DIGITISATION AND MATERIALITY FORUM
From Optical to Digital (and back again)
John Plunkett

The Victorian period is seemingly characterised by the dominance of materiality, from the thousands of artefacts crowding into the Crystal Palace to the famous chapter 17 of *Adam Bede*, wherein George Eliot's narrator turns away from idealism in favour of the cluttered realism of commonplace life, full of 'those homes with their tin pans, their brown pitchers, their rough curs, and their clusters of onions'.[1] The excess of information that survives from the period does so because it was published in the books, newspapers and periodicals that were such a key element of its burgeoning material culture.

The very excess of matter produced by the Victorian period is though beginning to produce its opposite — a world where researchers and students encounter it predominantly as a virtual, digital presence. Thanks to the wealth of the historical record, researchers of nineteenth-century culture have benefited to an undue degree from the way digital resources are transforming the scope and methodology of research in the humanities. The most prominent recent project to be completed, the British Library's digitisation of a series of nineteenth-century newspapers, added over 1,000,000 pages to the online archive.

Just one more tantalising late-night keyword search …

The impact of digital media is paradoxical though. It is probably our own familiarity with electronic media that has sensitised us to the material and phenomenological boundaries of print, and encouraged the recent upsurge of scholarly interest in the production and transmission of texts. For all the addictive magic of digitisation, there is a legitimate anxiety that the translation from printed matter to virtual artefact creates a loss of materiality. The British Library Newspaper digitisation project can never reproduce the somatic reading experience of turning the brittle pages of the *Western Mail* or *Northern Star*.

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Forget about the texture of the paper, or even serendipity; just click to the next highlighted keyword hit …

The dialectic between digitisation and materiality that is evident in the area of print media is equally true of other areas of nineteenth-century culture. In my current research — nineteenth-century optical recreations — the translation that digitisation necessarily involves generates a friction between past and present that reveals a critical perspective upon the materiality of both Victorian culture and digital media.

Rather than worrying about the loss of aura through digital reproduction, it is worth remembering another of Walter Benjamin's assertions; namely, that the practice of writing history should not be sequential or linear, but should work towards the establishing of constellations, whereby 'what has been comes together in a flash with the now to form a constellation'.[2] It is perhaps no coincidence that Benjamin's *Arcades* project, in which he set out to document the experience of modernity, did so by collecting material on panoramas, dioramas, early cinema, and all kinds of related visual experiences and exhibitions.

A recent project undertaken at the University of Exeter, EVE (Everyone's Virtual Exhibition), which involved many of the above media, suggests one way that digitisation can be used creatively, in a fashion that goes beyond simply the provision of searchable databases or full-text archives. Rather than any loss of materiality, contemporary technology can provide new insights into the (dis)embodied mode of viewing of nineteenth-century optical recreations. In a manner impossible if the fragility of the object meant that it necessarily remained a static exhibit kept behind glass in a museum, digital technology can reveal the way optical toys explored the boundary between material and ideal, reality and illusion, the perceiving self and the external world. Moreover, in a way that would not even have been achieved by their physical handling, the virtual version calls attention to their importance in the long history of visual entertainment as it shifts irrevocably from optical to digital.

John Plunkett, From Optical to Digital (and back again), Digitisation and Materiality Forum

EVE was undertaken in 2004-05 by the Bill Douglas Centre for the History of Cinema and Popular Culture at Exeter, a combined research centre and public museum. At its heart is an archive of over 50,000 books and artefacts devoted to the long history of the moving image (http://www.billdouglas.org/) (**see fig. 1**). Items range from handbills, film programmes, merchandising, cigarette cards, sheet music, and a large number of nineteenth-century optical toys and related artefacts, such as stereoscopes, magic lantern slides, peepshows, and early photographic processes. EVE consisted of three main elements: an online searchable catalogue; photographing and digitisation of 2,500 selected items; and a set of web-based teaching and learning tools.[3] The latter feature included a series of digital animations showing nineteenth and early twentieth-century optical toys in operation. Optical devices belong to the tradition of philosophical toys that are intended to amuse and instruct through their usage. Simply reproducing an image of a nineteenth-century artefact tells us only a limited amount unless it is a page or painting. The animations on EVE consequently use digital technology to replicate, in so far as it is ever possible, the viewing experience of a number of optical toys.
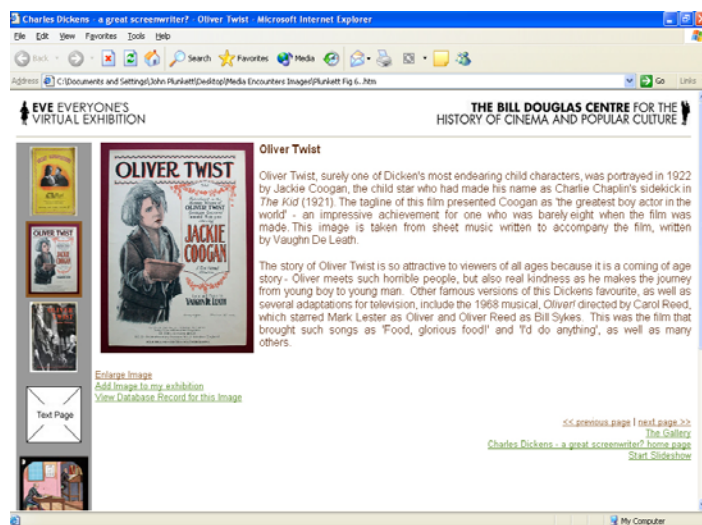

Fig. 1. Page from EVE student exhibition, *Dickens from Page to Screen: Film Adaptations of the novels of Charles Dickens*. (Courtesy of the Bill Douglas Centre, University of Exeter)

To give two examples: firstly, a large 1849 *Illustrated London News* panorama of London. EVE's animation allows you to scroll along its length and to magnify chosen areas. In so doing, it replicates the mode of viewing of both small- and large-scale panoramas. The scrolling feature demonstrates the way that moving panoramas required a succession of mobile, transient viewpoints, where the totality of the image

always exceeded the spectator's field of vision. My second example is an animated version of a popular game, the *Myriorama* (1824), which consisted of a series of sixteen cards that could be rearranged to form an almost endless number of different picturesque landscapes.[4] The myriorama was a kind of DIY panorama, where the user created a continuously changing scene through rearranging pre-painted scenes in a constant series of 'cut and paste' operations. The digitised version simulates the experience of nineteenth-century users by allowing them to move the cards around and seamlessly fit them together into a new landscape. Like the other digital interactives, it places the onus on learning through active engagement.

In using digital technology to recreate the sensory experience of the hand-held panorama or the zoetrope, the animated and/or interactive result plays upon our own fascination with new media. It is thus able to recuperate something of the curiosity and wonder that previous moving image technologies initially aroused. The use of contemporary technology also opens up a reflexive, yet critical, perspective on the historical continuities between early screen practice and our own. The ease with which nineteenth-century optical recreations can be transferred to digital format is not random.
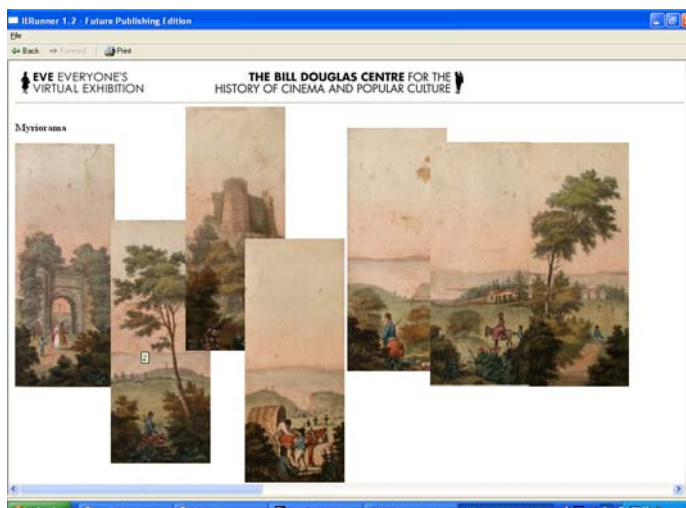

Fig. 2. Digital Interactive Myriorama, Bill Douglas Centre, University of Exeter,
Hhttp://billdouglas.ac.uk/eve/digital_interactives.aspH
(Courtesy of the Bill Douglas Centre, University of Exeter)

Rather, it highlights the way that the aesthetics of contemporary new media are part of the long history of screen and audio technologies (**see fig. 2**). The virtual myiorama works so well because it uses a method of cut, paste, and rearrange that is an important part of the materiality of digital media. Lev Manovich, for example, notes that in contemporary computer culture it is

often the case that 'an author puts together an object from elements that she did not herself create. The creative energy of the author goes into the selection and sequencing of elements rather than into original design'.[5] Digitising the panorama of Victorian London similarly links it to the large number of interactive panoramas that can be found on the web: these tours are now *de rigueur* for hotels, tourist attractions, cities, and educational institutions. All the above connections create what Benjamin would call a momentary constellation, whereby both 'old' and 'new' media are better understood through each other.

<p style="text-align:center">II</p>

Neo-Victorianism and New Digital Media

The creation of scholarly digital archives is itself part of a much broader process, whereby older technologies and aesthetics of music, texts, and moving-images are being relentlessly translated to digital formats (the universal library of Google beckons, or threatens). In their influential book, *Remediation: Understanding New Media*, Richard Grusin and Jay David Bolter argue that, 'What is new about new media comes from the particular ways in which they refashion older media and the way in which older media refashion themselves according to the challenge of new media'.[6] Grusin's and Bolter's examples are predominantly post-1945; however, pushing their concept backwards into the nineteenth century leads to some interesting examples that suggest that the notion of materiality is itself something of a moving target, inflected by contemporary concerns as much as scholarly or philosophical criteria. The virtuality associated with digitisation perhaps gives the media that came before it an added solidity. It is interesting, for example, to contrast the recent upsurge of interest in the materiality of nineteenth-century print culture (which my own work is part of) with the pronouncements of Thomas Carlyle in *Heroes and Hero Worship* (1841). Carlyle made the man of letters the hero of the present age because of the way printing communicated knowledge more effectively than the face-to-face teaching of the university: 'Once invent Printing, you

metamorphosed all Universities'.[7] Compared to a face-to-face tutorial, the book was itself a more mediated and abstract, yet democratic, form of communication.

Just as digital technology can encourage greater access to, and sensitivity towards, the past, the remediation of nineteenth-century optical toys can, in its turn, produce a standpoint to reflect upon recent mediamorphosis.[8] Digital artists often consciously draw upon 'early' media forms to work through the relationship between technology and the senses, virtual versus material place, historicity and digitisation, interactivity and the role of the viewer. Partly, this is because the plenitude of the contemporary media landscape often seems to have more affinity with the creative melting-pot of nineteenth-century visual forms than with the more formalized and monolithic character of cinema and television, which dominated most of the twentieth century. More significantly though, artists are looking backwards to the issues raised by the nineteenth-century fascination with spectacle and illusion in order to dramatise the self-same issues as they relate to contemporary culture.[9] Artists who embed 'old' media technologies call attention to the historicity of different modes of realism, undermining the transparency of contemporary aesthetics. Digital art, like nineteenth-century optical recreations, is obsessed by its own materiality, and frequently uses previous media forms as a standpoint from which to explore it.

An example of this neo-Victorian aesthetic within new media — notable because of its almost hackneyed status — is the famous bullet-time sequence in *The Matrix*. As various critics have noted, it invokes the chronophotography of Eadwaerd Muybridge from the early 1880s, when he set out to photograph a galloping horse in motion through a series of instantaneous photographs. Both Muybridge and *The Matrix* break down time into a series of discernible instants through materializing it as series of spatial images. Yet whereas Muybridge sought for the seamless illusion of moving-images, *The Matrix* deliberately calls attention to the technology of its creation. It shows off the brilliance of its computer-generated imagery by reproducing the aesthetics of something that was itself a new media technology over one hundred years earlier.[10] Moreover, in a film that is precisely about the dominance of a simulated world, it is revealing that it is the bullet-time sequence that signifies Keanu Reeves's

breaking of the computer-generated illusion of the matrix. It is chronophotography that signifies a return to materiality from the mass hallucination of the virtual.

Even more than chronophotography, the large-scale panorama has been taken up with enthusiasm by prominent new media artists such as Jeffrey Shaw, Paul St George, Luc Courchesne, and Chris Hales.[11] Their fascination with the 360-degree panorama stems from the fact that it offers an ideal of a wholly immersive virtual environment which collapses the boundary between material and simulated space; the circular panorama also requires a mobile, embodied, spectatorship that is seen as the antithesis of the passive gaze presumed by traditional Hollywood cinema and much classical film theory. New media art's rediscovery of the nineteenth-century panorama thus stems from an attempted aesthetic break with its immediate predecessors and not from any disinterested historical motives.

One British-born artist who employs the panorama is Zoe Beloff; she sees her work as part of a genealogy beginning with nineteenth-century optical devices:

> What I make could be described quite simply as 'philosophical toys', heirs to nineteenth-century devices such as magic lanterns, Zoetropes and hand-cranked projectors. I often describe this apparatus as forming the secret history of QuickTime movies, producing images that are tiny, unstable, and most importantly, interactive. They remind us that interactivity, far from being a new phenomenon, was integral to the production of the nineteenth-century moving image.[12]

Beloff, like many new media artists, is fascinated by the nature of interactivity; more interesting though is her suggestion that programmes like Apple's QuickTime give power to the small-scale producer to create sophisticated visual collages. It enables computer users to play with moving images much as Victorian children played with the zoetrope. QuickTime, for example, allows for the production of virtual panorama with relative ease, as well as the creation of endless loops of cinematic material, much like a mutoscope, where the same narrative sequence goes round and around.

Beloff's personal website includes her 'Philosophical Toy Manifesto', which calls for 'An amnesiac cinema that must constantly reinvent itself', 'A cinema out of sync with history', 'A spectral cinema', and 'A cinema found at the flea market'.[13]

Much like Walter Benjamin, Beloff's art derives from her collection of the detritus of outdated or defunct media artefacts. This is evident in *Beyond*, first exhibited in 1997, which she describes as an investigation of the 'dream life' of technology, from around 1850 to 1940. It uses 80 short movies embedded in a series of virtual panoramas, set in an abandoned Victorian asylum. The user moves through the space and, by clicking on certain marked points, releases the movies. These clips themselves include fragments of home movies from the period 1920 to 1940, which Beloff picked up in flea markets, as well as early film footage from Library of Congress collection. In an interview, Beloff noted that in creating *Beyond*:

> I was also looking back again, questioning the CD-ROM as "new media". What was "new media" 100 years ago, or 150 years ago? I was looking at how people thought about early technology, not just in a technical way, but how did it interact with their dreams? How did it shape their desires and fantasies, and how did it relate to the discovery of the unconscious or Bergson's ideas about the nature of memory?[14]

A more recent piece by Beloff is a short stereoscopic film based on the 1897 autobiography of the spiritualist Elizabeth d'Esperance, *Shadow Land Or Light from the Other Side* (2000). Beloff is fascinated by nineteenth- and early twentieth-century psychic phenomena, suggesting that they are part of the pre-history of virtuality. She argues that, while twentieth-century cinema could be described as a 'window into another world', the nineteenth century conceived of the boundary between the material and the ideal in a very different way.[15] She evokes the success of popular Victorian shows such as Pepper's ghost, where actors interacted with projected figures, and the popularity of stereoscopic views, to argue that the period was fascinated with the way virtual images co-existed with physical objects. When representing the spectres conjured up by the séances of d'Esperance, she uses scenes drawn from magic lantern slides, glass negatives and early cinema footage.

Electronic archives for Victorian scholars might seem a long way from avant-garde art but they share an unexpected concern with the relationship between digitisation and materiality. They come at the issue from seemingly opposite ends of the spectrum in that digital archives use contemporary technology to look backward,

opening up the past, while new media art uses Victorian technology as a standpoint to look forward, opening up the present. Yet the relationship between past and present is always dialectical, whereby each thinks through the other. Just as scholars question the materiality of digital technology because of the way it remediates rather than simply reproduces historical artefacts, new media artists call attention to the manifold materialities of the Victorian period itself.

Endnotes:

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[1] George Eliot, *Adam Bede* (London: Penguin Popular Classics, 1994), p. 176. It is also worth noting that Asa Briggs's well-known trilogy of books on Victorian history ends with *Victorian Things* (London: B. T. Batsford, 1988). While Briggs attempts to explore the relationship between the Victorians and the things that surrounded them, the sheer plenitude of material culture means that the book necessarily has something of a bric-a-brac approach.

[2] Walter Benjamin, *The Arcades Project*, trans. by Howard Eiland and Kevin McLaughlin (Cambridge, Mass.: Belknapp Press, 1999), p. 462.

[3] See Dominic Prosser, 'Reflections on the Use of EVE in Higher Education', at <http://billdouglas.ex.ac.uk/eve/eve_ped_use.pdf>

[4] Two sets of Myriorama cards were published in 1824, as well as similar versions with titles such as the *Panoramacopia* (1824), *Polyorama: Or, Endless Changes of Landscape* (1824) and *Nautorama* (1832).

[5] Lev Manovich, *The Language of New Media* (Cambridge, Mass.: MIT Press, 2001), p. 128.

[6] Jay David Bolter and Richard Grusin, *Remediation: Understanding New Media* (Cambridge, MA.: MIT Press, 2001), p. 15.

[7] Thomas Carlyle, *Past and Present and Heroes and Hero Worship* (London: Chapman & Hall, 1893), p. 150.

[8] Roger Fidler uses the term 'mediamorphosis' to name the process of media transformation, *Mediamorphosis: Understanding New Media* (London: Sage, 1999).

[9] On the long history of virtual art, see Oliver Grau, *Virtual Art: From Illusion to Immersion* (Cambridge, MA.: MIT Press, 2004).

[10] In a recent UK exhibition, *Sequences*, contemporary artists explored the legacy of chronophotography; <http://www.sequences.org.uk>

[11] Examples of their work are discussed in Martin Rieser and Andrea Zapp, *New Screen Media: Cinema/Art/Narrative* (London: BFI, 2002)

[12] Zoe Beloff, 'An Ersatz of Life: the Dream Life of Technology,' in *The Sharpest Point: Animation at the End of Cinema*, ed. by Chris Gehman and Steve Reinke (Toronto: YYZ Books, 2005), p. 75. See also, Karen Beckman, 'Impossible Spaces and Philosophical Toys: An Interview with Zoe Beloff', *Grey Room,* 22 (Winter 2006), 68-85

[13] <Hhttp://www.turbulence.org/Works/illusions/index.html#H> [Accessed 15 January 2007].

[14] 'Of Ghosts and Machines: An Interview with Zoe Beloff', *Cinema Journal* 45.3 (2006); <http://muse.jhu.edu/journals/cinema_journal/v045/45.3hendershot02.html>

[15] <http://www.zoebeloff.com/pages/shadowland.html>