

**The Author of History in the Age of  
Electronic Reproduction:  
Hypertext and the Historian**

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**Abstract:**

The objective of this thesis is to investigate critically some of the recent developments in information technology within the discipline of history. In particular, I will focus upon hypertext and how it is being used within the World Wide Web and CD-ROM (Compact Disk Read Only Memory) environments. By applying recent hypertext theory (that is both book and author centred) to the practical adaptations of historians, I hope to offer some insight on where these projects stand in relation to the book. The printed and published codex with its idea of the author has been the stalwart of humanist intellectual culture in the Western world for many centuries. Its understandings, both in a physical and intellectual sense, offer an excellent position to illuminate some of the central issues that hypertext raises for our discipline.

The historical record makes clear that the most distinctive features of the printing revolution were to stabilise written culture into a canon of authored texts, to create the notion of the book as property, and to envision the author as creator. In a hypertext environment, the physical manifestation of the book and the institutions that support it do not exist; thus the framework of what we understand as an author is altered considerably. The questions that I wish to address in this thesis are: what is a hypertext history 'author'—in both the CD-ROM and World Wide Web environments—or in place of the author what structure does one use to determine if hypertext can successfully communicate the knowledge of our craft? To explore these questions I have surveyed a number of web-

based and CD-ROM hypertext history projects that were mainly produced by professional academic historians within Australia.<sup>1</sup>

The development of hypertext, both technologically and as a means of communicating history, is decentralised and patchy. This is a reflection of the multiplicity of use of these new mediums, as opposed to the somewhat established authorial practices of the standardised modern book. This thesis seeks to define hypertext history authorship, discuss how this is different to a book, and hopefully in doing so, reveal some of the best practices. Will hypertext produce simplistic catalogues of empirical facts or un-interpreted primary sources, or will hypertext with its combination of image text and sound, offer the historian fresh scope for authorship?<sup>2</sup>

### **A Note on the Hypertext Version:**

This thesis is presented in the usual format of the academic monologue, but an on-line ‘hypertext’ version is also available, to make access to the sites and essays cited in the work easier. The hypertext version is not intended to represent a non-linear and interactive work, but is simply intended to be a complement to the monologue. Throughout the thesis I describe hypertext works that are pertinent to my argument. In the on-line version all the cited Universal Resource Locators (URLs) are linked to the actual sites. The footnotes highlighted in **bold**, and words within the text that are highlighted in **bold**, will link to the actual site on the Web. It is hoped that by doing this, I

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<sup>1</sup> The newness of CD-ROM and the web as history mediums means that the projects that I have viewed are experimental and many have not as yet been officially launched. Where no examples exist, either within the history profession or within Australia, I use examples from other disciplines or from the United States (where many new-media innovations have and are taking place).

can offer the reader easy access to the sources cited within the context that they are being discussed. It would not be possible to construct a work such as this as a truly 'interactive' and 'non-linear' hypertext production without conceptualising an entirely new project in the new medium.

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<sup>2</sup> Heather Goodall, 'History and Interactive Multimedia: Hi-Tech Gimmick or a New Form of Community History?', Public History Review, p.5.

## **Acknowledgements**

In my search for evidence to support this thesis I initially consulted Janet McCalman and Judith Fox whose advice was invaluable in preparation for a realistic direction. Alan Mayne, my supervisor, has been both supportive and encouraging throughout my sometimes-impractical enthusiasms. Simon Lancaster of LBC Information systems came through yet again with proofreading as did Sim Berenyi, my bellicose backer. Warm appreciation is likewise extended to John McQuilton, Heather Goodall, Simon Pockley, Ilma O'Brien and Paul Turnbull, whose projects and discussions form much of the foundation of this thesis. Finally, I would especially like to thank the participants of H-Net, who have provided worthwhile guidance within the sometimes hostile digital domain.

**Declaration of Authorship**

I, Craig Bellamy, declare that this thesis comprises only my original work, except where due acknowledgement has been made in the text to all other materials used. This thesis does not exceed 30 000 words in length, exclusive of bibliographies, footnotes and appendices.

.....Date:...../...../1997..

(Signature)

## Introduction

### i.

Information technology impacts upon almost every profession, from accounting, to law, to teaching, to publishing. Now it promises to play a major part in how historians research and communicate history. Historians are fairly new to computing with the first official organisation, the international body of the *Association of History and Computing*, only being set up in 1986.<sup>3</sup> The publications of this group reveal that the initial tasks that historians set for computers involved the manipulation of large amounts of data for quantitative research.<sup>4</sup> The ‘cliometrics’, as they were known, statistically mapped large bodies of populations using data from such things as censuses and tax records. They hoped to reconstruct for instance, the way of life in early English villages or to model the fluctuation of British mining company shares.<sup>5</sup> The first computers were particularly well suited for the handling of numbers, or the indexing and retrieval of vast amounts of data. Indeed—beyond the word processor—this mechanical approach to history and computing is still a common view held about the usefulness of computers for many in the profession today.

The introduction of the personal computer (IBM PC) in 1982 brought computing to the masses for the first time. All computers had once been extraordinarily expensive devices hidden away in university science faculties or government departments. Just as Henry

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<sup>3</sup> *The Association of History and Computing*,

<<http://www.let.rug.nl/~welling/welcome.html>>

The Australian arm of this organisation was initiated in 1996, see:

<<http://www.unimelb.edu.au/infoserv>>

<sup>4</sup> Denley, Peter and Deian Hopkin, *History and Computing*, Manchester University Press, Manchester 1987.

<sup>5</sup> Professor Graeme Davidson, Department of History, Monash University, “History and Hypertext”,

Ford brought a new technology to what was once firmly in the hands of an elite, the personal computer is now becoming common in Australian households and workplaces. Since the first electronic computers were introduced in the late 1940s, the personal computer has been the most important innovation. Some self-proclaimed visionaries, such as Microsoft's Bill Gates, claim that the Internet protocol (TCP/IP) is the next greatest innovation.<sup>6</sup> Computing technology, as with any commodity in a capitalist economy, is primarily driven by the desire of large multi-nationals to capture increasing market share. Bill Gates' predictions in this instance will probably be self-fulfilling.<sup>7</sup>

What contemporary computing innovations such as the Internet and CD-ROM offer that is new for the historian is the way in which we apply and communicate our knowledge. This is evident in the latest generation of history and computing projects that are being used not only as tools to extend our pre-existing skills, but also as a whole new medium to convey new forms of knowledge. It may have seemed strange in the early twentieth century when filmmakers chopped-up celluloid and glued it back together again to tell a story.<sup>8</sup> It likewise may seem unusual today when first confronted with a *hypertext* narrative.

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<<http://www.unimelb.edu.au/infoserv>>

<sup>6</sup> Bill Gates, "Forward" The Road Ahead, Penguin, New York, 1995, p.xii

<sup>7</sup> Bill Gates is the world's richest individual with an estimated personal fortune of A\$50 Billion!  
James Langton, "Charities Reach for Idealistic New Rich" in *The Age*, Melbourne, 21 July 1997, p.8.

<sup>8</sup> Film was once an awkward medium, highly technological, unreliable and laboriously used to capture stage plays or images of trains arriving. It was not until 1903 when Edwin S. Porter released a seven minute film called *The Great Train Robbery* that an audience realised that film could be spliced together to tell a story. Then came the feature film, the documentary, the genre, close ups, tracking shots, zooms, complex narrative and our contemporary language of discussion.

From Rob Swigart, 'A Writers Desktop' in Laurel Brenda (ed.) The Art of Human Computer Interface Design, Addison-Wesley, Reading Massachusetts, pp.135-141.

Historians have been working in various media for a number of generations and have developed techniques and critical frameworks for their use and comprehension. The field of history and film is well established with courses being offered in even the most traditional history departments. In the emerging field of the computer-mediated narrative known as hypertext, many techniques of historical criticism have not as yet been explored. We must then look towards the fields of cultural studies and literary theory to provide us with a paradigm of work to view what is otherwise unavailable beyond the historians' practical adaptations.

The hypertext theorists eclectically include Jay David Bolter, Paul Delaney, Stuart Moulthrop, George Landow, and Monash University's Illana Snyder. Their work champions the idea of a 'non-linear' and 'interactive' medium intertwined with their own somewhat proselytising agendas. Their most prevalent pronouncement seems to be that the book is both a dated and oppressive medium, and that hypertext is the vehicle in which to 'free the slaves'. The theoretical interpretations of Barthes, Derrida, and Foucault have been selectively adopted to strengthen this position. The theorists collectively envisage a very bleak future for the book and declare that hypertext will permeate the vacuum of its demise.<sup>9</sup>

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<sup>9</sup> Even Steve Mintz, the co-editor of H-Film and member of H-Net's executive committee, recently claimed from an evolutionary viewpoint that '[film] had failed because it treated students as passive recipients of pre-programmed knowledge'.

Steve Mintz, the co-editor of H-Film and member of H-Net's executive committee (on H-Net's list for Multimedia and New Technologies in Humanities Teaching),

Steve Mintz, "H-Net and Multimedia Teaching" on H-Multimedia, Wednesday 13 November 1996.

<LISTSERV@h-net.msu.edu>

See also Gerry Barker, "As One Professor Sees it, One Day You Will go to a Computer Not a University" in *The Age, Computers*, Tuesday 5 November 1996, p.D9.

In this article a leading American academic advocates the closure of American Universities and schools in favour of on-line education.

Considering the hyperbole surrounding this new medium it is perhaps not surprising that many historians and academics, including Melbourne's Janet McCalman and Professor Graeme Davison, view hypertext as posing a threat to the printed book.<sup>10</sup> Indeed Janet McCalman and a group of scholars (in the published proceedings of the Fourth Round Table of the National Scholarly Communications Forum held in Canberra in 1996), blamed new technology such as the web for exacerbating a 'crisis' in the publishing industry that has witnessed the closure of numerous university publishing houses.<sup>11</sup> These upheavals may in fact be happening but this is the result of numerous highly complex societal changes and cannot be blamed on new technology alone. Janet McCalman later admits that more people are reading today—and from a greater range of books—than they did fifty years ago.<sup>12</sup>

Although hypertext is the first new medium seriously to alter the way in which we can manipulate and display text, hypertext is not a book or does not pose any more serious threats to the book than television, radio, or film.<sup>13</sup> Hypertext is a parallel development to other mediums, not a replacement of other mediums. Hypertext can simply combine text, image, and sound in new ways that the printed book cannot.<sup>14</sup> As humanists we have

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<sup>10</sup> See Professor Graeme Davidson, Department of History, Monash University, "History and Hypertext", <<http://www.unimelb.edu.au/infoserv>>

<sup>11</sup> Janet McCalman, "Introduction" The Future of Academic Publishing: Proceedings of the Fourth Round Table of the National Scholarly Forum, Canberra 22-23 February 1996, The Australian Academy of the Humanities, Canberra, 1996, pp.v-viii.

<sup>12</sup> Janet McCalman, "Why too Many of us are Lost for Words" in The Age, Tuesday, 16 September 1997, p. A17.

<sup>13</sup> See Sven. Birkerts, The Gutenberg Elegies: The Fate of Reading in an Electronic Age, Faber and Faber, Boston, 1994.

<sup>14</sup> Hypertext it is both a theoretical idea and diverse set of practical computer applications. Often innovators in the field of hypertext are proficient in its practical use but cannot place their work within a theoretical body. This often leads to projects that mimic pre-existing mediums under the illusion that it is something

theoretical accounts to explain the workings of literature, film, and television, but as yet there is no ‘software theory’.<sup>15</sup> The hypertext theorists provide some excellent inroads into understanding hypertext, but their political rhetoric and vision beyond a twelve-inch computer screen is not that helpful.<sup>16</sup>

By applying hypertext theory to the recent practical contributions of historians, the innovative nature of this new-medium will become more obvious. What is a hypertext history ‘author’, how is this different or similar to a book and how does this expand the scope of established historical practice?<sup>17</sup> To address these questions, I have viewed a number of projects across a broad technological field within the theoretical framework of hypertext. The examples I use tend to be somewhat idiosyncratic selections, but given that there is at this stage little disciplinary ratification for hypertext works, a somewhat relativist approach is inevitable. The question of institutionally sanctioning and adding value to hypertext projects is dealt with in chapter three.

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new. Mirroring this is the theorists’ hyperbolic claims about the capabilities of digital technology. This is probably a result of there being few historical relationships between the realities of a programmer and the skills involved in the humanities.

<sup>15</sup> Ted Friedman, “Making Sense of Software: Computer Games and Interactive Textuality:” in Jones (ed) *Cybersociety*, Sage Publications, Thousand Oakes California, 1995 p.73.

<sup>16</sup> The theorists’ uncritical embrace of hypertext has interesting precursors with the work of ‘the father of modern media studies’, Marshall McLuhan. In a previous generation McLuhan imagined large-scale social transformations and shocked his readers with his lavish impatience with any criticism of new communication mediums. This assured that McLuhan did not succeed in seizing a seminal ground in intellectual discourse and his ideas have now been rendered harmless.

James J. O’Donnell, “The Pragmatics of the New: Trithemius, McLuhan, Cassiodorus. In Geoffrey Numberg, *The Future of the Book*, University of California Press, Berkeley, 1996 p.47.

<sup>17</sup> I have mostly chosen projects within Australia so that I can easily communicate with the co-ordinators and so I can contribute to the understanding of this technology within Australia. Although this technology was developed in the United States, Australians have adapted it quite rapidly and seem not to be disadvantaged greatly in terms of infrastructure, equipment, nor skills.

In an effort to impose some human-sized borders to this thesis, I generally cite only hypertext projects that have been produced within the Australian history profession, or referred to by other historians working within the difficult-to-position field of history and computing (The hypertext atlas is a vast continent with many lone cartographers not quite certain of what page they belong to). These historians include Alan Mayne, Paul Turnbull, Heather Goodall, and Phillipa Martyr, whose work with **H-Net** (Humanities On-Line)—an international network of historians on the World Wide Web—has been invaluable in raising the consciousness of electronic scholarship within the region. Mayne and Turnbull have likewise been integral in setting up the Australian branch of international body of *The Association of History and Computing* that seeks to provide a focal point for electronic scholarship within the region.<sup>18</sup>

The works that I examine in this thesis are categorised within the theoretical axiom of hypertext and cross a broad technological field. They include on-line archives, CD-ROMs, list-serve networks (such as H-Net), electronic journals (such as *Postmodern Culture*), and various stand-alone hypertexts. In terms of authorship, works like the *Australia Street Archive* and *Angledool Stories* provide excellent examples of how hypertext can be used to facilitate collaborative authorial approaches. *Flashback*, one of the first history CD-ROMs produced in Australia, utilises ‘criss-crossed’ narrative paths in an endeavour to promote multiple points of view. *A Virtual Tour Through 140 Years of Social Change in Carlton* not only encourages collaborative authorship but what I later proceed to define as ‘living’ authorship. Examples from *The US Library of Congress*, *The*

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<sup>18</sup> *The Association of History and Computing*,  
<<http://www.unimelb.edu.au/infoserv>>

*US National Archives and Records Administration (NARA)*, *The Mitchell Library* in Sydney and *The Italian-Australia Records Project* in Melbourne, demonstrate how in hypertext, the ‘real-world’ categories of the archive and authorship are blurred. Finally, *Flight of Ducks*, and *Dispossessed Diggers and Democrats 1788-1888*, highlight the importance of navigation in a hypertext work and its significance to an author’s authority (‘author-ity’). Together these projects offer challenging methodological approaches to using hypertext.

**ii.**

The three chapters of this thesis examine various intersections between hypertext and the traditional institution of the author. The chapters encompass some standard explications of book-based history-authorship (authority, archive, and publishing) and contrast this with their translations and mutations within hypertext. Hypertext intersects with the archive and publishing unlike a book and supports new structures for authorial endorsement.

In chapter one, I historically locate much of an author’s authority (‘author-ity’) in the physical closed nature of the printed and bound codex. A number of historians of the book agree that the author was created by the invention of the printed press and the proceeding commodification of the book. The book as a commercial product, with its contents protected as property, has the author as exerciser of great legitimacy and control over its institutionally sanctioned contents. However, in hypertext the demarcated space of the author is not as prevalent so our boundaries of comprehension must be relocated.

Hypertext has a leaning towards *process* rather than *product*, thus authorship will manifest within method rather than stock. In other words, only a fraction of what we understand as an author can be translated to hypertext because its form is so firmly embedded within the medium of the book. Narrative, an important component of authorship, is translatable though, because it is not particularly medium dependent. It has been adapted to each successive medium as it has appeared and is being used in hypertext by historians. It is thus within narrative that we will establish much of what a hypertext history author actually is.

Narrative provides the historian with a vehicle to explain causation through the passage of time. Narrative in the form of the academic monologue or story is how the historian communicates the knowledge of the craft (selection, analysis, and integration). Narrative in hypertext is different to a book as it can combine text/image/sound and graphics, which can be aligned in such a way to provide a network of relationships for reading in a variety of orders.<sup>19</sup> A non-linear narrative is achieved through a reader-driven physical interactivity that is usually executed through the clicking of a mouse.<sup>20</sup> This is within the parameters set by the author and is very different to the linearity of reading suggested by the line and page ordering of the printed book.

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<sup>19</sup> This property is popularly know as *multimedia* or *hypermedia*, but I prefer the more scholarly term of *hypertext*.

<sup>20</sup> The idea of non-linear narrative, with unstable beginnings and endings, is one of the definitive aspects of hypertext and poses some of the most perplexing questions. However, to claim, as do many hypertext theorists, that hypertext is the first 'non-linear' medium, or the first 'interactive' medium is ridiculous. These terms often only reflect the limitations of the words used to describe this new medium and announce

In chapter two I examine the question of what the recent proliferation of on-line primary evidence means for the hypertext history author. The availability of this resource not only makes more material available for research, but also provides a great new opportunity for this resource to be imaginatively presented. Some of the world's greatest archives including the *Library of Congress* and the *Bibliothèque de France*, have already digitised many of their primary sources and have put them on-line.

Some institutions have digitised documents independently, whilst others have placed them within interesting narrative contexts. The hypertext author can arrange primary sources (text/image/sound/graphics) within a Web-based, non-linear and interactive narrative. Hypertext is a network that falls into discrete units and these units can be made up of any medium in its digital form. The author programs the linkages that link the units (sometimes referred to as nodes or lexias) to one another. Links can provide a connection within the text of a document to an oral source, photographs, or to any other digital media. These units can be stored within the hypertext document, as is the case with CD-ROM, or anywhere in the world, as is the case with the net. The reader can then instantly access the primary documents relied upon and compare and contrast them with the context that the historian has fashioned.<sup>21</sup>

In chapter three the relevance of hypertext authorship to publishing is explored. Publishing is one of the questionable words used to describe on-line hypertext works, as

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that hypertext, even with its new capabilities, is still a very long way off from being positioned with older mediums.

<sup>21</sup> The author through an e-mail forum can then invite the reader to participate in the process by submitting more evidence, or building additional links to the work that disputes any aspect of the original work.

its literal meaning implies that hypertext publishing and book publishing are similar things. In reality they are two very different things, just as television broadcasting and newspaper publication or radio and film. The word published may literally mean ‘to make generally known’, but it is a concept, set of meanings and institutional practices that are bound with the book.<sup>22</sup>

Hypertext and the Web can ‘make things generally known’ in new ways and forms. The hypertext author’s work will probably be afforded the same status and intellectual value as print when groups such as historians independently develop a set of disciplinary practices pertinent to the new medium. This in part is what this thesis seeks to explore. Who controls ‘what is generally known’ and how they make it generally known is one of the looming battles on the World Wide Web as it is for all other mediums. Perhaps the author of history in the age of electronic reproduction should be well networked.

### **Background**

#### **iii. The World Wide Web**

A brief history of the World Wide Web, CD-ROM, and hypertext will help to further define the technologies that I wish to discuss.

The World Wide Web finds its origins in a number of disparate developments in both Europe and the U.S. The Web is made up of a loose collection of interconnected

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<sup>22</sup> J.B. Sykes, (ed.) The Concise Oxford Dictionary of Current English, Clarendon Press, Oxford, 1985, p.832.

commercial and non-commercial computer networks, with servers that are scattered throughout all parts of the world. These servers are linked to one another on a variety of high and low capacity paths.

Most people use personal computers to plug into the web via the telephone system, or are connected through smaller local institutional networks such as Intranets and LANs (Local Area Networks).<sup>23</sup> One of the largest group of Web users continues to be the university community, who until quite recently have been integral in its development through funding, content design and patronage. Individuals in universities mostly have 'free' access to the Web (subsidised through university budgets), whilst private users must pay an hourly access rate or an annual subscription fee.

In the US, the World Wide Web is an out-growth of a 1960s government project called the ARPANET. This was an initiative of the Advanced Research Projects Agency, which is a research arm of the United States Department of Defense. The network was conceived during the cold war to enable government authorities to communicate and control weapons remotely in the event of a nuclear attack. Engineers designed the system to overcome the probability of a central computing facility from being destroyed that would render the network inoperable. The network structure had no central point thus any point within the network could operate as the centre point. The messages sent on the

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<sup>23</sup> Bill Gates, The Road Ahead, Viking, New York, p.97.

network could follow any route and should any part of the system become un-operational, messages could find the next viable route.<sup>24</sup>

The ARPANET project was not exclusively for military use and a number of government research agencies and universities also used parts of the system. By 1972 (perhaps in relation to the Vietnam conflict) many of the universities had become uncomfortable with the military partnership so the network was split into two. One of the networks continued to be known as ARPANET (for research use) but the other was named MILNET (for military use).<sup>25</sup> In 1989 the US Government withdrew financial support from ARPANET and a new commercial successor called the Internet was born.<sup>26</sup> The Internet expanded rapidly and joined many local area networks (LAN) at various institutions across the US and internationally.

The Internet only managed to capture the popular imagination and a mass user-base as recently as the past three years because of two important developments. The first development was in Geneva, where Tim-Berners-Lee wrote a simple standard for Internet publishing (TCP/IP) which he called the World Wide Web. And the second was in Urbana-Champaign (Illinois), where Mark Andressen wrote an attractive interface for the Web which he called Mosaic.<sup>27</sup> These discoveries allowed text, graphics, sound, and video to be viewed through a chaotic arrangement of hardware, operating systems, applications, and network protocols. The average Web users before these developments

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<sup>24</sup> Elizabeth Reid, 'Cultural Formations in Text-Based Realities' Unpublished, Masters Thesis in Cultural Studies, Department of English, *The University of Melbourne*, 1995.

<sup>25</sup> *Ibid.*

<sup>26</sup> Gates, *op.cit.* p.97.

were mainly a small group of academics and professionals who used a text-only menu-driven system called Gopher. This system functioned in a similar way to a computerised library catalogue.

The World Wide Web is now lurching towards the mainstream following the trajectory set by other mass-market mediums such as broadcast television, radio, and film.<sup>28</sup> At the end of 1996, Nua Limited, an Internet marketing and survey company based in Dublin, estimated that there were 45 million people world-wide that regularly used the Web.<sup>29</sup>

Because of this mass-market, the web is also increasingly becoming commercialised with companies such as Netscape, Microsoft, and Alta.-Vista eager to carve out their territory. Netscape through their Web-browser technology are able to secure up to 25% of the average personal-computer screen space and direct users to their products and services or to other companies who pay Netscape a fee. Microsoft and CompuServe have devised commercially closed networks, whilst search engines such as Alta.-vista and Lycos display paid advertisements. As most Web companies are US based what is 'generally known' and how it is generally known it is increasingly in danger of becoming mediated through the dominant US media oligarchy.

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<sup>27</sup> Gale Wolf, "The Curse of Xanadu" in Wired, June 1995, p.200.

<sup>28</sup> The computer industry more than most relies heavily upon engineering developments and breakthroughs (for example, new chips lead to new products.) Computers were invented by engineers and scientists and were used almost exclusively by them until the introduction of IBM's Personal Computer in 1982. Most industries are market driven (or it is the marketing division that authorise new product development), but it has been only in the past couple of years that large corporations such as Intel and Microsoft have seen a need to advertise in the popular media. The computer industry is now realising that while engineering advances are essential, more attention must be paid to marketability.

Mark. P. Haselkorn, "The Future of Writing in the Computer Industry", in E. Barrett, (ed.) Text, ConText and HyperText: Writing With and for the Computer, MIT Press, Massachusetts, 1989. p.4.

<sup>29</sup> Gerry Barker, "1.2 Million Join Net Community" in The Age Computers, Tuesday 14 January 1997.p.D3.

Comparatively, Australia stands very high in Web use per capita and the innovative application of the technology. At the beginning of 1997 it was estimated that there were 2.6 million users of the Web (an almost one hundred percent increase from a year earlier).<sup>30</sup> Australia's government network is known as AARNet (Australian Academic and Research Network), and interconnects the corporate networking services of the national university and research networks.<sup>31</sup> In 1996 AARNet was sold to Telstra and functions out-sourced to private companies such as Melbourne I.T. This was a bid to commercialise its operations in response to decreasing government funding. AARNet, coupled with Australia's geographical reality of small, widely spread communities, have been the catalyst for Australia embracing the Web so rapidly.<sup>32</sup>

#### **iv. CD-ROM**

CD-ROM (Compact Disk Read Only Memory) is a distant cousin to the audio compact disk bought out by Sony and Phillips in the early 1980s. This small computer-readable disk is capable of storing more than 650 megabytes of data, or the equivalent to 300 000 written pages.<sup>33</sup> The first commercial product in the medium was the twenty volume *Academic American Encyclopaedia* that was released by Grolier in 1985.<sup>34</sup>

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<sup>30</sup> Ibid.

<sup>31</sup> Geoff Huston, "Trends in Communication Technologies: AARNet and the Internet" in John Mulvaney and Colin Steele, Changes in Scholarly Communication Patterns: Australia and the Electronic Library, Australian Academy of the Humanities, Canberra, 1993, p.72.

<sup>32</sup> The swift digitisation of our telephone system and the continued expansion of our fibre-optic network will ensure that Australia plays a leading role in the world-wide Internet community.

<sup>33</sup> Roy Rosenweig, "So What's New for Clio? CD-ROM and Historians" George Mason University: Centre for History and New Media (1996),  
<<http://web.gmu.edu.chnm/>>

The archival potential of CD-ROM has been one of the first potentials utilised. CD-ROM can combine hypertext linking and display capabilities with a huge storage capacity. *Angledool Stories* is a good example of a CD-ROM containing a hypertext narrative, whilst *The Age* newspaper in Melbourne exemplifies its storage capacity. *The Age's* CD-ROM contains every edition of the daily newspaper since 1993, whilst LBC Information Services has produced a single CD-ROM that contains all the listings of all the reported cases in all of Australia's courts since 1825.<sup>35</sup>

The most important difference between CD-ROM and the World Wide Web is that CD-ROM is a 'closed medium'. This means that it can usually only run on one computer at any particular time and is not connected to the global computer network.<sup>36</sup> CD-ROM is packaged as a tactile object that is distributed through publishing houses, book shops, and libraries. Much of what a CD-ROM does is similar to the Web, but at the moment is technically, legally, logistically and conceptually easier to realise a project on CD-ROM.

CD-ROM projects are generally quite expensive but comparable to university text books. Text books can cost up to \$100 000 in pre-publication costs.<sup>37</sup> There are at this time few guarantees that CD-ROM can be economically viable, little understanding of its audience and an uncertainty about its technological future. Many developers of CD-ROM see it as a stepping stone to Web-based projects that cannot as yet be created because of technical

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<sup>34</sup> Ibid.

<sup>35</sup> LBC Information Services, The Complete Legal Research System, Sydney, (1995- ).

<sup>36</sup> It is possible to have a networked CD-ROM that can run on a number of computers on a Local Area Network (LAN).

<sup>37</sup> Sir Gustav Nossal and Josephine M. Marshall, "Monographs, polygraphs, papers or multi-media" in Janet McCalman (ed.) The Future of Academic Publishing: Proceedings of the Fourth Round Table of the

limitations or legal and economic concerns. The previous Australian federal government's commitment to finance the beginning of a CD ROM industry (through the Creative Nation initiatives) has provided the financial impetus for many innovative projects.<sup>38</sup>

#### **v. Hypertext**

Hypertext is the ability to link various discrete units, paragraphs, or sections of text/image/sound via a linking system that is mediated by a computer. It is popularly known as hypermedia or multimedia and is the basis to the interactive and non-linear features of the World Wide Web and CD-ROM. It encompasses a broad range of software packages and software tools that allow the user to construct either Web-based or CD-ROM projects.<sup>39</sup> Its understandings (conceptually) can equally be applied to the entire Web that is in effect one global hypertext.

The American technologist, Ted Nelson, coined the term hypertext. Nelson is an eccentric who until quite recently lived in a houseboat in Suasilito. Suasilito is on the opposite side of the harbour to San Francisco. He is quite famous to an older generation of computer specialists, but this is more for his failures than for his successes.<sup>40</sup> Since the World Wide Web has become so popular, so too has Nelson and his contribution to hypertext publishing.

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National Scholarly Communications Forum, Canberra, 22-23 February 1996, The Australian Academy of the Humanities, Canberra, 1997, p.32.

<sup>38</sup> Launched early in 1995.

Nelson is the founder of the *Xanadu* hypertext publishing system that is the longest running research and development project in the history of the computer industry.<sup>41</sup> It was started over thirty years ago and only quite recently have parts of the project found limited commercial markets.<sup>42</sup> Xanadu was supposed to be a universal library, a global information index, and a publishing method with an automatic payment of royalties. It is now two humble computer server products that are sold under license through other companies.

Nelson coined the word hypertext in 1965 in a published paper delivered to the American national conference of the Association for Computing Machinery.<sup>43</sup> Nelson proposed a system very similar to today's Web, being a global network of 'billions of quickly accessible and inter-linked documents with non-sequential reading and writing'.<sup>44</sup> His ultimate vision was for a system that was capable of storing and representing the creative and scientific production of humanity.<sup>45</sup>

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<sup>39</sup> The term hypertext also includes a computer language HTML (HyperText Mark-up Language) that forms much of the structure of the World Wide Web.

<sup>40</sup> Wolf, op.cit. p.167.

<sup>41</sup> *Ibid.*, p.168.

<sup>42</sup> Hypertext was invented by Nelson in 1960 as a first year graduate student at Harvard University. He intended to make a simple writing program that allowed users to store text, change it and print it out. During this time, a group of Harvard researchers were experimenting with similar programs. Their aim was to write software that could replace certain repetitive teaching tasks. Nelson was highly critical of their approach and devised an alternative that would let students explore academic material along a variety of alternative paths.

*Ibid.*, p.138.

<sup>43</sup> Theodore. H. Nelson, "A File Structure for the Complex, the Changing and the Intermediate" Proceedings, Association for Computing Machinery.1965.

<sup>44</sup> As early as July 1945, Vannevar Bush published his essay titled "As We May Think", which described a hypothetical system of information storage and retrieval called "memmex" which would allow readers to create indexes and tie documents together using special markers,

Vannevar Bush, "As We May Think" in The Atlantic Monthly, July, 1945.pp.101-108.

<sup>45</sup> Nelson conceptualised something akin to a great book with millions of readers and writers that he called 'the docuverse'. This is similar to the concept cyberspace later popularised by the novelist William Gibson.

In the 1960s even simple word-processing programs required the computing power of large and extraordinarily expensive mainframe computers. The idea of a global computer network was absurd (especially since Nelson's idea involved everything from imposing global standards, administering royalty payments, franchising publishing retail outlets, and changing the very nature of knowledge production and dissemination). It is perhaps not surprising then that Nelson ultimately failed in his quest, but ironically created the foundation for the entire field that followed.

Nelson serves as a reminder that new technologies often bring with them unrealised utopian visions. Nelson is now a researcher at Keio University in Tokyo, where he was awarded an honouree doctorate.<sup>46</sup> Hypertext is taught at an increasing number of universities around the world including the University of Melbourne, RMIT University, Brown and MIT in the US, and even Kings College in London.

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Wolf, *op.cit.* p.141.

<sup>46</sup> Personal Interview Andrew Pam, (Xanadu Australia, Chief Researcher) at *The State Film Centre, Cinemedia*, Melbourne, 3 October 1996.

Andrew was helpful in explaining the technological history of the web as well as a history of Ted Nelson. Andrew demonstrated two of the commercial offshoots of the *Xanadu* project, being HyperG and HyperWave.

## **Chapter One: Hypertext ‘Author-ity’ and Narrative**

### **‘Author-ity’**

#### **i. ‘Author-ity’ and Hypertext**

To access the definitive characteristics of a hypertext history author I have divided this chapter into two relevant key-elements of modern authorship. The first section compares the idea of an author’s authority (‘author-ity’) that manifests itself within physical attributes of the printed book, to hypertext: and the second section focuses upon hypertext ‘author-ity’ and narrative.<sup>47</sup> Narrative is how an historian draws out, organises, and communicates historical knowledge in the systematic recital of evidence, facts, and analysis that facilitates historical explanation.<sup>48</sup> The physical attributes of the printed book acts as a vehicle or container for narrative based knowledge.<sup>49</sup>

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<sup>47</sup> Authority, in its simplest definition, is the power or right to enforce obedience and is a delegated power to a body or a person and that gives them a weight of testimony, a personal influence over opinion and a considered and objectified privilege in the settling of a question.

J.B. Sykes, (ed.) The Concise Oxford Dictionary of Current English, The Clarendon Press, Oxford, 1985, p.58.

<sup>48</sup> Anne Gartner, Gloria Latham & Susan Merritt, “The Power of Narrative: Transcending Disciplines” RMIT University. ultiBASE (Page 2 of 11 Pages),

<<http://ultibase.rmit.edu.au/Articles/gartn1.html>>

<sup>49</sup> The book is by far the most important history medium in terms of recorded historical theses and in the communication of historical ideas. New mediums have typically been seen as an assault on the book with many avid readers lamenting the invention of television, radio, and film. However, book readership is alive and well. Once a new medium has established itself with its new capabilities it can be defined in terms that can co-exist with the book. This has been the case with all new modern mediums and there is no reason to assume that hypertext will be any different. If anything, the introduction of television has helped to increase book readership through promotional advertising, book programs and television adaptations. New electronic communication does change communication modes, but very rarely has it been to the detriment of the older modes. New mediums may reconfigure older modes or provide us with new ways to think about older things, and this has been the case with television, radio, and film.

For a vigorous defence of the book see Sven Birkerts, The Gutenberg Elegies: The Fate of Reading in the Electronic Age, Faber and Faber, Boston, 1994.

What we now understand as an author is the product of Johannes Gutenberg's printing press and movable type.<sup>50</sup> Before the invention of printing in the 1450's the author as such did not exist. Previous to this the scribes would meticulously hand-copy classic texts that contained knowledge that was in commonplace. This knowledge circulated without the concept of an author. The author was created when the hand-written manuscript moved out of the scriptorium and into printing houses. When this occurred it forced a definition upon what had always been in the public realm.<sup>51</sup>

Scriptorium texts did not require authors because stories, folk tales, epics and tragedies, were accepted, circulated, and valorised without the question of the identity of the author.<sup>52</sup> Foucault argues that their 'anonymity was ignored because their real or supposed age was a significant guarantee of their authenticity'.<sup>53</sup> Likewise, Elizabeth Eisenstein, in her seminal work in the history of the book, maintains that the invention of printing encouraged 'enclosure movements' and 'possessive individualism' towards what had always been a 'common' literature.<sup>54</sup>

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<sup>50</sup> The term 'printing' is a convenient label to refer to a number of innovations developed at a similar time entailing the use of movable type, oil-based ink, and the wooden hand press. Elizabeth Eisenstein, The Printing Revolution in Early Modern Europe, Cambridge University Press, Cambridge, 1983, p.84.

<sup>51</sup> There are a number of complex reasons for this that can only be generally captured, given the hazardous nature of projecting the understandings of the modern standard edition too far into the past. Michel Foucault, Language, Counter-Memory, Practice, Basil Blackwell, Oxford, 1977, p.125.

<sup>52</sup> Ibid.

<sup>53</sup> Ibid.

<sup>54</sup> Books were only selectively ascribed authors as authors who are individualised and celebrated can also be attributed with the singular human failings like 'plagiarism' or 'heresy': In a culture such as ours it is a much harder endeavour to apply similar principles to works such as the bible. An author is always situated within the polarity of lawful or unlawful, religious, and blasphemous.

Elizabeth Eisenstein, op.cit. p.84.

also see Foucault, Op.Cit.,p.170.

The scribes for an audience of scholars and clerics were used to producing books in runs of around five hundred. However, by the year 1500 the printing houses of Europe had produced an estimated twenty million books in various languages.<sup>55</sup> The printing houses were commercial operations with financial imperatives and thus had to make a profit. In an effort to sell their books to the emerging middle classes they went beyond publishing the classics in Latin and sought authors in the ‘vulgar tongues’.<sup>56</sup> The authors began to assert an individual ownership over their work and authorship began to be thought of as a possession caught up in the system of property values. This led to the first method of royalty payments and later the copyright law that was introduced by Queen Anne in 1709.<sup>57</sup>

Authorship undermined older concepts of collective authority in the contemporary knowledge systems in a manner that encompassed texts relating to philosophy, science, law, and history.<sup>58</sup> Foucault argues that the ‘veneration for the wisdom of the ages was probably modified as ancient sages were retrospectively cast in the role of individual authors’.<sup>59</sup> What had once freely circulated without the need of an author gave way to an author’s biography: An authoritarian distance emerged between the transcendent author and the public. The author was celebrated as an expert in a particular field and their work

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<sup>55</sup> Dale Spender “The Last of the Print Proficient” in John Mulvaney and Colin Steele (eds.) Changes in Scholarly Communication Patterns: Australia and the Electronic Library, Canberra, Australian Academy of the Humanities, 1993, p.170.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid. p.172.

<sup>58</sup> Eisenstein, op.cit. p.84.

<sup>59</sup> Foucault, op.cit.,p.170.

Barthes boldly pronounces the death of the ‘author/god’ whilst Foucault dismisses the modern author as an invention. These denouncements by the critical theorists, including Derrida, have posed serious challenges to all authors in all disciplines. They vanquish the individuality of the author, the author’s status, the author’s originality, and the conditions that have fostered the authority of ‘the man and his work’.

received as ‘original’ and ‘authoritative’. A faith in the Reformation created the prestige of the individual and in the emerging capitalist societies with an ideology that places the greatest importance on the self, it is logical that the author should be so famed.<sup>60</sup>

Hypertext does not have the same physical boundaries of the book thus it radically alters our idea of an author. Without the book it is difficult to prescribe the same authority to the text even though the text on a computer screen may appear to be the same as that contained within the printed book. If much of what we understand as an author is dependent upon the physical parameters of the book, then authorship must be prescribed in hypertext in a different way. We need to use this lack of physical ‘author-ity’ as a benefit of the technology rather than a limitation. Perhaps an obvious initial application of the technology is then, to cultures that exist outside of the Western historical paradigm. In cultures that do not venerate the author and rely on the oral transfer of history then hypertext may prove to be a suitable alternative.

## **ii. Authorising CD-ROM**

Creators in hypertext can give to their audience a degree of relative freedom that would be difficult to achieve in any other medium. Hypertext has the ability to include non-textual primary evidence, such as orally recorded history, and with images included, a user can see and actually hear people speak. The diverse viewpoints of oral history can be arranged to allow the user to draw on any perspective in any order. The questions of the

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Roland Barthes “The Death of the Author” *Image, Music Text*, (Trans. Stephen Heath), Fontana, London pp.142-148.

<sup>60</sup> *Ibid.*, p.143.

user can then become the focal point, rather than those framed within the mono-vocal authority of the author.<sup>61</sup>

An example of this is an experimental hypertext CD-ROM project called *Angledool Stories* by Karen Flick and Dr. Heather Goodall of the University of Technology, Sydney (UTS). In this instance hypertext is being used as a tool to explore Aboriginal history. Heather Goodall is an historian who has studied Aboriginal history for many years, and Karen Flick is an Aborigine from the community in north-west New South Wales that is featured on the CD-ROM.

Heather Goodall over her career had gathered a large number of primary sources from her own and other people's research. The data she collected included written text, oral history recorded on magnetic tapes, photographs, and maps.<sup>62</sup> Heather saw a need to return this material to the rightful owners in the Aboriginal community, and after considering what would be the most effective way to achieve this, she decided on a CD-ROM.<sup>63</sup> The price for hardware to play CD-ROMs has dropped significantly in recent years, and the Aborigines were already familiar with using computers in aspects of their daily work.

In the past, as assessed by Goodall, it has been difficult for an historian who works with Aboriginal history not to disrupt the 'ownership' of this history by contextualising it

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<sup>61</sup> Goodall, *op.cit.*, p.5.

<sup>62</sup> *Ibid.*, p.8.

<sup>63</sup> Heather could have returned the material as it was, in magnetic tape or photographic form, but there was the possibility that it could have been lost or damaged through constant use. Magnetic tape is easily damaged, as it needs to be regularly rewound or fast-forwarded. It is likewise difficult to index and find specific references on what may be one or two hour tapes. CD-ROM is much more effective because oral or other records can be accessed instantly.

within the author-ity of the book.<sup>64</sup> In communities with high levels of illiteracy and where the telling of stories orally transfers history, it is reasonable to acknowledge that the book may not be the appropriate medium. The singular authorial viewpoint fostered by a book does not lend itself easily to collaborative historical understandings and a book can destructively disable Aboriginal awareness of their own past by subverting the authority of the stories told by their elders.

The authority enforced by the creators of a hypertext work can be less controlling than the sequential reading that the book ensures.<sup>65</sup> A user can, if the 'authors' allow, experience a hypertext project within a broader set of parameters than those permitted by the printed book. *Angledool Stories* is a presentation of primary historical evidence, but is much more than an archival database of random historical sources. At the beginning of the hypertext a video image of Karen Flick acts as a guide for the user and with a short introductory video, Karen explains how the CD-ROM works.

Karen directs the user through hand signals and oral instructions, to the photographs and recorded oral sources contained on the CD-ROM. Karen is 'present' throughout the hypertext as a knowledgeable local guide, a kinswoman and well-known personality for many in the community.<sup>66</sup> The suggested use of the material is facilitated by the persona of Karen and mediated by the controls set by Heather and the programmers. The users of

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Ibid., p.8.

<sup>64</sup> Heather Goodall, personal interview at her home in Glebe, Sydney, 19 September 1996.

<sup>65</sup> Goodall, op.cit., p.4.

<sup>66</sup> Ibid., p.11.

the hypertext are able to move throughout it, taking the many different routs suggested by, but not authoritatively imposed by Karen.

This is of course a highly constructed semblance with cybernetic controls, but it does allow a different level of access to historical material that would otherwise be difficult to present.<sup>67</sup> In this instance the hypertext can be navigated by sound or image, allowing many older members of the Aboriginal community who are not proficient in the reading of English, to access it. How Karen and Heather maintain an author-ity over the material is through the programming and linking, selection, analysis, and the context created within the parameters set by the technology. The project, as Heather explains, is ‘a result of searching and selection with particular questions in mind, meeting some people’s research needs, but not others’...[The] ‘oral sources themselves are the result of a reflection and analysis and have been edited and judged, taken from the book-based framework that they were originally intended, and later re-assembled’.<sup>68</sup>

The authority in *Angledool Stories* has been truncated to empower the user but this is not always the case. Authority in hypertext can be exercised within a greater range of extremes than many champions of the new medium profess.<sup>69</sup> The physical author-ity of a book is predictable in that one has to turn its pages in sequence to continue, but the controls set within a hypertext production can vary fantastically depending on how many

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<sup>67</sup> To encourage a critical ‘reading’ of the sources, Heather envisages that the CD-ROM will include a ‘conflict button’ or ‘see further information’ icon so that the user can compare sources and analysis and not be led to accept oral statements unquestioningly.  
Personal Interview, 19 September 1996.

<sup>68</sup> Goodall, *op.cit.*, p.12.

<sup>69</sup> See Illana Snyder, *Hypertext: The Electronic Labyrinth*, Melbourne, Melbourne University Press, 1996,

links there are, or where the links take the user, or how the links can be manipulated by the user. A hypertext can be constructed so that it only has a few choices to direct the user to an assured outcome. If this physical control is exercised in hypertext is more a reflection of the personal agenda of the authors rather than something inherent in the medium itself.

### **iii. Authorising the Web.**

The significant difference between a CD-ROM and the Web is that the Web operates within geographically extreme physical boundaries. A CD-ROM is a physical object that can be held in one's hand, possessed and owned, sat on a shelf and treated as a belonging.<sup>70</sup> Because of this physicality a CD-ROM could be described as a closed medium in that it can only run on one computer at any one time (or in a limited way on a local network). As with a book, once the CD-ROM has left the author's hands, the work is complete. The work must operate within the physical boundaries of the plastic disc and neither the author nor the user has the ability to add to the disc for subsequent uses.

By comparison, a hypertextual work created within the Web environment has virtually no physical boundaries. This must be accepted as a reality of the on-line technology so that it can again, be constructively employed for suitable historical questions. Hypertext can, for instance, encourage the perception that a history project has a collective author-ity and is

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in addition, Jay David Bolter, *Writing Space: The Computer, Hypertext and the History of Writing*, New Jersey, Lawrence Erlbaum, 1991.

<sup>70</sup> John McQuilton of the University of Wollongong, who co-ordinated the Australian history CD-ROM, *Dispossessed, Diggers and Democrats, 1788-1888*, said that it was the very tangibility of CD-ROM that proved to be a major factor on why it was so popular with his students.

Personal Interview with Dr. John McQuilton, Senior Lecturer, Department of History and Politics, *The University of Wollongong*, 18 September 1996.

not owned and controlled from a singular point.<sup>71</sup> A user can become a collaborative participant in an on-line hypertext work unlike any other medium. A ‘multi-authored’ approach lends itself towards community histories in which the Web already has many worthy examples.

*The Australia Street Archive* is a Web hypertext project created by Chris Nash and Shirley Alexander of UTS in Sydney. It is a collection of photographs, documents, and analysis concerning the lives of every-day Australians in everyday situations. In this project a selection of streets have been singled out within Australia. They have in common the ironic name, Australia Street. The streets have been chosen to form ‘an ethnographic framework to capture the diversity of Australian culture at a community level’.<sup>72</sup> The audience for this project are the residents of the streets themselves, as well as present and future members of the broader Australian community.<sup>73</sup>

The project commenced in 1995 when notices were sent to all the residents of the Australia Streets, inviting them to contribute selected material. The response was inspiring and the co-ordinators collected an eclectic array of material, including posters, photographs, and maps, as well as oral recordings. Two houses were chosen within each street for detailed study, and then on location, the co-ordinators photographed significant pieces of furniture, ornamentation, and botanical arrangements. Oral interviews were then

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<sup>71</sup> Goodall, *op.cit.*, p.9.

<sup>72</sup>Chris Nash, (et.al) *Australia Street: Great Australian Dreams. The Australia Street Archive* (1996), <<http://www.AustraliaSt.uts.edu.au>>

<sup>73</sup>Chris Nash, (et.al) *Australia Street: Great Australian Dreams. The Australia Street Archive* (1996), <<http://www.AustraliaSt.uts.edu.au>>

recorded with the principal residents to gain a detailed account of each part of the home: its history, uses, and personal associations.<sup>74</sup>

The World Wide Web allows the opportunity for the authority constructed by the authors (through their analysis and contextualisation), to be readily disputed unlike any other medium.<sup>75</sup> The *Australia Street Archive* encourages users to e-mail responses regarding any aspect of the material employed, to champion a similar or different point of view. The users may even provide their own images or documents as evidence. These are then linked to the original archive for the benefit of future users for reading and further comment.<sup>76</sup> The construction of meaning between individuals and between evidence almost always results in conflicting outcomes and very rarely has a user had the opportunity to dispute authority so easily and directly.

*The Australia Street Archive* is centrally co-ordinated through various disciplinary experts and any new additions to the archive must be mediated through them. The authors are therefore administrators of an on-going authorial *process*.<sup>77</sup> The control of the space in *The Australia Street Archive* is not as authoritative as the printed page because it is a highly de-centralised web of on-going relationships. Without a strong and central author, historical knowledge still effectively circulates. The historian as a co-ordinator and

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<sup>74</sup> Chris Nash, "Australia Street Archive on the World Wide Web", (1995- ), <http://www.scu.edu.au/ausweb95/papers/education3/nash/>

<sup>75</sup> The experience that the 'authors' of *The Australia Street Archive* hoped to create was similar to watching a television documentary. However, unlike television, Australia Street it is not driven by the same time and narrative structure. The path of the story can be determined by the user responses to the composition, within the parameters set by the 'authors', and within the meanings assembled by the user.

Ibid.

<sup>76</sup> Ibid.

mediator creates a critical template that continues to promote historical debate. It stimulates communities to explore their own history within the authority that is mediated by the historian and the computer. The Web, without the physical authority of the print-based author, may be the medium best suited for community histories such as this.

### *Narrative*

#### **iv. Narrative, Information and Knowledge**

Narrative has been adapted to each successive medium as it has appeared. It is an historically developed set of demonstrated concerns, knowledge and practices that preserve the uniqueness of a discipline. Narrative facilitates the connection of people through creating a sense of shared experience, and is how the historian draws out, organises and communicates the knowledge that is central to the craft.<sup>78</sup>

Knowledge and information are two distinct classifications. Knowledge is information that has already been transformed; it has been analysed, interpreted, integrated, articulated, tested in application, and evaluated.<sup>79</sup> Knowledge is what historians are supposed to display when they write books or papers or prepare lectures: if he or she merely recapitulates rote learnt facts or fragments of information, then they have possibly failed within the code of the profession.<sup>80</sup>

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<sup>77</sup> It also promotes a collaborative relationship between the various professionals (be they academic or computer specialist), and the community members.

<sup>78</sup> Anne Gartner, Gloria Latham & Susan Merritt, "The Power of Narrative: Transcending Disciplines" RMIT University. *ultiBASE* (Page 2 of 11 Pages), <http://ultibase.rmit.edu.au/Articles/gartn1.html>

<sup>79</sup> Diana Laurillard, *Rethinking University Education: A Framework for the Effective Use of Education Technology*, Routledge, London, 1993 p.105.

<sup>80</sup> An historian must provide evidence for a hypothesis in the form of archival or other primary documents. This evidence can be in any media, whether it is photos, film, oral record diaries, newspapers, government

Before narrative was adapted to CD-ROM it was used as a device to store large amounts of information in an encyclopaedic and database format. The ability to store enormous amounts of data holds a particular attraction to historians.<sup>81</sup> However, many of the first CD-ROMs also serve as examples of the least effective use of the technology, as they do not display knowledge of the historian's craft nor of the medium.

Of this phenomenon *US History on CD-ROM* is a prime example.<sup>82</sup> It was released in 1990 and promised 107 books, 1001 pictures, hundreds of tables and maps, plus a detailed coverage of US political, social, military and economic history.<sup>83</sup> A resource such as this could be of great benefit, if not simply to save space, then as a reference guide and teaching resource. In all these categories (except in saving space) this CD-ROM is inadequate.

The material is arranged into ten sections that selectively include:

- (1) American People**
- (2) The Armed Forces: Structure and History**
- (3) The US Government and**

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documents, town-plans, or paintings. To use this material as evidence, the historian needs to be adept at analytically curtailing this 'multimedia' to the appropriate disciplinary form. This form is usually the book-based explanatory narrative. Hypertext promises to re-align the relationship between the evidence the historian uses, the knowledge of the discipline, the narrative used to explain the outcome and endlessly re-centre them to accommodate the instructions of the reader.

<sup>81</sup> Rosenzweig, *op.cit.*,

<<http://web.gmu.edu.chnm/>>

<sup>82</sup> *Us History on CD-ROM*, Bureau Development, (141 New Road, Parsippany, New Jersey, 07054), New Jersey, 1990.

<sup>83</sup> Rosenzweig, *op.cit.*,

<<http://web.gmu.edu.chnm/>>

#### (4) Wars and Conflicts<sup>84</sup>

If we choose one of these categories, say **(1) American People**, that is supposed to contain studies of modern social problems, we find that over half the titles displayed are military histories. Titles include books such as *A History of Woman Marines, 1946-1977* and eight volumes of Benson J. Lossing's obscure *History of the United States from the Discovery of America to the Present Time* (the present time being 1905). Further enquiry within this category reveals an unrelated text that turns out to be a public document freely available from the US Immigration and Naturalisation Service.<sup>85</sup>

Even if any of these titles sound exciting, it serves little or no purpose to digitise a printed book in the first place. 'No one is ever going to sit down and read a novel [or book] on a twitchy little screen...ever'.<sup>86</sup> These titles were designed for the book medium and to digitise them makes about as much sense as filming them. A book is designed to contain a dense linear narrative, and with a good index, is much easier to use than scrolling through voluminous text on a computer screen.

There are of course excellent examples of CD-ROM as an information source, and it still seems to be one of the most popular uses of the medium. For instance, with LBC Information Services' *The Complete Legal Research System* (1995-), it is possible to

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<sup>84</sup> *US History on CD-ROM*, Op.Cit.

<sup>85</sup> Rosenzweig, op.cit.,

<<http://web.gmu.edu.chnm/>>

<sup>86</sup> Quoted as statement of Annie Proulx in The Age Computers, 'The Printed Word Fights Back' by David Walker, Tuesday 28 January 1997, pD4.

search the listings of all the reported cases in all of Australia's courts since 1825.<sup>87</sup> It contains citations for all of the cases as well as a complete set of the important legal reference encyclopaedia, *The Laws of Australia*. Any of this information can be accessed instantly through a simple text or menu search.<sup>88</sup> The time saved in finding information is considerable and it allows the legal professional (or historian) more time for the important tasks of synthesis and analysis.

Another worthy example is the soon to be released CD-ROM, under license from the *Victorian Registrar of Births, Marriages and Deaths*, that contains information on all of Victoria's births up to 1920.<sup>89</sup> Marriages up to 1935 and death records up to 1980 are hoped to be included at a later date. These records can be accessed in seconds and it facilitates an unprecedented level of accessibility to a whole new generation of researchers.<sup>90</sup> This disc can be shipped to any individual in the world, or made publicly available at any institution in the world.

Much of the criticism directed at CD-ROM regarding its limitation claims that it can only effectively be used as an information-storing device.<sup>91</sup> This is how many people may have initially experienced it in research libraries and universities, but to claim that is all that it can realistically do is similar to saying that a book can only be used as an

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<sup>87</sup> LBC Information Services, *The Complete Legal Research System*, Sydney, 1995-

<sup>88</sup> Personal conversation with Simon Lancaster, L.B.C Information Services, (Manager), *The Laws of Australia*, on 16 November 1996.

<sup>89</sup> Jenny Sinclair, "Surfing for the Ancestors" in *The Age*, Computers, p D5, 21 January 1997.

<sup>90</sup> These records are also available on-line made available by a private company, Heritage Systems International. It can be found at:

<<http://www.ke.com.au/cgi-bin/texhtml?form=vicgold>>

encyclopaedia or dictionary. A CD-ROM can efficiently impart information and it can also impart historical knowledge through narrative.<sup>92</sup> The modern historian must not only uncover and explain, but must also be adept at using the illusion of narrative to allow us to explore causation through the passage of time.<sup>93</sup> The knowledge of an historian, which manifests itself in the ability to construct a narrative through an analytical framework, can be equally applied to a hypertext production as a book.

#### v. Linear versus the Non-linear

A narrative within a hypertext calls into question the belief that narrative, especially in the written text, must take the form of a linear progression. Although the printed book allows the writer to suggest non-linearity, by such rhetorical devices as ambiguity—or self-referential suggestions to previous or preceding passages—a physical linearity dominates. Pagination, a contents page, chapters, and line by line reading reinforce linearity. Derrida's *Glas* (1976) disrupts the notion of what a book should look like by dividing his pages into two columns; the left offers passages from the philosophical

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<sup>91</sup> Dr Janet McCalman expressed these concerns (in a personal interview with her on 6 October 1996), as did Dr Don Ferrel (who is a retired academic historian who specialises in the history of the computer revolution, in a personal interview 29 May 1996).

<sup>92</sup> The first forms of book-based historical narrative (as opposed to the bards and other oral narratives) appeared in and around medieval Europe in cultures that had a simplistic, linear view of time. As a developed theory of historiography did not exist, the chronicle and annuals were the means of recording what were deemed important historical events and characters.

G.R. Elton, *The Practice of History*, Sydney, Sydney University Press, 1967, p.127.

*The Old Testament of The Bible* and Geoffrey of Monmouth's *History of the Kings of Britain* are some of the first examples of historical narrative (Geoffrey of Monmouth, *History of the Kings of Britain*, Translated by Sebastian Evans, Dent 1963).

The ancient epic recorded through a simple linear story, the life of a hero or significant historical figure. *Beowulf*, written in 500AD, is the sequential chronicle of the deeds of a hero told with a simple linear plot. The multifoliate plot of the romance as in the Arthurian Romances, *Sir Gawaine and the Green Knight* and *Morte d'Arthur* supplanted this simplicity. When history became highly professional and highly scholarly in the Twentieth Century, the desire to simply tell what happened gave way to a necessity to explore the underlying structures and processes of causation that generated this history.

<sup>93</sup> Goodall, *op.cit.*, p.12.

writings of Hegel, while the right is a commentary on the French novelist Jean Genet.<sup>94</sup>

Barthes and Foucault broke down linear modes of argument through their notion of intertextuality and discourse but still they worked within the physical book form.

Hypertext allows the author to present multiple narratives. Instead of one dominant narrative, hypertext can present many narratives. In *Angledool Stories*, for instance, the resources can be navigated by life story, by theme and by geographical place: these categories form a narrative framework in which to view the individual stories told by the Aborigines. The stories have been edited so as to synchronise with the relevant still and video images and to link to a particular place of occurrence, a theme or to other Aborigines' stories.<sup>95</sup> As historians Heather and Karen have their own explanations and interpretations drawn from both oral and non-oral sources. These have been presented within three distinct narratives, and again within these are the smaller micro-narratives.

It is through narrative, in both its medium-defined parameters and content-defined illusions, that an author is able to exercise much of their author-ity over the user.<sup>96</sup>

Generally speaking, the more linear a narrative the more controlling it is, the less linear

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<sup>94</sup> Illana Snyder, *Hypertext: The Electronic Labyrinth*, Melbourne University Press, Melbourne, 1996, p.46.

<sup>95</sup> Goodall, *op.cit.*, p.14.

<sup>96</sup> Film, for instance, can be an extraordinarily challenging medium and the more a film challenges its audience and tests the boundaries of the medium, the more likely it is to be critically acclaimed. There is an equilibrium that one must find between simply viewing a film, a hypertext, or a book as a tool, and the other extreme being the assumption that the anonymous qualities inherent in the medium itself are responsible for changes in the way that we think and behave. As with any medium, it is how the 'authors' construct it that determines how linear is its narrative. Generally, the blockbuster Hollywood film leaves little room for interpretation and it is presented with a linear 'what you see is what you get' formulaic story. This is very different to, say, the Brechtian devices employed by Fassbinder that draw attention to the medium.

and loosely connected are the description and analysis of events, the less controlling is the author.

An example of a hypertext production that utilises the authoritative potential of hypertext is *Dispossessed, Diggers, and Democrats 1788-1888*, an initiative of The University of Wollongong in New South Wales. This hypertext was designed as an instructional tool for international students and other students who are new to the study of Australian history at university level. It was developed as a teaching aid to give students a fundamental factual background in Australian history.<sup>97</sup>

*Dispossessed, Diggers and Democrats* has a similar authority to that of a printed book. It not only has an opening index page that is identical to the index of the accompanying reader of photocopied articles, but it also has similar page numbering at the top of the screen. The index is likewise arranged in a sequence indistinguishable from that of a book. After choosing an index item, there is only one path that the user can take with arrows at the bottom of the page indicating either forward or reverse. After the users have read an individual page, they must click on an arrow to continue. In this way, the authors are assured that the users will follow their pre-determined path towards the pre-determined outcome.

After the completion of a section there is a final screen in which one must answer the correct questions to continue. The answers relate to the dates of the major events that the CD-ROM covers. If one chooses the incorrect answer from the multiple choices, then the

user must reverse through the narrative to find the correct answer and then re-try. This is a form of author-ity that is unique to the medium.

Whereas this CD-ROM was created to aid students in preparation for tutorials and ‘get across the facts’ it may not be the best medium to achieve this. It makes the user feel that they have little control over computers and even less over the interpretation of history. Hypertext is a medium that can be used to assemble diverse media and provide a conceptual and physical system to arrange and impart knowledge in a different way to the physical linear arrangements of a book.<sup>98</sup> A good textbook could probably have addressed the specific teaching tasks in *Dispossessed, Diggers, and Democrats* just as effectively.<sup>99</sup>

History is of course an ill-structured domain and if an historian did not attempt to structure the past into some sort of narrative-form, then there would few ways of understanding about the past. The book medium can accommodate linear structures or dense narrative far better than any other medium. However, the amorphous structure of hypertext can promote a different type of historical thinking to the teacher focused ‘dissemination of knowledge model’ offered by *Dispossessed Diggers and Democrats*.

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<sup>97</sup> Personal interview with Dr John McQuilton, 18 September 1996.

<sup>98</sup> If narrative linearity is something that is relative to the ‘author’ and relative to the controls set within a particular medium then employing the general term non-linear to describe hypertext functionality is clearly inadequate. It is inadequate because it signifies that ‘non-linearity’ is only possible in hypertext productions and all other mediums are somehow relegated to the category of linearity. It would be foolish to suggest that James Joyce’s *Ulysses* was a linear story or Greenaway’s *Prosperos’ Books* was a systematically assembled narrative. However, it would also be foolish to suggest that *Dispossessed, Diggers, and Democrats, 1788-1888* is non-linear.

<sup>99</sup> Dr. John McQuilton indicated that there had been a 5% better grade in his class since he had used this CD-ROM as a tutorial aid. Personal Interview, 18 September 1996.

The ‘learner-focus’ model or ‘how is learning made possible’ can realistically be promoted through the amorphous features of hypertext.<sup>100</sup>

[History]...entails more than a simple familiarity with important facts and concepts; it involves being able to conceptualise historical events from multiple perspectives and to relate a myriad of seemingly diverse historical data within such perspectives. Historical thinking is an understanding of human situations and the complex web of relationships embedded in them.<sup>101</sup>

Karen Swan emphasises that an academic historian needs to provide students with historical information, as well as a structure to understand this information. The student should be simultaneously encouraged to view the data from a multitude of perspectives, so they can find their own connections and narrative explanations within them.<sup>102</sup> Hypertext can promote this type of historical thinking because it can be irregularly arranged and because it can easily support a number of perspectives within a physical web rather than in a linear arrangement of pages. The best way to conceptualise this is through the notion of what Swan terms a ‘criss-crossed’ narrative structure.

*Flashback*, released in 1993, is a good example of the potential of ‘criss-crossed’ narrative.<sup>103</sup> *Flashback* was produced by Lloyd and Lyndon Sharp for the New South Wales Board of Studies, and was one of Australia’s first history CD-ROMs. It includes a collection of documents, images, and interpretations about Australians at war for an audience of senior secondary students. It acknowledges the important problem of how to represent conflicting opinions among those who witnessed conflict, and the task of

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<sup>100</sup> Karen Swan, “History, Hypermedia and Criss-Crossed Conceptual Landscapes”, Journal of Educational Multimedia and Hypermedia, vol.3, no.2. 1994, p.122.

<sup>101</sup> Ibid., p.121.

<sup>102</sup> Ibid.

historians who later have to provide a broader analytical and contextual structure to make sense of it.<sup>104</sup> Witnesses do not necessarily have a privileged view, as it is often the historian removed from the events who is in a better position to assemble the confused, disparate, and sometimes contradictory accounts together into a plausible whole.

*Flashback* was designed to address primarily two historical questions. These questions are:

- (1) Why did Australian's participate in overseas conflicts?**
- (2) What was the impact upon Australia?**

These questions may be answered in the various ways designed by the authors. On what could be termed a macro-narrative level, the student may choose from selections of the time periods (or other options) that appear when the computer is started up. The time periods include:

- (1) Before Federation**
- (2) The Anglo-Boer War**
- (3) World War One**
- (4) World War Two**
- (5) The Korean War**
- (6) The Malaysian Emergency**
- (7) The Vietnam War**
- (8) The Gulf War**

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<sup>103</sup> Lyndon and Lloyd Sharp, (et.al.) *Flashback*. The New South Wales Board of Studies, Sydney, NSW, Distributed by Dataflow Computer Services Pty Ltd, 1994.

<sup>104</sup> Goodall *op.cit.*, p.9.

If we choose one of these categories, say, **(7) The Vietnam War**, the student is offered a written and photographic overview of why Australia was involved in the Vietnam War. The user can then access a selection of micro-narratives to further explore the question. They selectively include:

- (A) Centuries of Domination**
- (B) A Bad Decision?**
- (C) Ho Chi Minh, Nationalist Leader**
- (D) Civil War**
- (E) The Indo-China Conflict and**
- (F) U.S. Forces join the conflict.**

After the student has viewed the micro-narratives, he or she can then choose a menu—that is accessible from anywhere within the CD-ROM—that will reorient them to the macro-narrative level.

If the student were to choose another one of the macro-narratives offered, such as the question:

**(1) What was happening in Australia at the time?**

the student again would be offered numerous micro-narrative choices. If he or she chooses the time **(A) The sixties**—to coincide with their inquiry into the Vietnam conflict—the student could then, for instance, view a choice of movie clips that are on yet another micro-narrative level. The clips include:

- (A) Beach Culture 1960s**
- (B) Baby Boomers Growing Up**
- (C) Neil Armstrong on the Moon**

After viewing these, the student could explore further 'sixties' micro-narratives that include:

**(A) Work and Fun**

This category includes:

- (A) Health and Security**
- (B) Australian Sport**
- (C) Poverty and Pensions**

After viewing these, the student may still require more information on the Vietnam War, but from another perspective. The student could then go back to the macro-narrative level and choose another option such as:

**(2) How did Australians respond to the outbreak of overseas conflicts?**

Again if we choose the option **(7) Vietnam War**, we have three more categories to choose from including:

- (A) Why**
- (B) Anti-Communism**

### (C) National Service

Within the category (2) + (7) + (A) = **Why?** there is a written analytical narrative as well as a movie in which the Australian Prime Minister explains Australia's position on this war.

It is somewhat difficult to describe a 'criss-crossed' narrative structure within the fixed two-dimensional space of the printed page, but at any time during our investigations into the Vietnam conflict—that fluctuated between the macro and micro-narrative level—we could have taken diversions and compared our findings to, for instance, what was happening in Australia during other conflicts. We could discover that the anti-communism advertisement used by the government in World War II is very similar to the recruitment advertisement used to support the Vietnam conflict. We could perhaps relate our findings to contemporary Australian attitudes to Asia, and discover that some of the recent political rhetoric is similar to fears usually exploited during periods of great conflict. The user of this CD-ROM has an additional 'author-ity' over the material because, unlike a book, the evidence can be broadly arranged, 'criss-crossed' and then re-arranged to support a number of conflicting interpretations. All this is within the authorised parameters set by the creators.<sup>105</sup>

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<sup>105</sup> The primary sources in *Flashback* are not offered un-interpreted (either within the *macro or micro-narratives*) but are annotated with tips on how an historian used these sources in both the general sense and in this particular instance. A newspaper source is not used without an explanation of censorship and a photograph is not offered without an indication of how zooms, edits, and context can change the meaning of a photograph. There is a specific section contained within the CD-ROM called 'Teacher Guidance' that includes options to print out material and prepare lessons. See the [Flash Back User Manual](#) contained in Flash Back, p.71.

By allowing students the option to make ‘criss-crossed’ connections, they are encouraged to think relationally about the past and are not led to believe that there is a correct or well-defined solution to advancing historical knowledge.<sup>106</sup> Hypertext’s support of a variety of media, including video and oral recordings, promotes a ‘criss-crossed’ perspective in another sense: a juxtaposition of media can provide the multiple viewpoints and understandings that are invaluable in a society in which increasingly no one media is capable of recording nor expressing.

#### **vi. Beginnings and Endings**

In many hypertext productions the number of paths that may be taken by a user can be theoretically infinite. This is a pitfall of a hypertext work that relinquishes too much physical authority. The set of pre-programmed variables, either fixed or random, that the user may choose to follow can never be totally anticipated by the author. The reader is presented with a collection of possibilities with multiple endings and multiple beginnings. Readers must then accept that no single narrative exists and part of the responsibility of the reader is to construct their own narrative. A printed book is a closed structure, but in hypertext’s shifting electronic space, the user must conceive of the ‘text’ as a possible set of structures within a structure.<sup>107</sup>

A beginning is designed to anticipate an end and to clarify or define a later time, place, or action. In *Flashback* the beginning is denoted by the question **(1) Why did Australia participate in overseas conflicts?** and the end is reached when the user has answered

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<sup>106</sup> Swan, *op.cit.*, p.123.

this or any other questions. An ending in a book requires some sort of thematic or formal closure that furnishes the point of view from which the narrative can be perceived as forming a whole.<sup>108</sup> In hypertext, this endpoint is reached when the user has enough information to satisfy the question that prompted them to enter in the first place.

To understand a narrative, one must first comprehend how and why the successive episodes led to the conclusion. If a series of random and disconnected events are presented, then it will not be understood. A hypertext is divided into various units or lexias, which are assembled by the authors in a considered fashion. If it is not then the user will not be able to construct a meaningful narrative.

Nearly all the published articles and books that concern hypertext focus upon the literary productions that utilise the extra-ordinary capabilities of the technology. As storytellers, historians have traditionally shared a close relationship with literature and marry this with their analytical skills. In terms of a hypertext that combines story telling and analysis in the written text, there are virtually no examples in history. To demonstrate beginnings and endings and how this question has been addressed through story, we must then borrow an example from literature.

Michael Joyce's *Afternoon* is one of the most famous hypertext works and serves to highlight how hypertext can give form to beginnings and endings through story. Joyce's

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<sup>107</sup> David. J. Bolter, Writing Space: The Computer, Hypertext and the History of Writing, New Jersey, Lawrence Erlbaum, 1991, p.144.

<sup>108</sup> George. P.Landow, Hypertext: The Convergence of Contemporary Critical Theory and Technology, The John Hopkins University Press, Baltimore, 1992, p.110.

*Afternoon* is a fiction with 538 lexias and is distributed on CD-ROM.<sup>109</sup> *Afternoon* allows readers liberally to choose multiple paths through the text but it is not totally devoid of narrative linearity. Intelligibility in language demands some kind of sequence, and no one would design a hypertext with variability or randomness at character or word level.<sup>110</sup> A lexia arouses the expectations of the following lexia that together demands some sort of coherence and consistency. *Afternoon* is an intricate web of narratives that yield to the mouse's interaction with the evocative words or phrases that have been highlighted by Joyce. The resonance of the words and lexias form associations that construct a story.

Illana Snyder claims that in the brief history of what are termed 'hyperfictions', an essentially cautious approach has been taken to the question of beginnings. They are usually offered with a lexia labelled with something like **start here**, which combines the functions of an introduction and opening paragraph.<sup>111</sup> Without some indication of how to start a hypertext it would disorient readers to the point of absurdity.

*Afternoon* starts with a paragraph that introduces the reader to the story of a father's search for his son somewhere in the United States. In the first sentence of the first paragraph of *Afternoon*, if the user selects the word **son**, then the text on the screen shifts to a scene in which the father finds his son's essay titled 'The Sun King: Louis XIV'.<sup>112</sup> If the user chooses the word **die**, then a differing narrative departure begins. Each lexia offers the user a series of possibilities that can be activated, either moving backwards or

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<sup>109</sup> M. Joyce, *Afternoon: A Story on Computer Disk*, Cambridge Massachusetts, Eastgate Press, 1991.

<sup>110</sup> Snyder, *op.cit.*, p.46.

<sup>111</sup> *Ibid.*, p.99.

<sup>112</sup> Joyce, *op.cit.*

forwards, and the user may then follow the narrator's enchanting story of the search for his son.<sup>113</sup>

When the story no longer progresses, or when it cycles, or when the user becomes tired of the paths, then the story ends.<sup>114</sup> When the reader decides to stop, the story is killed because the reader prevents other alternatives from coming into being. Having assigned particular sections, sequences and reading paths, the reader reaches a point in which one's cognitive abilities or inquisitiveness disappears.<sup>115</sup> The reader has then created the ending to the story. The reader constructed the story as they progressed, within the authoring structure of Joyce. Joyce could not possibly anticipate all of the constructions of the story and thus surrenders some of his author-ity to the reader.<sup>116</sup>

## **vii. Stories**

In hypertext, where a designer has to come to terms with its vast potential, stories offer a good way to anchor meaning.<sup>117</sup> Stories provide an enduring and appealing medium for communicating history and offer a familiar information structure that can reduce the overwhelming cognitive load posed through navigating a large hypertext.<sup>118</sup> The story format facilitates the navigation of information and helps the user to remember the information later.<sup>119</sup>

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<sup>113</sup> Snyder, *op.cit.*, p.89.

<sup>114</sup> Unlike some other hypertext works *Afternoon* does not provide a map of the lexias overall structure and places still awaiting discovery, so there can be some difficulty in navigation.

<sup>115</sup> Landow, *op.cit.*, p.113.

<sup>116</sup> *Ibid.*, p.118.

<sup>117</sup> Hillary McLennan, "Hypertextual Tales: Story Modes for Hypertext Design", *Journal of Educational Multimedia and Hypermedia*, vol.2.no.3, 1993, p.239.

<sup>118</sup> *Ibid.*, p.240.

<sup>119</sup> *Ibid.*, p.254.

Museums offer a good example of how story can be used as a way to understand a large collection of information. There is a shift in museums away from subject matter specialists, to exhibit designers who may have a background in education or design. Traditionally a curator designed exhibits to provide a comprehensive insight into certain subjects, such as coins or barter, and then all of the museum's collection was assembled to display this speciality subject area. However, in contemporary museums the exhibit designers are focusing not on comprehensiveness, but on telling a story with the best and most representative artefacts.<sup>120</sup> This might be the story of an historical period or geographical place. By putting the artefacts into the richest context, the audience is not inflicted with a cognitive overload and they will be able to absorb the content later.

*Flight of Ducks*, by Simon Pockley of RMIT University in Melbourne, successfully uses story to aid in the navigation of a large hypertext.<sup>121</sup> This substantial hypertext is the history of Simon Pockley's father's expedition into the Western desert of Central Australia in 1933. It contains sophisticated linking and graphics to display a large amount of photographs, digitised aboriginal artefacts, and diaries that tell the story of Pockley's father's journey.

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<sup>120</sup> *Ibid.*, p.245.

<sup>121</sup> Heather Goodall describes the site as the most 'stimulating and rich I have come across'. It has been further described as having 'national significance' in the medium by the National Library's Pandora Project.

Heather Goodall, Tuesday 4 June 1996 comments section in Simon Pockley's *Flight of Ducks*, (1996- ), <<http://www.cinemia.net/FOD/FOD0001.html>>

This project recently won the 1996 Premier's Gold Award for Best Australian Multimedia Product and The Australian Teachers of Multimedia, Best On-Line Product.

When Simon's father died, he left Simon a collection of photographs and journals relating to the journey.<sup>122</sup> His father with three companions had set off on an expedition to study Aboriginal tribes' people in the desire to advance the boundaries of European knowledge. His companions were an artist, Arthur Murch, an animal and skull collector, Stanley Larnach, and an Aboriginal 'camel boy' called Hezekiel. This was the time when Australia's centre was a mysterious and unknown place rumoured to be populated by 'wild Aboriginals' who had 'never seen a white man'.<sup>123</sup>

His father took many photos on the expedition and kept a detailed journal. Simon used these sources as the primary evidence for his study, and has digitised them and 'authorised' them within this challenging hypertext. Simon had initially planned to type up the journals and simply produce a booklet for his family, but he soon discovered a peculiarity about his father's writing. The individual journals were not in actuality separate entities relating to different times and stories, but were in fact just the one journal that had been written and re-written over time. His father, over the period of his life, had revised his journal and had gradually projected more and more on his central Australia journey. The historical landscape had changed along with his father's age, memory, and own intellectual landscape. Simon claims that the World Wide Web is a perfect medium to express a history such as this, as his own 'evolving hypertext' bears little resemblance to

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<sup>122</sup>Simon Pockley, *Flight of Ducks*,  
<<http://www.cinemia.net/FOD/FOD0001.html>>

<sup>123</sup>Simon Pockley, *Flight of Ducks*,  
<<http://www.cinemia.net/FOD/FOD0001.html>>

his original hypertext.<sup>124</sup> The re-writing of his own work parallels his father's re-writing of the journal.

In *Flight of Ducks* the medium is inseparable from the message. An understanding of the capabilities and metaphors of the medium is necessarily an understanding of the history that it represents. A camel, train, and truck are the vehicles used by his father to cross the desert and Pockley uses graphical images of these to drive the story. When the narrative changes to his father's experience on the Ghan railway, the navigational icon changes to a train. Likewise, when the explorers are travelling by truck the navigational icon changes to a truck. Ricoeur suggests that anything that is part of the 'forward' motion is part of the narrative, so in this instance, the 'narrator' is a camel!<sup>125</sup> The use of the medium to construct graphical icons is an important component of the hypertext authoring process. Just as title pages, contents pages and chapters form part of the authoring of a book, ducks, camels, and trucks form part of the 'author-ity' of this work.<sup>126</sup>

Pockley's design philosophy, that is both self-reflexive and has a disclosure of use, is the strength behind the project.<sup>127</sup> In contrast, *Flashback* is successful in promoting different

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<sup>124</sup>Simon Pockley, *Flight of Ducks*,

<<http://www.cinemedia.net/FOD/FOD0001.html>>

<sup>125</sup> Paul Ricoeur, *Time and Narrative*, Translated by Kathleen McLaughlin and David Pellauer, 3 volumes, University of Chicago Press, Chicago, 1994, p.56.

<sup>126</sup> The title the *Flight of Ducks* was taken from a story within Pockley's journal. One night a tribe called the Ngalia were having a corroboree with the peculiar rhythmic chants of Central Australia Aborigines. The explorers took note of a particular song that seemed unusual. An Aborigine later explained that it was a song about a group of ducks on a water hole that would fly off clumsily then, swooping, return at terrific speeds. In *Flight of Ducks* if the user clicks on the duck icon they are instantly returned to the 'mediabase' that is the central navigational centre.

<sup>127</sup> The media base offers another level to the archive where the user can view research strategies, the background to the project and a good section for comments. Many of the comments concern accessibility

ways to think about the past, but it does not readily reveal its controlling ‘author-ised’ construction. If the user has little knowledge of how a hypertext is constructed then they must assume a certain passivity. The way to be an active viewer of film or television, or even reader of a book, is to have some idea of how the works were edited or written. Without this, it is difficult to question the authority of the creators. A line in the design philosophy of *Flashback* is quite revealing:

We don’t believe that teachers and students should have to struggle with learning about computers while they learn history. The design team aimed to make the computer invisible, so that teachers and students could get on with the enjoyment of Australian history in an uncomplicated way.<sup>128</sup>

If the computer is made invisible, then you are also making invisible the very instrument that is mediating your understandings about the past. It is almost similar to implying that your study of Australian history should not be complicated by learning how to read. *Flashback*, like *Angledool stories*, and *Dispossessed Diggers and Democrats*, are CD-ROMs that have been authored by individuals with their own particular bias and interpretations. The user must be able to question this ‘author-ity’.

History as well as hypertext could be described as being an enormous jumble of ideas that have little or no value without connections. The stronger the threads are through good stories and well-constructed narrative, the stronger the connection between ideas. The hole in the middle is the information that we let slip through by being selective. We must not become so un-authoritative as to let our audience slip through the same hole.

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and aesthetics. Simon suggests the questions the user should be asking about his work and these are mostly directed at his use of the technology. There are external links to papers on new media or teaching research in the field.

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<sup>128</sup> Flashback User Manual, *op.cit.*, p.7.

## **Chapter Two: Hypertext and the Archive**

### **i. The Virtual Archive**

Hypertext history authorship intersects with the archive unlike book authorship. This is because of one of the more appealing aspects of on-line hypertext authorship; the ability to actually link to the sources cited. This, for lack of a better analogy, is similar to the process of footnoting, but this is a type of ‘footnoting’ that physically links to the digitised copies of the evidence that the historian has used.<sup>129</sup> Considering that many of the world’s major archives have already placed vast amounts of historical evidence on-line, the potential for this type of historical scholarship is enormous. This development is only a very recent one and has drawn very little response from the history profession at large. As primary evidence in its many different mediums is the ‘bread and butter’ of the profession, one would have expected historians to have responded vigorously. However, the few criticisms from historians suggesting that digital sources lack the fingerprints or the ‘aura’ of the original, do little to help us understand these developments.

A hypertext archive can store hundreds or even thousands of photos, maps, documents, and text that can be easily and flexibly arranged. They can be placed within two general categories. There are ‘analytical archives’ such as the *Australia Street Archive* and *Flight of Ducks* (that have placed sources on-line within an authoritative narrative context), and there are ‘stand-alone’ archives that have independent digital sources. A ‘stand alone’

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<sup>129</sup> What is of particular interest to a historian is the critical theorist’s idea of intertextuality and the standard practice of footnoting. Julia Kristeva coined the term intertextuality in an essay in 1966 to describe the interdependence that any text has to all other texts. Kristeva, as with Barthes, claims that the text is drawn

archive contains resources, such as photos, and usually places them on-line within an indexing system or word-based search facility.<sup>130</sup>

## ii. Analysis and the Archive

Most ‘analytical archives’ are situated in the United States. Accordingly, perhaps a good place to start would be by looking at the developments of two of America’s most important historical institutions. These are the **Library of Congress** and the **National Archives and Records Administration (NARA)**.<sup>131</sup>

The Library of Congress houses many of the most important documents of US history and has placed some of these documents on-line for a general public audience. The home page of the library invites the general user to view a number of stories. These include the **Temple of Liberty** (about building the Capitol for a new nation) and **Declaring Independence** (the story of drafting the documents of American independence).

If we choose **Declaring Independence**, we begin a narrative that starts with a digitised sketch of a number of individuals. Some of the individuals include Thomas Jefferson, John Adams, and Benjamin Franklin. The sketch is surrounded by text that invites the user to read the story of how the *Declaration of Independence* was drafted. The narrative

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from innumerable centres of culture and it is not possible for the modern scriptor to write an individual work that does not reflect his or her place in time.

J. Kristeva, *Desire in Language*, Oxford University Press, Oxford, 1980.

<sup>130</sup> These archives can be either the efforts of private individuals, societies, professional bodies, or selected collections from large and established institutions.

<sup>131</sup> *The Library of Congress*,

<<http://lcweb.loc.gov/exhibits>>

*The National Archive and Records Administration*,

<<http://www.nara.gov>>

contains highlighted hyperlinks to the digital facsimiles of the declaration that are housed at the library.<sup>132</sup>

The first document that is offered in the narrative is a personal letter written by Thomas Jefferson setting out his vision for independence. If we click on the **hyperlink**, we can see a digital facsimile of the document that can be read quite clearly: the colour and stains are evident, as are the other signs of age and richness of the handwriting. After viewing this letter, we can return to the story and choose more options. Another hyperlink leads the user to a fragment of the earliest known draft of *The Declaration of Independence*, written by Jefferson in June 1776.<sup>133</sup> Other links lead to later drafts. For the ending to the story, there is a digitised facsimile of *La Destruction de la Statue Royale a Nouvelle*. This is a print that represents the destruction of the statue of King George III, following the reading of the final draft of the declaration to the US Army on 9 July 1776.<sup>134</sup>

Apart from making documents widely available to a broad audience, this hypertext is able to present the evolution of the text whilst not privileging the final draft itself. The task of making a text public is usually entrusted to the conventional nature of the printed page, whilst the private papers are delegated to the language of research.<sup>135</sup> Printed words are granted the special characteristic of being definite, of being unchangeable, whilst private

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<sup>132</sup> *The Library of Congress*,

<<http://lcweb.loc.gov/exhibits>>

<sup>133</sup> This document also contains an archival citation of where the physical document can be found in the library.

<sup>134</sup> *The Library of Congress*,

<<http://lcweb.loc.gov/exhibits>>

<sup>135</sup> Luca Toshi, "Hypertext and Authorship" in Nunberg (ed.) *op.cit.*, p.200.

words are imbued with the special charm which is associated with creativity in action.<sup>136</sup> This hypertext grants full literary status to the ‘becoming’ of the text and the ‘rough copy’, ‘draft’ and ‘jotting’ which influenced it. By attempting to trace the links between the final text and the creative building site, the final text is given a new dimension of movement and of transformation.

Hypertext is an extraordinarily useful instrument in helping the reader to grasp the progressive coming into being of a text and can link the text with its various layers, each one worthy of being read. This is by no means a simple operation, given the difficulty of identifying the precise moments and chronology of the author’s additions. However, as hypertext is a system of linking, it can create systems of relationships that can be physically brought into being and experimented with. Linking has always been in practice what historians do. Hypertext is a new tool at our disposal that can physically reproduce the virtuality of the links, which paper can only suggest.<sup>137</sup>

The Library of Congress’ web-site is very much for a generalist audience, unlike the National Archives and Records Administration’s site (NARA). This site is multi-layered to provide access to a broad audience, as well as to more specialist audiences. **NARA** is the government agency responsible for storing and overseeing the management of all the US federal government’s documents. It makes available to the public the historically valuable records of all three arms of the government (Executive, Legislative, and

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<sup>136</sup> *Ibid.*, p.200.

<sup>137</sup> *Ibid.*, p.202

Judicial).<sup>138</sup> An index of these records is available on NARA's vast and extraordinarily complex web site, which links to all of NARA's sites around the United States, as well as having links to many affiliated government archives.

For the general public, this site offers comprehensive access to a range of resources. As with the Library of Congress' site, a **visitor's gallery** invites the general user to view documents that have been assembled in analytical narratives. **A People at War** is a story about World War II and contains records from NARA's National Personnel Records Centre. This is aimed at an audience of war veterans. Another interesting option is to link to The Presidential Library System that has categories such as **The George Bush Presidential Library**. If we are enthusiastic about the speeches of this President, we can instantly access written transcripts of all of his speeches during the four years of his presidency.<sup>139</sup>

What sites such as NARA's offer the professional researcher and historian is the ability to search through a large proportion of NARA's collection from anywhere in the world (using catalogues and key-word searches). This may 'speed-up' history making as researchers do not have to go to the archive itself. From one central location an individual can locate a government document anywhere in the United States. Although this site does not make other types of searches obsolete (such as non-computerised catalogues or

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<sup>138</sup> *The National Archive and Records Administration*,  
<<http://www.nara.gov>>

<sup>139</sup> *This George Bush Presidential Library* site also contains digitised selections from presidential diaries, as well as digitised facsimiles of *The United States Constitution* and *The Bill of Rights*. There are also useful sections from *The Privacy Act* and other sources to explain how to cite the records and the rules of access.

physical searches), it does provide a new logistical freedom and epistemological challenge.

If we are, for instance, only interested in visual material, we can link to NARA's *Still Pictures Branch* and either order hard copies from the digital catalogue, or view a selection of on-line digital images. If our area of research was, say, China-US relations, we could search the records from the Nixon presidency (1969-1974) and obtain images of Nixon's famous visit to China. A photo of **President Nixon with Premier Chou En-Lai** (25 February 1972) may be the evidence that we require.<sup>140</sup> We can then download and print this image for use in our work, or we could alternatively provide a direct hyperlink to it from our own hypertext production.

NARA has only digitised a small proportion of its collection and their selection criterion is not completely clear.<sup>141</sup> It seems that only those records that are suitable for a generalist audience have been digitised. This is perhaps an indication that this medium, as with film, is an effective means to capture a popular audience. Large audiences often demand the culturally recognised meta-narratives that NARA's digital collection seems to express.

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<sup>140</sup> <<http://sunsite.unc.edu/lia/president/NixonLibrary/audiovisual/photos/basic/cb.gif>>

<sup>141</sup> NARA has twenty full-time employees working on what is known as the 'Profs. Case'. Over the next two years this group is looking at ways to preserve electronic media from the White House offices by addressing the question: 'How will ready access to essential evidence be provided for these kinds of records?'

*The National Archive and Records Administration*  
<<http://www.nara.gov>>

In terms of audiences, the *Italian Australian Records Project* housed at Victoria University of Technology in Melbourne provides another interesting example.<sup>142</sup> The project aims to collect definitive records relating to the Italian migrant experience in Australia in themes such as work. Many photos in the collection are of Italian migrants working in the cane fields of Northern Queensland, or the Snowy Mountain Scheme in Victoria and New South Wales. There are letters to relatives in Italy telling of their experiences in Australia and detailed diary entries describing their work.<sup>143</sup> These records have not previously been held in official public collections, but are contained within the Italian community itself. If these records are not collected and preserved, the Italian community is in danger of losing them when the older generation of migrants pass away.<sup>144</sup>

Unlike *Flight of Ducks* or the *Australia Street* archives, the *Italian Australian Records Project* plans to use established indexing and archiving principles. It will be more like an archive in the traditional sense, but not simply a ‘filing cabinet’ of stored and indexed material. What hypertext offers for this project is the ability for the material to be arranged in themes or stories as well as the regular archival indexes. This project can combine professional archival contents pages as well as analytical frameworks for a more general audience.

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<sup>142</sup> Personal Interview with Dr. Illma Obrien of *Victoria University of Technology*, Melbourne, 23 October 1996.

<sup>143</sup> Ibid.

<sup>144</sup> An excellent example of a smaller ‘analytical archive’ that is presently on line is offered by Jerome McGann. (A leading scholar of English Romanticism and a world-respected authority on the evolution of scholarly editing principles for the web at *The Institute for Advanced Technology in the Humanities* at *The University of Virginia* in the U.S). McGann has collected and digitised the complete writings and paintings of Dante Gabriel Rossetti, the pre-Raphaelite poet, and painter (1828-1882). He has arranged these within what he terms a ‘hypermedia research archive’.

A digitised photo in this archive could, for instance, be located by a professional historian through a menu-driven search, or it could on the other hand, be contextualised within an interesting historical story. This would make the material more accessible to the Italian community who may not be familiar with navigating a professional archive. As this archive has quite a varied audience, it could be arranged and re-arranged in differing ways depending on who was using it. An older member of the Italian community might want to see the material with stories and analysis, whilst an academic historian might need a particular record independently. It would be possible to ‘criss-cross’ the material so that it could be accessed in a thematic context or via a comprehensive menu-driven index.

The limitation of this archive is determining what is lost through digitisation. Some of the records collected are large and could not be easily reduced without losing some of the quality of the original. This is a problem with The Public Records Office’s CD-ROM called *Buildings and Builders of Victoria*. It uses architectural plans created by the Public Works Department to present a social history snapshot of five Victorian building projects. The plans lack sharp detail that almost renders them useless.<sup>145</sup> Many Web archives likewise, suffer from poor resolution or only display part of the original document. How the *Italian Australia Records Project* plans to digitise three dimensional objects, diaries, large photos, or other objects that cannot be easily viewed through the dimensions of a computer screen, will be a major issue for its co-ordinators.

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<<http://www.jefferson.village.virginia.edu/rosetti/pictures/s244.gif>>

<sup>145</sup> Builders and Buildings of Victoria, CD ROM, Public Records Office, Melbourne (1997-)

The questions that digital archives evoke in terms of selection, access, and preservation are immense, and are somewhat beyond this thesis' emphasis on hypertext authorship. In Australia, the National Library in Canberra initiated its *Pandora Project* in 1994 to address some of these questions. The general aim of the project is to preserve the on-line hypertext works that are deemed to be of 'national significance'.<sup>146</sup> The project co-ordinators have so-far collected one hundred and twenty sites, in which *Flight of Ducks* is included. They hope to classify, preserve, and establish some standard new approaches to archiving.<sup>147</sup> As computer standards are driven by, and indeed jealously protected by, companies such as Microsoft, then archivists and historians alike may increasingly find themselves prey to the dictates of computer commerce.<sup>148</sup>

### iii. Hypertext and the 'Stand Alone' archive

The 'stand alone archive' differs from the 'analytical archive' in that the records that it contains have been placed on-line as independent units without analysis. There are already literally thousands of examples of this, ranging from rare medieval texts to contemporary photographic collections. The *Aga Khan Islamic Architecture Photo Collection* at MIT in the US, for instance, contains 30 000 images of important Muslim

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see also <<http://www.vicnet.net.au/~provic/>>

<sup>146</sup> Jenny Sinclair, "National Library Sorts the Net", in *The Age*, 18 February 1997, p.D5.

See: *The National Library of Australia, Pandora Project*,

<<http://www.nla.gov.au/policy/plan/pandora.html>>

<sup>147</sup> The archiving of material is a great risk, particularly given the lack of, and changing standards in the computer industry. No one has the answer to how electronic material will be accessed in twenty five years time, and high levels of co-operation on a global scale are needed to ensure access is still available for future researchers.

Gerry Byrne "Time Running Out for the Future of History", in *The Daily Telegraph*, Tuesday October 1, 1996, pp.17-18.

<sup>148</sup> See Bill Gates, "Friction Free Capitalism" *op.cit.*, p.157-183.

religious sites.<sup>149</sup> The **Mitchell Library** in Sydney has also digitised a selection of its photographic collection, which is arguably the nation's largest and most important.<sup>150</sup>

For the hypertext history author, this material creates the substructure of the disciplinary methodology. If an intrepid historian was to construct an on-line hypertext history of Yemen, for instance, then it would be easy to provide a direct hyperlink within the text (or within the footnotes) to display one of the images held at MIT's collection of the *Great Mosque-Sana*.<sup>151</sup> An author interested in the history of Australian transport, for instance, would only need to include the hyperlink to the Universal Resource Locator (URL) <http://www.slsw.gov.au/ml/pictures/train.jpg> in their hypertext, and the reader of their work would be able to access an archival image of the steam train used in the south-west Rocks district of Sydney earlier this century (Circa 1908).<sup>152</sup>

A 'stand alone' archive with thousands of on-line images invites thousands of individual electronic pointers to be made to these images.<sup>153</sup> If a hypertext author was to attempt a

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<sup>149</sup> This site can be found through the frames system at *Horus History Links Maintained by The University of California Riverside, (1997),*

<<http://www.ucr.edu/h-gig/horuslinks.html>>

<sup>150</sup> *The State Library of New South Wales (Mitchell Library),*

<<http://www.slsw.gov.au/slsw.html>>

<sup>151</sup> *Aga Khan Islamic Architecture Photo Collection*

*Horus History Links: Maintained by The University of California Riverside, (1997-),*

<<http://www.ucr.edu/h-gig/horuslinks.html>>

<sup>152</sup> *The State Library of New South Wales* is testing a system called the Visual Service Broker that is set to provide greater access to its collection of historical images. The visual services broker will allow users to browse through a number of image databases and request either the image be sent to them, or in the case of an on-line hypertext history, a link can simply be built to the image. The new digital archive will supply photos, text, video, and sound.

See: John Brian (Chairman), Networking Australia's Future: The Final Report of the Broad Band Services Expert Group, Australian Government Publishing Services, Canberra, December 1994, p.17.

<sup>153</sup> It must be remembered that the web at the present time is in its infancy and many advanced features have not yet been realised. A term called 'translution', coined by Ted Nelson, allows the user to view all the links that are connected to a particular document. There are already web servers that allow this to be done, such as the *Xanadu* derivatives Hyper-G and HyperWave. A historian could theoretically view

comparative history of, say, institutional racism in universities against Chinese from 1960-1970, then a selective search on the Web may find archival evidence in France, Australia, Italy, and California. The author would not have to go to the archives, write to them or, for geographical and economic reasons, restrain the field of their study to a particular country. The author could conduct a search using sites such as NARA's to discover what digital evidence is available to support the thesis. This may be a document on university enrolments, political representations, or evidence of Chinese access to financial support. After finding out the accessibility and the appropriateness for the thesis, the author could start building an on-line hypertext narrative.<sup>154</sup>

The important considerations of this approach are determining what is available in the medium and deciding if the Web is the appropriate medium to express the argument in the first place. It may be the case that there are very few digital records available, and a book, or even a film, may be a better medium to define the topic. The Web lends itself to the visual, so perhaps it would be a more suitable medium to portray 'visual constructions of racism' rather than an argument that needs to be threshed out using dense textual prose. The author would have to decide why they are using hypertext, from a choice of various mediums, and even more importantly, imagine an audience. Perhaps it is the case that for a particular audience, the Web is the only vehicle available to make explicit certain historical knowledge.

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important images of, for instance, the 1984 Ethiopian famine, follow the links to these images and research how they have been used over time.

see: *Xanadu Australia Pty. Ltd.*  
<<http://www.xanadu.com.au>>

#### iv. Pointing the Way

Discovering what is available within either on-line ‘analytical archives’ or ‘stand alone’ archives is a great challenge facing the hypertext author. The more thoroughly we are trained to research in a library or archive, the less likely we are to appreciate the difficulties facing previous scholars. The pre-Gutenberg scribes, for instance, had access to an assortment of written records, but lacked uniform chronologies, maps, databases, and all the other reference guides that are now in common use.<sup>155</sup> Finding a book or CD-ROM in a library is easy because it is indexed according to an international standard system, but locating an item on the web can be difficult because the standardisation and order that we expect of a library, does not prevail in the digital domain.

One the most prevalent criticisms directed at the Web by scholars from all disciplines is that it is difficult to locate information. Many claim that because the Web is chaotic, it should be ordered and regulated.<sup>156</sup> This is a reasonable request, but it is also a projection onto the Web of expectations that are more at home on the ordered pages of a printed book.<sup>157</sup> The Web is not a collection of books with neatly defined parameters and authors, but is instead a chaotic arrangement of millions of ‘authors’ and readers. The authors of the Web reflect the most progressive as well the most brutally conservative, the most intellectually challenging as well as the most banal elements of our society. It is a political space, just as television, newspapers are, and it cannot be simply controlled nor

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<sup>154</sup> For a detailed account of on-line research methods see:  
Randy Reddick and Elliot King, *The Online Student* (1996), pp.161-179.

<sup>155</sup> Eisenstein, *op.cit* p.7

<sup>156</sup> See debate on H-ANZAU 28 February 1997-5 March 1997 ‘Finding Historians on the Web’,  
use key word search on:

<<http://www.unimelb.edu.au/infoserv>>

<sup>157</sup> Ibid.

standardised from any singular point. It is a mixture of public and private space and reflects the battle over status and political ideology that exists in the world in which it is contained.<sup>158</sup>

The library attempts to control knowledge and structure knowledge into its conceptual and physical structure.<sup>159</sup> The call numbers in a library map the knowledge into floors, stacks, and shelves. When we enter a library, we enter a large space where knowledge can be arranged into smaller book spaces. However, on the Web, there is no shelf-space called 'history' and knowledge must be arranged differently. The Web is designed to have no centre and the ability to find something has less to do with centralised indexing and more to do with networking.<sup>160</sup> A researcher is expected to be abreast of their field and be aware of the developments in research, no matter where they may be in the world. A newly published history book is expected to 'fit-in', to slot into the stack of books we

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<sup>158</sup> Barry Jones coined the phrase 'information rich and information poor' in his influential 1986 book *Sleepers Wake*. In this book he alerts his readers to the dangers of social stratification within a society where access to 'information' has become the primary means in which an individual facilitates economic and social mobility.

Barry Jones, *Sleepers Wake: Australia as a Post-Industrial Society*, Melbourne, Oxford University Press, 1982.

<sup>159</sup> Bolter, *op.cit.*, p.100.

<sup>160</sup> An excellent example of a site set up to aid historians in finding material on the web is *Horus Links* that is housed at The University of California, Riverside (UCR). It is a collection of over 3500 history web sites from around the world. This site has a well-constructed graphical interface that invites the user to enter through a Roman archway. Once the user is in the site, they have access to a range of indexes and maps to help locate historical resources. *Horus Links* is fairly rigorous in selecting the sites that it contains and applicants must go through a peer-review process. If a new site is accepted then it is indexed and placed in the catalogue. There are other examples of web based indexes, such as *The History and Computing Association* in the Netherlands and *The George Mason University, Centre for History and New Media* in the US, but their selection criteria seems to be fairly lax and idiosyncratic. Many history pointers on the web tend to be the personal favourites of one individual, or they provide links to sites that can only be loosely defined as history.

*Horus History Links* at the University of California, Riverside,

<<http://www.ucr.edu/h-gig/horuslinks.html>>

see also: *Association for History and Computing*,

<<http://grid.let.rug.nl/ahc/welcome.html>>

and *The George Mason University: Centre for History and New Media*,

<<http://www.gmu.edu.chnm/>>

call humanism.<sup>161</sup> There is no reason that a good hypertext production cannot do the same. It should provide the programmable links to the current and most important hypertext sites and evidence in the field. It should also contextualise and synthesise these into its own hypertext narrative. In this way, knowledge can progress on the Web and not be doomed to be constantly re-invented in isolation.<sup>162</sup>

#### **v. A Template for the Future**

The idea that there can be such a thing as scholarly and humanistic progress on the Web, is complicated by the fact that the author of a hypertext can continue to expand and change their work. Unlike a book, there is no final draft in hypertext as it is always open to manipulation. *Flight of Ducks*, for instance, only ends when Pockley decides it no longer deserves his efforts. It could be saved and placed on a CD-ROM, but by doing this, the hypertext would no longer live with the author. Pockley states that his present work bares virtually no resemblance to the original *Fight of Ducks*, and even the present

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<sup>161</sup> Footnoting is the usual way of making the reader aware of where the book positions itself in relation to the secondary books and the primary archival evidence that the historian has used. The physical, closed nature of a book creates the illusion that the book is original and unique and the responsibility of the text contained within rests with the single authority of the author. The conceptual space of a printed book is one that is stable and controlled exclusively by the author. It is a space that is defined by standard printed volumes that exist in thousands of printed copies. Hypertext, on the other hand, is a space that is characterised by fluidity and a physical interaction between the author and reader. Bolter, *op.cit.*, p.11.

<sup>162</sup> The printed book encourages the reader to think of it as an organic whole, a unit that is separate both physically and intellectually from all other books. An historian, when working within the book medium, must stress textual independence and define where this text places itself in relation to other historical texts. As with the concept of an author, this is part of the humanist tradition that has been the subject of many debates between the historical profession and the French derived critical theorists since the late 1960's. The critical theorists stress through ideas of genre, discourse, and intertextuality, that the borders of the book cannot define the boundaries of a work. Derrida speaks of the 'marginality' of the text extending beyond the borders whilst Barthes stresses that all texts are forever written in the here and now Jacques Derrida, *De La Grammatologie*. Paris: Les Editions de Minuit, 1967, *Of Grammatology*, Translated by Gayatri Spivak, Baltimore, John Hopkins University Press, 1976, p.83.

award winning work will probably change beyond recognition over time.<sup>163</sup> Providing institutional storage and access for a work that in effect never ends, is one of the complex issues that confront members of *The Pandora Project*.<sup>164</sup>

For large multi-authored hypertexts, like *Australia Street Archive*, that have numerous contributors, it is important to have a strong thematic template in the first instance with some vision of how the archive will develop over time. Alan Mayne of the University of Melbourne, provides a good example of this in a project that will assist students at a local primary school to construct and maintain their own hypertext archive.<sup>165</sup>

Mayne and the other project co-ordinators are using hypertext to explore the history of the Carlton North Primary School and surrounding community in central Melbourne.<sup>166</sup> The school's site is of historical significance as it was at first a convict stockade, then it was converted to one of Melbourne's first asylums, and then it became a primary school in 1873.<sup>167</sup> For generations of Carlton residents, many of them Jewish and Italian immigrants, this site has served as an important community reference point.

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<sup>163</sup> Simon Pockley 'Lest We Forget' an essay about the proposed institutional storing of his work which can be found at *Flight of Ducks.*, in (**research**),

<<http://www.cinemedia.net/FOD/>>

<sup>164</sup> *The National Library of Australia, Pandora Project*,

<<http://www.nla.gov.au/policy/plan/pandora.html>>

<sup>165</sup> Much of this information was taken from Dr. Alan Mayne Department of History, Melbourne University, and Henry Linger, Lecturer, Department of Information Systems, Monash University's application to *The Australia Foundation* for funding for this project. Flow charts developed by *Gyro Interactive*, the Melbourne-based information technology company involved in the project, have been helpful. (10<sup>th</sup> April, 1997).

<sup>166</sup> Ibid.

<sup>167</sup> Ibid.

This 'analytical archive' contains text, graphics, three-dimensional animation, video, and sound. This is probably its chief significance as few Web projects carry so much audio material. A template will allow students to explore themes such as **the community**, historical **landmarks**, and **the school**. The students will then be able to investigate, interpret, debate, and add within the parameters set by Mayne and the primary school teachers. The students will be able to 'journey into the past' through digital representations of local buildings, send e-mail comments, add their own family photos and records, or even add their own individual web-site that refers to, or consist of impressions of the school's site.<sup>168</sup> The impressions can include a written narrative, art work, digitised photos, or perhaps even an oral report. This data could then be manipulated by other classes in later years to suit their particular historical questions.

*The Carlton North Primary School Project* is an 'analytical archive' that has been assembled within the distinct narrative frameworks deemed useful by the original authors. The archive can grow within these parameters. The important consideration here is that the project must have the in-built ability to remain relevant both in terms of the message and the medium. Even though this is an 'evolving archive' with strong authorial and analytical frameworks, the evolution of the medium must also be considered. The medium and the message cannot be easily separated and if the technological construction of the project is too advanced for young hack historians, then they will not develop the ability to question the medium as well as the historical message that is intertwined. Hypertext can be an acutely unstable medium that requires a great deal of technological

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<sup>168</sup> Ibid.

input. If technological skills have to be constantly out-sourced then a project can become unwieldy and exceedingly expensive.<sup>169</sup>

Hypertext archives are built on shifting sands and how they move, where they move and indeed who moves them must be a central consideration of their original authors. Paper archives are more durable as they have the advantage of the nature of paper's physical support. Hypertext though, is an immediately appealing means of communication, and may provide a solution for the archiving and presentation of the digital material of an increasingly digital society.<sup>170</sup>

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<sup>169</sup> Programming for this site by Gyro Interactive is \$500.00 per day.

<sup>170</sup> Lucia Toschi, "Hypertext and Authorship" in Nunberg, Op.Cit., p.172.

### **Chapter Three: Hypertext and Publishing**

#### **i. To Make Generally Known**

The hypertext author not only intersects with the digital archival in a new way, but challenges the role of the publisher as the gate keeper of authored knowledge.<sup>171</sup> The explosion in self-publication facilitated by inexpensive digital copying as well as the legally hazy notion of an on-line author is causing the relationships between the author and the publisher to be re-examined. Nearly all the hypertext works cited in this thesis (and including my own), have been placed on-line with no mediation by publishers and inadequate copyright legislation to protect the works from ‘creative plagiarism’.<sup>172</sup> Even considering that hypertext is a new medium, it still cannot have a similar intellectual value to print until it develops its own pertinent set of publication procedures.

The publishing industry adds value to a printed work in a number of ways that include design, editing, peer review, and a complex apparatus of distribution.<sup>173</sup> Design adds to the aesthetic appeal as well as establishing the effective navigational aids, such as indexes and contents pages. Editing is important as there are often stylistic and communication problems in one’s work that can only be recognised with the aid of a professional. And

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<sup>171</sup> The hypertext author also challenges the three hundred-year-old copyright legislation that is at the very foundation of the flourishing book and journal industries. This was in England in 1709 by Queen Anne and is: *The Act for the Encouragement of Learning by Vesting Copies of Printed Books in Authors*. Michael Fraser, “Intellectual Property in Australia: Libraries and Copyright” in Mulvaney and Steele, *op.cit.*, p.215.

<sup>172</sup> It is copyright law that creates the monetary value of a book or journal, without it an author cannot be financially remunerated.

Ibid.

<sup>173</sup> Barnett, *Op. Cit.*, p.26.

peer reviewing ensures that the books featured in university courses have the content and framework that are suitable for a broad university audience.<sup>174</sup>

A draft of a history book to be published is normally sent to a number of historians in a particular speciality field for comments and criticism. This is an important type of input for both the author and publisher, as the publisher uses this response for marketing and editorial changes that facilitate further drafts by the author.<sup>175</sup> The imprint of the publisher is a sign that the book has added value based on its previous experience and reputation. It is a sign that the book is of high quality and adheres to contemporary intellectual standards.<sup>176</sup>

Publishing on the web is generally being developed in two broad directions. There are those, such as Colin Steele, Australian National University's (ANU) chief librarian, who propose systems where previously published rare or esoteric books could be placed on-line and down-loaded by readers.<sup>177</sup> And there are networks, such as **H-Net**, **CompuServe**, and **Microsoft Network** (MSN) that are making things 'generally known' in different ways.<sup>178</sup> The first type of publishing is a common use of the Web but is by far the least useful. In terms of utilising the potential of the Web as a new medium or in

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<sup>174</sup> Ibid.

<sup>175</sup> CD-ROMs often go through a similar process. *Allan and Unwin* conducted the peer review of *Dispossessed Diggers and Democrats, 1788-1888. (1996).*

<sup>176</sup> Barnett, op.cit., p.26.

<sup>177</sup> This is at a fee and is proposed to save on expensive small print runs and to keep works available that would have otherwise gone out of print.

Colin Steele in an unpublished paper given at the *Academic Life on the Electronic Frontier* conference, Wilkinson Theatre, School of Architecture, The University of Sydney, 25 May 1996.

<sup>178</sup> The basic definition of publishing is to 'make generally known'

J.B.Sykes, (Ed.), The Concise Oxford Dictionary of Current English, The Clarendon Press, Oxford, 1985, p.832

terms of adding value to the already established publishing process, the placement of print-medium material on-line is a fruitless form of appropriation.

An example of this is the much publicised work of Michael S Hart of the University of Illinois. For the past twenty-five years he has been the co-ordinator of a large project to digitise many of the classics and place them on-line. It is called *Project Gutenberg* and has over eight hundred previously published books digitised. The project now has seven hundred volunteer typists and scanners who together average a book a day. The goal is to have 10,000 books on-line by the year 2001.<sup>179</sup>

Lately there have been serious misgivings about the project and many of the funds have been withdrawn. Critics are not sure about the user community, what they will use it for, or whether they will read it on-screen or print it out. As far as reading goes, many new-media specialists agree that most people do not want to read books on a computer screen and printing out whole texts is time-consuming and expensive. Buying a book or borrowing it from a library would seem to be a far more effective way to gain access to and read these works.<sup>180</sup>

There are likewise a number of similar local examples being considered at the moment. Melbourne's Monash and LaTrobe Universities have undertaken large projects to place all their departmental teaching materials (DTMs) on the Web. In addition, the Australian

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<sup>179</sup> Robin Frost, "The Electronic Gutenberg Fails to Win Mass Appeal" The Wall Street Journal, New York, 21 November 1996, p. B12.

See: *Project Gutenberg*

<<http://www.promo.net/pg/>>

National University has embarked on a program of placing all its journal articles and photocopied chapters previously held on reserve, on-line.<sup>181</sup> Due to Australia's unique Copyright Act that was amended in 1981, following the Franki Report, educational institutions have the statutory privilege to copy works without obtaining permission from copyright owners.<sup>182</sup> What authors are faced with now is the prospect of their work being stored and transmitted to a distant site, and reproduced and manipulated completely outside of the copyright owner's control.

Libraries do have a clear role to provide free use of material for its users, but surely they also have a role to protect the interests of the authors who provide their work?<sup>183</sup> At what point do libraries become on-line publishers, how are royalties collected for electronic use, and how is the intellectual integrity of the work that was designed for a completely different context, preserved? Some may argue that there are many logistical advantages to schemes such as this, but given the immense complexity of these questions and the serious attack upon the hard won rights of authors, this is hardly a form of progress. The simple solution to many of these issues would be to leave books alone and preserve the effective solution to the free flow of knowledge that has served us well for many centuries.

## **ii. Self-publishing**

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<sup>180</sup> Ibid.

<sup>181</sup> Bruce Allardice, "Photocopying, Anthologising and Campus Bookselling" in McCalman, Op.Cit., p.72.

<sup>182</sup> Fraser, op.cit., p.216.

<sup>183</sup> Ibid.

Self-publishing is championed by many as the Web's greatest benefit but one must also ask: how valuable is this knowledge within the academic institution? As with the Web-based 'post-publishing' of DTMs, self-publishing invites a great deal of uncertainty. An individual author who self-publishes on the Web retains the risk and marginality of similar independent works in other media. However, the enormity of the web with its ease of self-publication will assure that independent works will remain marginal without some sort of sanctioning and promotion.

Much of the debate surrounding Web-based self-publishing is revealed in an article published by Dr Ron LaPorte in the prestigious *British Medical Journal*.<sup>184</sup> The article, provocatively entitled 'The Death of Biomedical Journals', details the inadequacies within the current biomedical periodical structure and promotes a new system called **The Global Health Information Server**.<sup>185</sup> The server is to aid in the distribution and exchange of biomedical research by eliminating journals in favour of electronic archiving of revisable self-published papers: Readers comment upon the papers post hoc which is an innovative form of peer-review.<sup>186</sup> LaPorte claims that this system is a radical

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<sup>184</sup> Ronald E LaPorte (et.al) "The Death of Biomedical Journals", 310 *British Medical Journal* 1387 (1995) as quoted by Bernard Hibbitts, in "Last Writes? Re-assessing the Law Review in the Age of Cyberspace", Pittsburgh, (1996),

<<http://www.law.pitt.edu/hibbitts>>

<sup>185</sup> *Selected Papers of Dr Ron LaPorte, The Global Health Information Server.*

<<http://www.pitt.edu/~rlaporte/ref3.html>>

An example from the profession of history is *The historical Text Archive*. It was set up in 1990 as an anonymous FTP site (File Transfer Protocol) in the response to the need for historians to have an electronic storage and retrieval site, and to demonstrate the advantages of such sites for the study and teaching of history. The site contains subject areas such as African, Australian and Canadian history and has articles, pedagogical resources, course outlines and links to other history web servers and departments.

See: *The historical Text Archive*,

<<http://www.mssstate.edu/archives/history/index.html>>.

<sup>186</sup> Bernard Hibbitts, in "Last Writes? Re-assessing the Law Review in the Age of Cyberspace, Pittsburgh, (1996)

<<http://www.law.pitt.edu/hibbitts>>

liberating change as ‘it is time that scientists begin to take control of their own research communications’.<sup>187</sup>

LaPorte’s proposal prompted a spirited response from the editors of the equally prestigious *New England Journal of Medicine*. The editors argued that the lack of preliminary peer-review in this form of publishing threatened the lives of patients whose doctors read inadequately-reviewed literature.<sup>188</sup> The journal moved to stifle any migration to this system by threatening that ‘posting a manuscript on a system such as this constitutes prior publication and will render an article ineligible for publication by the journal itself’.<sup>189</sup>

Bernard Hibbitts, a professor of Law at the University of Pittsburgh, provides another interesting example. In an extensive article distributed on **H-MEDIA**, Hibbitts vehemently champions the abolition of print-based journals in the US legal profession.<sup>190</sup> He argued that journals should be faded-out as editors have too much control and the peer-review process is a ‘bottle neck’ rather than a value-adding system. He states that the student editors who run most legal journals are unqualified for such a task and that editing a journal is more a distraction for the students rather than a form of learning. He

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<sup>187</sup> Ibid.

<sup>188</sup> Quoted by Bernard Hibbitts, in “Last Writes? Re-assessing the Law Review in the Age of Cyberspace, Pittsburgh, (1996) <<http://www.law.pitt.edu/hibbitts>> from “The Internet and the Journal”, 332 New England Journal of Medicine, 1709 (1995).

<sup>189</sup> Ibid.

<sup>190</sup> Ibid.

advocates a system where the individual legal professional could self-publish academic articles then build links to the work from a departmental home page.<sup>191</sup>

By examining in detail the quality of Hibbitts' article, many of the limitations of the self-publishing argument can be revealed. The article is very rich in ideas and has a well-researched background to the history of journals—both generally and in the Legal profession in the United States—but there are some serious problems in the argument. His thesis lacks substantial evidence to support his assertions and there are numerous contradictions.

On the one hand, Hibbitts claims that it is difficult to get an article in a journal because they are often 'filled up'—months or even years in advance—and then a few pages later he claims that electronic publishing is more effective because in print, articles often only act as a space 'filler'.<sup>192</sup> His entire argument seems to rest on the assertion that there are too many print-journals and that the number of complaints directed at these journals is growing. However, the evidence Professor Hibbitts uses to highlight this 'problem' are a few idiosyncratic complaints based on his own personal experience. These complaints could not possibly be representative of the entire journal system nor justify its replacement.<sup>193</sup> A stronger emphasis on quantitative research and a good editor would result in a paper that is of a much higher intellectual value.

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<sup>191</sup> Bernard Hibbitts, in "Last Writes? Re-assessing the Law Review in the Age of Cyberspace", Pittsburgh, (1996)

<<http://www.law.pitt.edu/hibbitts>>

<sup>192</sup> Ibid.

The idea that self-publishing is freeing the slaves is simply a disguise for an exercise in power that does not benefit the broader community at large.<sup>194</sup> Publishers may be profit-driven and thus require recovery of their investment, but the industry usually attracts people who are interested in ideas as well as the construction of culture.<sup>195</sup> If academics and historians were to control their own distribution of academic monologues, then the quality of such works would be greatly diminished. Publishers—as are academics—are quite clearly concerned with the process of exploring educational strategies as well as socially important scholarship.<sup>196</sup> The electronic alternative that bypasses the publishing industry and any other institutional form is unattractive to those of us interested in the free flow of information.<sup>197</sup> Freedom of information does not necessarily mean information for free.<sup>198</sup>

### **iii. The E-Journal**

The electronic journal is one way in which academics have sought to provide a quality refereed space on the net, but again this innovation appropriates too heavily from print. Many e-journals have thus far failed to address some of the realities of the technology by simply adopting print-based conceptual frameworks and practices. They often look the same as a print journal, they have similar articles, and they are launched periodically in a similar way. Apart from the ‘freedom’ argument—that is in itself quite unconvincing—the e-journal is no great leap forward.

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<sup>193</sup> Ibid.

<sup>194</sup> Fox, op.cit. p.126.

<sup>195</sup> Ibid., p.115.

<sup>196</sup> Ibid.

The cautiously titled *Electronic Journal of Australian and New Zealand History* is the first e-journal specifically directed at historians in this region. However, the journal's focus is upon conventional historical articles that do not as yet effectively introduce historians to a new media perspective.<sup>199</sup> Likewise *The Australian Humanities Review* produced by La Trobe University in Melbourne contains scholarly articles that are in direct competition with print journals.<sup>200</sup> Some e-journal editors are experimenting with the technology in a small way but they are still quite new-medium resistant.

*Globe-E*, for instance, is an art-criticism magazine produced by Monash University in Melbourne.<sup>201</sup> One would suspect that a magazine that is situated in a discipline that supposedly values experimentation and creativity would provide a platform for hypertextual works. However, its editor Robert Schubert will not include new media productions because he claims the technology is 'not that sophisticated'.<sup>202</sup> Surely the way in which the technology will become more sophisticated is through the promotion of innovative works within the space for which they were designed?

One exceptional e-journal is published by North Carolina State University and the University of Virginia's Institute for Advanced Technology in the Humanities.<sup>203</sup>

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<sup>197</sup> Fraser, *op.cit.*, p.217.

<sup>198</sup> *Ibid.*

<sup>199</sup> *The Electronic Journal of Australian and New Zealand History*,  
<<http://www.jcu.edu.au/aff/history/home.htm>>.

<sup>200</sup> *The Australian Humanities Review*,  
<<http://www.lib.latrobe.edu.au/AHR>>

<sup>201</sup> *E-Globe Magazine*,  
<<http://www.arts.monash.edu.au/visarts/globe/ips0.html>>

<sup>202</sup> As Quoted by Robert Schubert in a guest lecture, in *Hypertextuality: Writing and Self-Publishing in the Electronic Age*, Department of English, The University of Melbourne, 16 September 1997.

<sup>203</sup> *Postmodern Culture*,  
<<http://www.village.virginia.edu/pmc/contents/all.html>>

*Postmodern Culture* was the world's first fully refereed e-journal and has built a strong reputation for quality and for pioneering electronic scholarship.<sup>204</sup> It still contains articles that would be more at home in the printed page, but the contributors and editors of this journal are much more self-conscious that the medium and the message cannot be readily separated.<sup>205</sup> For instance the September 1996 issue contained a 'hyperfiction' called *Trip* that is an animated story of a man's journey across America. It has many choices for interaction with maps and icons that represent narrative diversions.<sup>206</sup>

The e-journal is a promising start to providing a space on-line for the hypertext history author, and the user of this space can have some assurance that it has added value. The success of e-journals will probably be based on their ability to experiment with the new technology and their ability to distance themselves from print. If they do not then they may find it difficult to convince a public of their benefits. Just as there is little or no benefit in watching television on a computer monitor, there is equally little to be gained by reading computer-mediating text that was designed for a book.

#### **iv. H-Net**

By looking beyond the cover of the book, it would seem that the most effective way that historians and academics can 'make generally known' on the World Wide Web is by utilising the potential of some of its most salient features. The Web is a system of

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<sup>204</sup> Bernard Hibbitts, "Last Writes? Re-assessing the Law Review in the Age of Cyberspace, Pittsburgh, (1996)

<<http://www.law.pitt.edu/hibbitts>>

<sup>205</sup> *Postmodern Culture* ingenuously numbers all their paragraphs. Reading scholarly articles on a computer screen is a scroll action very different to the page-numbered progress obtained through reading a book.

<sup>206</sup> "Trip" by Mathew Miller, (1996).  
*Postmodern Culture*,

linkages and of networks so projects that take advantage of this will necessarily provide the most workable egression.

H-Net is an excellent example. **H-NET** is an international network of academic historians who exchange text on the World Wide Web. It is primarily a forum for historians to 'discuss' history within particular geographical regions or epistemological frameworks. H-Net was created in 1992 by Professor Richard Jensen and two graduate students in the history department of the University of Illinois, Chicago (UIC).<sup>207</sup> It was designed as a communications tool for distant discussion between scholars and to aid in the broadcast of information. It operates through the e-mail system that has been in common use in universities for a number of years.<sup>208</sup>

Individuals subscribe to H-Net through sending an e-mail survey to the list moderators, who then confirm the details and add the individual to the list. The lists are only open to individuals with the relevant qualifications and professional interests. Once the applicant has been accepted, they can post messages via e-mail that are then sent to the list moderator. The list moderator (or editor) checks the e-mail to see if it is the appropriate subject matter for the list. The moderator then edits and posts the e-mail to all the subscribers who may receive new messages numerous times during the day.

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<<http://www.village.virginia.edu/pmc/contents/all.html>>

<sup>207</sup> Alan Mayne, 'The Internet and the Historian' in E.Gow and J.Edwards, (eds.) Cause '94 in Australasia: Information Resources In Australasia, Bundoora, 1994, p.192.

<sup>208</sup> Ibid.

H-Net currently has around eighty lists and an international membership of over 60,000.<sup>209</sup> Lists concentrate on many areas of history including a number devoted to related fields in the humanities and social sciences. **H-MMEDIA** is focused on teaching with new technology whilst **H-ANZAU** is the history list of Aotearoa New Zealand and Australian history.<sup>210</sup> H-ANZAU is open to professionals such as academic historians, schoolteachers, post-graduate students, and archivists. Members of the list can post questions about research, invitations to submit papers, comments on contemporary political issues or general comments concerning any part of the list or the history profession within Australia and New Zealand. It is not unusual for an individual to post an inquiry asking where certain sources can be found and then receive numerous answers in the same day. The nature of the messages on the lists can fluctuate between the conversational or chatty, to the well-written and considered monologues that normally appear in published form.

A personal approach is the feature that most sharply distinguishes H-Net discussion lists from the formal discourse of print. The contributors do not speak as authors to an anonymous public but rather in a form of conversation between participants.<sup>211</sup> Contributors often address one another directly, which is a style alien to print journals.<sup>212</sup> This style of argument, unlike traditional historical discourse, admits the personal, the anecdotal, and the subjective.

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<sup>209</sup> The lists post 150000 messages per day.  
*Humanities and Social Sciences On-Line*,

<<http://www.h-net.msu.edu>>

<sup>210</sup> Ibid.

Australia is a vast continent with population centres in all corners of the country, and the Web in this instance is facilitating greater communication within the profession. H-Net dramatically speeds up scholarly communication and creates new collaborative forms of it. Most of this publication is ephemeral, but it is widely available and easily archived in permanent form.<sup>213</sup> The rules of our intellectual culture, particularly those that define intellectual property and authorship, do not often recognise that most intellectual endeavours involve collaboration.<sup>214</sup>

The future of computer mediated publication is dependent on elements of humanness that no technology can ever replicate. As we become less and less connected to local communities and increasingly involved in virtual communities, we stretch the intimacy of personal communication over longer and even more complex pathways.<sup>215</sup> We make ourselves more vulnerable to surveillance as the authority of our text can be instantly and

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<sup>211</sup> Nunberg, *op.cit.*, p.132.

<sup>212</sup> *Ibid.*

<sup>213</sup> Electronic bulletin boards take the principle of multi-authorship even further than *Australia Street* or *The Carlton North Primary School Project*. H-Net allows hundreds of participants from distant locations to exchange texts and questions and move quickly between the role of reader and writer. They are contributing to a text with hundreds of authors and as many different narrative diversions. This evolving text is stored on a server and any part of the narrative 'thread' can later be searched out and retrieved by the use of 'key words'. A list member may, for instance, be interested in finding information about the Fergusson digitisation project (that they may vaguely recall was discussed on the list some time ago) and then all they need to do is go to the home page of the list, enter the appropriate time period, enter the search word **Fergusson** and all the messages previously posted to the list will be displayed. The messages may provide information as to the background of the project or provide a pointer as to where the project can actually be found on the web.

*See. The Australian Information Server in History and the Humanities (AISSH),*

<<http://www.unimelb.edu.au/infoserv>>

<sup>214</sup> As Elizabeth Eisenstein and Foucault point out, the book technology and the institutions that support it, create exaggerated notions of authorial individuality and uniqueness. These notions would not be possible without the physically separate, fixed text of the printed book. In the sciences, a work can have a number of authors as many research tasks are beyond the capacities of any one individual. It is not unusual for a paper on biotechnology to have forty authors.

George P Landow, (Ed) *Hyper/Text/Theory*, John Hopkins Press, Baltimore, 1994, p.91.

<sup>215</sup> David Rokeby "Transforming Mirrors: Subjectivity and Control in Interactive Media" in Simon Penny (Ed.) *Critical Issues in Electronic Media*, State University of New York Press, Albany, 1995, p143

brutally challenged from any geographical locale. Our text is always being recorded and scrutinised which hardly invites creativity or experimentation. Thus the nature of discussion on many lists can be as reserved and conservative as the stilted conversation usually contained within sandstone walls.

## **Conclusion**

### **i.**

There was once a convention of starting a film by showing the pages of a book being turned. The convention belongs to movies of the thirties and forties but is hardly ever used today.<sup>216</sup> The new digital medium called hypertext has a patchy and disparate usage and a loose set of words and concepts to describe it. What I have attempted to show in this thesis is that it can be used as an effective medium to promote history through addressing particular historical questions that other media cannot. I have endeavoured to explain historical authorship in this new medium in an excursion to explore some of the advantages and disadvantages of hypertext as a history tool.

Print is easily the most important medium in terms of the proportion of education delivered this way; it is the easiest to design through a single author, to produce through established publishing mechanisms and to deliver through bookshops and libraries. However, with rapid technological and communication changes, no one medium is singularly capable of supporting a pedagogical approach to history making. Effective academic learning can only take place with the integration of various media.<sup>217</sup> We cannot continue to take it for granted that our audience will continue to gather their understandings about the past through books the size of telephone directories, and about as interesting to read.

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<sup>216</sup> Jay David Bolter, "Ekphrasis, Virtual Reality and the Future of Writing" in Nunberg, op.cit., p.266.

<sup>217</sup> Fox, op.cit., p.119.

With hypertext the page can, at least physically, be far more complex than it is when it is simply printed. The basic elements of the page, how they are shared with other texts, and how they contribute meaning to the original text take on a whole new level of sophistication. A hypertext page can combine video, audio, text, and graphics and can facilitate a reader response where the user can directly question the 'author-ity' of the author. Hypertext disrupts the exclusivity of text and fosters an intertextual web of relationships. Hypertext is a lateral departure from previous mediums and provides the historian with a whole new set of tools to explore, explain, and understand the past.

As we saw in *Angledool Stories*, the hypertext author can construct a project that can be navigated in a number of ways by the user. The user accepts part of the responsibility for navigating the narrative and thus becomes in part an 'author'. In *The Australia Street Archive*, the Web takes this even further as the reader is able directly to comment upon the hypertext production. 'Author-ity' in hypertext is generally less than a book, but takes on new forms. The 'author' can either loosely create narrative paths for the user to follow, or construct them in a much more controlling fashion. A strong authorial control is exercised within the CD-ROM: *Dispossessed, Diggers, and Democrats 1788-1888*.

How an author contains and concludes a narrative is seriously modified in hypertext. In *Flashback*, navigational frameworks have been constructed to direct the user to a particular set of interpretations. This is achieved through deploying narrative techniques that are common in print or film, and by programming navigational directives. A hypertext can be navigated in a 'criss-crossed' fashion that promotes multiple viewpoints

without privileging any one particular viewpoint. The beginning of a hypertext can be a user-initiated question and an ending can be reached when this or other questions are answered.

*Flight of Ducks* shows how the hypertext history author can effectively use story as a navigational device. Stories are valuable in a medium that puts extraordinary strains on the reader. *Flight of Ducks* is navigated by the interaction with the graphical representation of ducks and camels. These icons form part of the narrative and compel the reader to move forward to gather historical knowledge. The ducks and camels are part of the programming of the hypertext; thus interweave the medium and the message. Just as indexing, chapters, contents pages, and pagination form part of the authoring of a book, navigating a story through graphical representations are part of the authoring process of hypertext.

By making the link structure accessible to the user, the user is able both to visualise and critically access the hypertext. The user can view how large it is, how many links there are and consider the complex arrangements of relationships. When one picks up a book one can instantly ascertain how long the book is, how much effort it will take to read and other important spatial signification. In a hypertext such as *Flight of Ducks*, a 'site map' and the ability to view the links are important because it is the only real means to conceptualise its structure. The inaccessible nature of the programming in *Flashback* as well as *The Carlton North Primary School* projects means that the user may not be able directly to question the 'author-ity' embedded within the technology itself.

**ii.**

This thesis has borrowed explanations of hypertext from critical theorists and fused this with the practical applications of historians. At the present time the majority of hypertext theorists including Illana Snyder, Stuart Moulthrop, George Landow and Paul Delaney are working within the rubric of literary theory or cultural studies. Although historians have explored the functionality of hypertext effectively, there is still much work to be done in terms of confronting the historiographical and methodological questions that this new medium poses. Theorist such as Snyder have attempted to explore the pedagogical potential, but tend to suffer from an overabundance of idealism and an antipathy to operational compromise. In their search to find an academic space within the academy, they often over simplify past events and processes to provide room for their ‘new’ processes. This is where historians with their humility to the past and scepticism to the highly politicised short-sighted rhetoric of progress, can offer enormous clarity in terms of explaining the real innovation in this new medium without camouflaging the banal through language.

Likewise, it seems futile to rummage through the books of the past to seek pre-cursors to hypertext in the politically vain attempt to provide academic legitimisation. On the one hand theorist such as Bolter and Landow claim that Hypertext is democratic and liberating because it disrupts the hierarchy of the canon of books, but on the other hand they claim the classic texts of James Joyce and William Blake as their own. Simply because Joyce tested the boundaries of the book, made illusive references to other texts

and brilliantly manipulated time and narrative, does not by any stretch of the imagination mean that he was crying out for hypertext. The creators of *The Simpson's* also make humorous and obscure references to popular culture, but they are doing it within the medium of television-animation. Evolution is a powerful intoxicant to explain progress—especially when one appropriates such historically significant cultural signposts—however this form of explanation seems more at home in the beginning of our century rather than at its end. Innovation in hypertext can only be achieved through bold experimentation rather than cultural appropriation.

When confronted with the geometrically confusing nature of hypertext, some of us fail to acknowledge our naiveté and fall back upon our understandings of the book. This is the case with many on-line journals that are simply replicating what can be achieved far more effectively in print. The standard use of the printed medium is something that was developed over centuries and there is little to be gained by appropriating its form on-line. There is no indication that there will ever be a standard usage of hypertext as this is a political question circulating around the tenets of law and order, purpose and control either within officially sanctioned or unofficial networks of disseminating knowledge. It would be far more politically productive for many e-journal editors, hypertext theorists and other 'book burglars' to resist the homogenising ambitions of the multi-nationals such as Microsoft and Netscape rather than critically subvert their own bread-and-butter.

We as humanists often only feel comfortable in the mapped space of the library where we can move from room to room and shelf to shelf. We have the remarkable ability to create

elaborate mental spaces, architectures of information that are supported by the book.<sup>218</sup> Hypertext is a new space, a new frontier that requires new maps and new supports for knowledge. ‘Analytical archives’ as well as other innovations such as H-Net build an effective bridge from a humanists print-consolidated bourgeois culture. Pointers and maps will be provided through our nomadic roaming and will be predicated on the knowledge and information and the status and power from within the particular academic culture in which we are embedded.

### iii.

It is perhaps difficult to observe processes that enter so intimately into our own observations. The word processor changed forever the way we deal with large textual structures and editing, and virtually no historian still writes with the slow and overtly mechanical typewriter. The new computer-mediated relationship between author and reader is one in which we must make our audience aware. In hypertext, programming is a form of literacy similar to the meanings we gather from words and images. When learning to use hypertext, a strong sense of what design principles underlie the package can help in a far more significant way than information about which button to press to achieve which result.<sup>219</sup>

Unless students know how to find books in a library, where to look for the meanings of new words, and how to evaluate the ‘author-ity’ of what they read through

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<sup>218</sup> Stuart Moulthrop, “Rhizome and Resistance: Hypertext and the Dreams of a New Culture”, in George Landow (ed.) *Hyper/Text/Theory*, John Hopkins Press, Baltimore, 1994, p.310.

<sup>219</sup> Liddie Neville, in E Gow and J Edwards, *op.cit.*, p.226.

contextualisation with other authors, they will not be able to read effectively.<sup>220</sup> In a computer-mediated environment, literacy in reading must to some degree include literacy in programming. There have been few historical relationships between the skills of a historian and the skills of a programmer, partly because of the traditional division between the humanities and technical disciplines. As computers become far more mainstream in their professional and domestic application, it is unwise to leave this new form of literacy concentrated in a small section of society. If historians fail to learn and adapt, then we invite the risk of being dis-empowered and marginalised by communication innovations outside of our discipline.

Many historians and intellectuals continue to criticise and trivialise the World Wide Web and CD-ROM for what they see as a ‘low intellectual level’.<sup>221</sup> This not only denies the valuable contribution that many historians have made to these new mediums but also does not recognise what may be just incidental initial conditions. It was not the printing press operator nor the paper manufacturer who determined how the printed page was to be used; it was Gibbon, Macaulay, and Pakenham.

As a rising tide of information laps at our door, books provide an important historical, political and social solution for cognition. The book is not something we must abandon to go through the post-industrial paradigm shift. All technological change we are told is progress towards the removal of privilege.<sup>222</sup> Technology we are assured is projecting

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<sup>220</sup> *Ibid.*

<sup>221</sup> In particular, one of the most outspoken critics is Janet McCalman (Personal Interview 6 October 1996).

<sup>222</sup> Meanwhile the rapid predatorial supersession of both hardware and software is rendering recently created digital documents and archives inaccessible or unreadable.

society into a postmodern, post-historical utopia where the only problems are caused by Luddites. These extravagant claims will critically disable older institutions and older forms of authority. We as historians must adapt to, create and challenge new forms of authority, rather than simply deny or defer them.

Technology may be socially constructed, but there are really far too few historians to seriously alter its construction. We must find a balance between adapting the computer to the needs of contemporary historiography, and being bold enough to admit that many changes are beyond us.<sup>223</sup> What is an author, or indeed an historian, if after all, the new media no longer support the legal status or institutional privileges that have traditionally defined the role?<sup>224</sup> We not only need to rethink categories like ‘authorship’ and ‘publication’ but also reputation.<sup>225</sup> Electronic publication implies a new calculus of reputation that no one has as yet really come to terms with. We will have a digital revolution, but the book, the author and historians will be important participants in it.

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<sup>223</sup> Jay David Bolter, in Nunberg, *op.cit.* p.254.

<sup>224</sup> Geoffrey Nunberg “Farewell the Information Age” in Nunberg *op.cit.* p.105.

<sup>225</sup> Nunberg, p.106.

## **Appendix A: Description of the Primary Case Studies used in this Project**

### **1. Australia Street Archive on the World-Wide-Web**

This novel project from UTS in Sydney is a snapshot taken in 1994-95 of six streets within Australia that have the ironic name 'Australia Street'. The streets were chosen for a number of different reasons, partly because the name 'Australia' has signification as representing all Australians. The major aim of the project is to use the Web to capture some of the diversity of Australia's cultural heritage at a community level. The material is to be used by the residents of the Australia Streets themselves, as well as students of Australian Studies at secondary and university levels.

This project provides an opportunity for the readers to become active participants in the construction of the archive. Readers can become 'collaborative authors' by contributing their individual interpretations and annotations constructed from any aspect of the archive itself. These might be issues raised by the residents of the houses, or issues prompted by the project co-ordinators. The individual comments are linked to the original archive, thus becoming available for subsequent users for reading, annotation, and further comment. Users are even encouraged to record their own oral histories as well as contribute their own images and documents for scanning and incorporation. This project addresses many interesting questions relating to 'author-ity', collaborative community authorship, and the advantages of using the Web over CD-ROM.

### **2. Angledool Stories**

*Angledool Stories* is a project by Heather Goodall and Karen Flick of UTS in Sydney. This is a community history in which aborigines can hear their own and other stories. The oral history accounts are navigated by means of a video image of Karen and are linked to a geographical place by a conceptual map. This project was originally to be based on the

Web, but after telephone infrastructure problems were considered, it was decided to instead produce a CD-ROM. The audiences for this project are remote aboriginal communities in northern New South Wales, who do not have ready access to the Web.

This project is a scholarly adaptation of CD-ROM based hypertext to a particular historical problem. Heather had a large amount of oral history interviews from her PhD research stored on magnetic tapes. She wanted to return this material to the community, and after considering the alternatives, she decided on a CD-ROM. CD-ROM can store and present sound and image effectively as well as provide an interface for a non-English literate audience. The co-ordinators have consulted the aboriginal communities regularly as to the medium's most effective use. They have been extremely sensitive to aboriginal customs in the incorporation within the CD-ROM, of stories, geographical maps, and navigational directives. Heather and Karen have positioned this work well within established historical practice.

### **3. Dispossessed, Diggers and Democrats, 1788-1888**

This CD-ROM project, initiated by the University of Wollongong, is designed as an instructional tool for international students and students new to the study of Australian history at university level. It is a teaching aid to give students some fundamental factual background in Australian history.

*Dispossessed, Diggers and Democrats, 1788-1888* uses a 'question and answer' format of instruction and is highly focused in its layout and content. Its layout is similar to the photocopied DTMs (Departmental Teaching Materials) in which it was designed to accompany. Its purpose is to automate an aspect of historical instruction and motivate students to read for tutorial participation. It is linked to university classroom practices and

can be modified by means of a template to suit other instructors of Australian history at other institutions.

This CD-ROM is largely linked to print-based perceptions and is highly 'author-itative'. As it was intended for the purpose of factual instruction, then this is perhaps indicative of the author's epistemological approach and intended audience. Allan and Unwin are investigating publication and have sent copies to various historians within Australia for peer review.

#### **4. The Italian Australian Records Project**

This large project, that includes many universities and major libraries, aims to gather documentation, photos, film, and various media to form a historical database of the Italian migrant experience in Australia. The records that the archive is expected to contain are presently scattered around the Italian community within Australia and in Italy. Most of the records have not been previously archived, and are in danger of being lost or destroyed. The primary goal of the project is to protect these significant records for later generations of Italians and historians.

The project is similar to an archive in the traditional sense, but it is also envisaged that many of the documents will be accompanied by analysis. Material will be grouped under general themes with textual commentary. By creating an analytical and thematic context for the records, this project can be viewed as fulfilling the role of a traditional archive as well as an 'analytical archive'. The project is planned for the Web but there are numerous privacy and access questions yet to be resolved.

#### **5. Flashback**

*Flashback* is one of the first notable Australian examples of a history CD-ROM. Lloyd and Lyndon Sharp for the New South Wales Board of Studies produced it. It includes a collection of documents, images, and interpretation for senior secondary students about Australians at war. Its graphic design is effective and engaging and it addresses important questions of how to represent conflicting opinions and interpretations among those who witnesses the conflicts, and the historians who later have to provide broader analytical and contextual frameworks.

To interpret the data contained in the CD-ROM, the student can choose from a number of narrative paths.<sup>226</sup> Graphical icons are used to signify the paths that represent data about groups of people, geographical places, or periods in time. The ability to ‘criss-cross’ the narratives stimulates a particular type of historical thinking. This is, that history is an interconnected web of relationships.

A section for teachers allows the CD-ROM to be accessed on differing levels. *Flashback* was released in 1993 and has been widely distributed within Australia.

## **6. History on the Web: A Virtual Tour Through 140 Years of Social Change in Carlton**

In this project, the World Wide Web is being used as a tool to explore the history of The Carlton North Primary School and the surrounding Carlton community. The primary school is a site of historical significance dating from 1853. It was initially the location of a convict stockade and then it became one of

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<sup>226</sup> In any section of the CD-ROM a graphical icon can be easily manipulated to divert the narrative to a character that you can ‘ask’ specific questions. These questions may be about navigating the CD-ROM or definitions of historical terms.

Melbourne's first asylums. It was converted to a school in 1873 and has functioned as an important community reference point for Carlton residents—many of them Jewish and Italian immigrants—ever since.

This is a collaborative venture between The University of Melbourne's Department of History and the primary school. The project is principally aimed at grade 5 and 6 students, but honours level students at the university are also already involved. The project aims to enable students to assemble and analyse a large historical database, which can be used and added to, by later students. The database contains text, graphics, three-dimensional animation, and sound. It is layered in such a way to allow access on different levels ranging from the primary school students to the university.

The technology will enrich the history learning process by allowing students to view and manipulate historical data, pose questions, test theories, and map-out research strategies. It will help to bridge the traditional gap between universities, schools, and the general community. It will make accessible to a wide audience, historical data that is usually stored in library special collections or in archives and museums.

## **7. Flight of Ducks**

*Flight of Ducks* is a Web based project by Simon Pockley of RMIT University in Melbourne. It is a large hypertext with over 1000 pages. It is a story of his father's expedition into the Western Desert of Central Australia in 1933. This project is a very creative endeavour that utilises a self-conscious experimentation with the medium. Simon offers the user plenty of explanation as to how and why he used the technology and the problems that he has encountered.

In terms of the creative and experimental use of this medium for the purpose of history making, this is one of the better projects available. The graphical navigational aids, links and story maintains a highly aesthetic

'author-ity' over the historical material used. It has been identified as having 'national significance' in this medium (by the National Library in Canberra) and has won a number of prestigious multi-media awards. Simon is submitting the work as a project based PhD in the Department of Animation and Interactive Multimedia at RMIT University.

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