenging of conventional genres. At the heart of hypermedia textuality is the ability to *manipulate* by altering and updating. The power to manipulate is being put in the hands of the people but as a result verified information and the status of the original is under threat. *Navigation* is increasingly supplanting the conventional role of narration and at the same time is opening up new

ways of accessing information and heralding a new responsibility on the part of the user to be the author of their own textual engagement. Hypermedia brings together and blurs the boundaries between established technologies of representation. In doing so it has constituted itself as a new technology of representation in its own right.

It is perhaps surprising during this time of great change and instability of genre and form that one of the greatest growth areas is in traditional storytelling, transposed to the digital domain. I end this paper by reflecting on the rise of digital storytelling as a corollary to the generally fragmenting and decentring impulses of hypermedia. Storytelling has no reason to claim to be *the* authoritative version. Storytelling does not pretend to be truthful; in fact it is more readily linked to fiction than to fact. In Walter Benjamin's words, "storytelling….does not aim to convey the pure essence of the thing, like information or a report. It sinks the thing into the life of the storyteller".[31] The focus has turned away from the grand narratives of history to the stories of individual lives.[32] This is in keeping with a much larger turn in the study of history and culture, towards valuing history from 'below', valuing everyday experiences, studying ephemera. In the process storytelling is being increasingly recognised as a valid historical record.

Intriguingly Walter Benjamin linked what he foresaw would be the ultimate *decline* of storytelling due to the advent of print. As Benjamin puts it: "The earliest symptom of a process whose end is the decline of storytelling is the rise of the novel at the beginning of modern times. What distinguishes the novel from the story....is its essential dependence on the book. The dissemination of the novel became possible only with the invention of printing".[33] Benjamin is right in the sense that traditional storytelling was an oral tradition that because of print lost its traditional context. What

he may not have foreseen is that storytelling would gain such a vast new reach and renewed importance in the early twenty-first century.

Digital storytelling can take many forms. Perhaps most importantly it has created online communities around shared personal experiences. Whether the stories use video cameras, audio recordings, still images, or a combination of all of these, storytelling remains at the heart of social identity and communication, relatively unaffected by technological change. It is not a genre but a human impulse, and a basic unit of communication. Perhaps, however, storytelling has been so resilient because it does not in fact require any *external* technology of representation. It may be the only form of historical knowledge that does not. Hypermedia provides access to stories that can open up multiple ways of seeing and understanding because they are told by diverse and conflicting voices and from various sites all over the globe. This new polyphony, and the freedom it brings, has the capacity to transform history, to bring it into people's daily lives and to give them, as users, unprecedented levels of choice and control.

Paul Longley Arthur
Murdoch University, Western Australia

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Notes

[1] Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations* (London: Jonathon Cape, 1968), 219.
[2] Victor Burgin has written, primarily about visual representation, in these terms: “the combined product of ‘the media’ and a variety of other spheres of image production – can no longer be seen as simply ‘reflecting’ or ‘communicating’ the world in which we live: it contributes to the making of that world”. See Victor Burgin, *In/Different Spaces: Place and Memory in Visual Culture* (Berkeley, Los Angeles: University of California Press, 1996), 22-23.
[3] David Tomas, *Beyond the Image Machine: A History of Visual Technologies* (London and New York: Continuum, 2004), 21.
[4] An example of four books that stand out because they attempt link the discussion of current technology to technological pasts in the process of interpreting contemporary cultural production are: Siegfried Zielinski, *Deep Time of the Media: Toward an Archaeology of Hearing and Seeing by Technical Means*, trans. Gloria Custance (Cambridge, Massachusetts: MIT Press, 2006); David Thomas, *Beyond the Image Machine: A History of Visual Technologies* (London and New York: Continuum, 2004); Darren Tofts, Annemarie Jonson, and Alessio Cavallaro, eds., *Prefiguring Cyberculture: An Intellectual History* (Cambridge, Massachusetts: MIT Press, 2002); and Darren Tofts and Murray McKeich, *Memory Trade: A Prehistory of Cyberculture* (Sydney: Fine Art Publishing, 1998).
[5] Michel Foucault, *The Order of Things* (New York: Random House, 1970), ix.
[6] Quoted in Roy Rosenzweig, "So, What's Next for Clio?: Cd-Rom and Historians," *Journal of American History*, no. 81 (1995): 1621.
[7] Foucault, *The Order of Things*, 17.
[8] J. W. Cary, *Communication as Culture: Essays on Media and Society* (Boston: Unwin Hyman, 1989), 203.
[9] Samuel Beckett, *Krapp's Last Tape* [play] (London: Faber and Faber, 1958).
[10] Norman Klein, *The Vatican to Vegas: A History of Special Effects* (New York: The New Press, 2004), 21, 304, 96.
[11] A. Mattelart, *Networking the World, 1794-2000.* (Minneapolis: University of Minnesota Press, 2000).
[12] Roland Barthes, "The Death of the Author," in *Theories of Authorship*, ed. John Caughie (London: Routledge and Kegan Paul, 1981), 212.
[13] Terhi Rantanen, *The Media and Globalization* (London: Sage, 2005), 15.
[14] M. Castells, *The Rise of the Network Society* (Oxford: Blackwell, 1996).
[15] Paul Thomas, "Technoworld and a Sense of Loss," *The Australian*, 11 August 2004.
[16] Richard Barbrook and Andy Cameron, "The Californian Ideology (August 1995)," *Alamut* [online reproduction], http://www.alamut.com/subj/ideologies/pessimism/califIdeo_I.html. Accessed 14 Sept 2006.
[17] Lev Manovich and Andreas Kratky, *Soft Cinema: Navigating the Database [Pamphlet with Accompanying Dvd-Rom]* (Cambridge, Massachusetts: MIT Press, 2005), 1.
[18] Practical ways of linking these resources were discussed by their respective editors and other delegates who attended the ‘Biography and Technology’ conference, Humanities Research Centre, Australian National University 12-14 Sept 2006.
[19] John Seigenthaler, *A False Wikipedia 'Biography'* (USA Today, 2005 [cited 14 Sept 2006]); available from http://www.usatoday.com/news/opinion/editorials/2005-11-29-wikipedia-edit_x.htm.
[20] Stephen Fenech, "Slim Down with the Click of a Button," *Daily Telegraph*, 24 August 2006.
[21] Jean Baudrillard, "The Precession of Simulacra," *Art and Text* 11, no. Spring (1983): 4.
[22] Michel Foucault, "What Is an Author?," in *Theories of Authorship*, ed. John Caughie (London: Routledge and Kegan Paul, 1981), 291.
[23] This goes far beyond reader response theories such as those developed by Wolfgang Iser or Horst Ruthrof. See Wolfgang Iser, *The Act of Reading: A Theory of Aesthetic Response* (Baltimore: John Hopkins University Press, 1978) and Horst Ruthrof, *The Reader's Construction of Narrative* (London: Routledge and Kegan Paul, 1981).
[24] Hayden White, *The Content of the Form: Narrative Discourse and Historical Representation* (Baltimore: John Hopkins University Press, 1987); Robert Young, *White Mythologies: Writing History and the West* (London: Routledge, 1990).
[25] See www.lifeafterwartime.com. Ross and Kate Richards Gibson, "Life after Wartime," [CD-ROM] (Unpublished: 2003).

[26] Tim O'Farrell, "Documentary: Pro- and Inter-Active," *RealTime*, June/July 2004.
[27] Marsha Kinder and John Rechy, *Mysteries and Desire: Searching the Worlds of John Rechy [CD-ROM]* (Annenberg Center for Communication, University of Southern California, 2000).
[28] Roland Barthes, *The Pleasure of the Text*, trans. Richard Miller (New York: Hill and Wang, 1975), 4.
[29] Giuliana Bruno, *Atlas of Emotion: Journeys in Art, Architecture and Film* (New York: Verso, 2002), 220-21.
[30] Alan Kohler, "Ten the One in Media Love-In," *West Australian*, 16 September 2006.
[31] Walter Benjamin, "The Storyteller: Reflections on the Works of Nikolai Leskov," in *Illuminations* (London: Jonathan Cape, 1970), 91-92.
[32] Hypermedia is aligned with the new globalism, which is recognised as a new kind of imperialism, driving economic and political domination on a vast scale. And yet hypermedia provides a vehicle for democratising knowledge and for effecting a shift of power from the producer of information (the author) to the reader/receiver/navigator.
[33] Benjamin, "The Storyteller: Reflections on the Works of Nikolai Leskov," 87.