

DIGITISATION AND MATERIALITY FORUM

Encoded Matter

Laura Mandell

In my comments responding to the excellent questions proposed for this forum, I focus upon how electronic environments for information display encourage us to revise the notion of materiality as unmediated physical experience. I propose that one should think about *all* physical objects, whether composed of elemental electrons or electrical impulses passed to a display screen, as models for interactive understanding rather than instances of brute reality on the one hand and virtual reality on the other.

I

The Material Object in Space

1. What happens to the properties of the material object in a virtual space? How far does this invite us to reshape critical and philosophical approaches to the ontology of material objects? What is the nature of a virtual collection?

At first glance, it seems clear that one cannot simply *put* a material object into digital media in the way that one puts it on a shelf or hangs it on a wall; one can only represent it electronically. Of course computers are transcription machines with their own materialities that are sometimes specific to them (as opposed to cell phones or PDAs, or Amazon's new Kindle, for instance), sometimes shared among all digital media (electronic signals or 'flickering signifiers', to use N. Katherine Hayles's term). Just as historians of the book think about its material aspects, so too do historians of digital media such as Matthew Kirschenbaum. As Hayles rightly points out in describing different kinds of material inscription, 'the physical form of [any] artefact always affects what the [...] semiotic components mean'.¹ So the key to comparing a painting on the wall of a museum to a painting in a virtual exhibit, and then to thinking about how the first object has been transformed in becoming the second, would be to analyse

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how its meaning ‘is distributed over the whole context in which it appears’.² But if that’s true, then at a deeper level ‘putting’ an object anywhere is always an act of interpreting or representing it: the placement of an artefact on a wall is highly motivated and meaningful — is it a cathedral wall? A museum?³ This inescapable meaningfulness of physical placement indicates that materiality is never purely a matter of brute stuff, but rather that it always bears meaning: ‘materiality emerges from the dynamic interplay between the richness of a physically robust world and human intelligence as it crafts this physicality to create meaning’ (*WM* 33). Literary works in particular incorporate into them some notion of how they will be transmitted or expressed. That is, they contain as part of their fundamental structure some reflections — by author, editor, printer, compositor, bookseller, etc. — upon their material embodiment, and their material means of expressive transmission. Insofar as virtual environments attempt to model the artefact, they also attempt to capture that structure which is very difficult to do in coding a text or encoding metadata about an artefact in order to properly digitise it, especially since the process of encoding itself offers a different and sometimes competing structuration of the artefact.⁴

2. What is the relationship between the material object and its digital referent? What authenticity can the digital object claim when the processes of digitisation (photographing, scanning) are predicated on deferral and absences? Does this lead to a loss of ‘aura’?

This question is crucial to formulate because it states exactly what people typically feel in contemplating the way digital media are transforming our intellectual and artistic landscape. But it is also very interesting because it formulates a response to new media using exactly the same criteria of value as one would use in responding to the old. In the same way, people debated ‘the artistic value of painting versus photography’, a ‘nineteenth-century dispute [which] today seems devious and confused’ (*MR* 226). From its inception in the early nineteenth century until very recently, ‘photographing’ has been analogue, not digital — not the same kind of reproduction as ‘scanning’. In an

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important sense, even scanned images resemble analogue images.⁵ You do not read images, except metaphorically; you see them. As with analogue, digital images are not made of diacritical marks to be cognised as part of a differential system but taken in by the eye: that is, the marks making up a picture do not work upon the mind in the same way as the marks making up phonetic language.

Given that fundamental congruity between analogue and digital images, there is still a difference, nonetheless, between images as mass-produced hard copies — from woodcut to lithograph to Xerox — and images as ‘flickering signifiers’.⁶ I would argue that the notion of presence and absence is in fact modelled upon the notion of original and copy, that the whole idea of a sign pointing to a referent — and the threat of vacancy proposed by the arbitrariness of their connection — are indeed conceptions made possible by mass printing of images and texts, the phenomenon beginning around 1830. Thus to talk about texts and pictures in electronic media as referring to analogue originals is ‘devious and confused’ in the same way that nineteenth-century discussions that assimilated painting and photography were. Electronic texts and images do not point to originals any more than photographs are nature wielding an artist’s pencil.⁷

Digitised texts do not point to an absent referent, to the sheer materiality of an original artefact, text, or photograph. Instead they interpret any object, textual or otherwise, in the process of representing it. We interpret a non-electronic text in the act of encoding it electronically. In that process, digital archivers attempt to describe its linguistic, bibliographic and spatial specificities.

3. Can digital referents and virtual spaces provide a new material encounter with the object and the object’s material qualities? How does this impact on our perception of the ‘original’ object?

I leave off the last part of this question in order to address the impact of creating digital textual archives, a highly fraught material encounter of the sort described by McGann vis-à-vis the Rossetti Archive, upon our understanding of non-electronic textual materiality. I put it this way because, for the digital archiver, nothing is more embodied

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and real than building databases, coding texts, placing, manipulating, and organizing an electronic archive; there is nothing ‘virtual’ about it, if virtuality at all stands opposed to the real. Moreover, I have created a non-electronic edition of a text, a printed book (a Longman Cultural Edition of the *Castle of Otranto / The Man of Feeling*), but my part took place all on a computer screen. The printed book was encoded before being printed — I encoded it in a Word document that was corrected by an editor and perhaps transformed into XML for the printer — I don’t actually know. The codes there were a matter of negotiation between me, the editor trying to make the edition conform to rules laid down by selected witnesses, and the Longman editor trying to fit the document into house style and form.

The difference between that process and my work as a digital archiver is that, in the case of electronic editions such as *The Bijou of 1828* and *The Prose Works of Anna Barbauld*, I myself either actually did the coding or made coding decisions. Allegedly, when one encodes a digitised text in XML, one disregards the current form of presentation: a web page called up on a computer screen via the Internet. Conformance to the XML standards laid out by the Text Encoding Initiative involves describing the text via code that can then be transformed into innumerable kinds of presentation or display, including the ones that we cannot yet imagine, those coming with future technological innovations.⁸ (Maybe someone will read the text aloud to me, perhaps, as I withdraw money from my bank machine — I’ll select \$200 fast cash, a book of stamps, and ‘The Eve of St. Agnes’). But in practice, description is never very far from presentation, and coding decisions are made based on demands made by the witness’s implicit call for imitation as well as description within the constraints and affordances imposed by current display.⁹

All digitised texts in scholarly archives are encoded by the archivers.¹⁰ The first thing one discovers in trying to encode a text, in attempting to conform to the standards imposed by a community (TEI), the non-electronic witness(es) or edition(s), and the limitations as well as creative possibilities opened up by the computer as a medium, is that original manuscripts as well as printed books are themselves encoded. In coding, one tries to make as explicit as possible the system one is using to describe the non-

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electronic text, implicitly contrasting this self-conscious description of a new material, electronic instantiation with the non-electronic material object's unselfconscious self-description encountered precisely in its resistance to being adequately described by the code. 'I describe myself', the 'original' insists, 'in being myself'. It is for this reason that Jerome McGann insists that all texts are markup.¹¹ One can extract from any text several coding systems, a set that are abstract and immaterial as the codes collected in Roland Barthes's *S/Z* (1970), for instance, and a set that are materially instantiated: any text proposes itself as a non-speculative but nonetheless fully theoretical construction (poiesis), as a 'concrete act of imagining'.¹² The protocols or codes enacted by a textual object are not just linguistic but also bibliographic and spatial. Insofar as each edition of a text, manuscript, print, or pixel enacts its own specific representational system, there is no 'original'. As Dino Buzzetti says, all texts, even manuscript originals, are models: they each model the strategies and protocols that they simultaneously enact in order to execute an expression; they represent themselves as representing.¹³

The impact of coding texts upon our understanding of non-electronic texts then, is that marking texts up for electronic preservation and display shows us how encoded they already are. In fact, it leads to redefining materiality as Hayles does in *Writing Machines*: 'materiality thus emerges from interactions between physical properties and a work's artistic strategies' (*WM* 33; see also the passage quoted above). I would gloss her statement this way: the materiality of a text is the part of it that resists re-coding in a new way, the meaningfulness generated by its own theorizing about its physical specificity, its 'poiesis', in McGann's sense of the word.

4. Trajectory within nineteenth-century culture:

The emergence of various technologies during the nineteenth century — mass printing, telegraph, photograph, voice recorder — is of a piece with the emergence of museums in their modern form: all of them involve imagining objects as enrolled in the lists of immortality, but an immortality here on earth, graspable within human consciousness. And then the question for artists becomes, how can I become a part of that object?

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Making a human imprint upon machine-generated artefacts is the peculiar problem faced by the crafters of material culture, and we shouldn't underestimate the reach of that problem. If William Gibson's *Neuromancer* (1984) imagines uploading consciousness into virtual space, it is only 'new romance',¹⁴ a late twentieth-century rendition of Keats's manifest desire to upload his consciousness into a nineteenth-century Albion urn, a mass-produced printed poem. Seeing such continuities, as so many people have done, between engraving and the Internet, Blake's illuminated prints and hypertext, for instance, helps us tremendously in the most important task facing the academy at this time: how to intervene in conceptually rich ways in the ordering of the deluge of information. Theorising about the birth of the museum during the nineteenth century is crucial for effecting the 'online exhibit', emerging as one of the most powerful, scholar-driven modes for organising information.¹⁵

II

Object/Image/Text

1. Does digitisation continue to privilege the visual qualities of an object against the move in cultural studies to reclaim materiality and focus on other aspects of sensory engagement?

In my view, the visual has never been sufficiently recognised, let alone privileged.¹⁶ So for example, we have ignored the semantic value and cognitive effects of page layout in printed texts. Similarly, commodifying and objectifying visual and plastic artworks obscures what they say as a function of their dialogue with the communicative recalcitrance of their materials to yield to an intention — with mechanicity.

2. How can we begin to articulate a phenomenology of digital referents (or objects) and to distinguish the impact of digitisation on different types of material objects — artefact, text, photograph?

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Rather than merely asseverating difference between non-electronic and electronic objects (digital referents versus material objects, as the question puts it), it seems better to think about constraints and affordances. Although a manuscript can be copied by hand to make 1000 copies and thus the handwritten codex can be reproduced as vigorously as the printed, creating 1000 handwritten copies is not easily afforded — it would cost too much labour and time. Just so, the layout of a printed page or the context of a material artefact in reality can be changed, physically redone, almost without limits just as one can change both in virtuality. Nonetheless, such manipulations are much easier to accomplish when working with material in electronic form, and so presentational and contextual change are offered up as a ready possibility (afforded). This means that the real difference between a digitised edition of an artwork and its analogue counterpart is that we can see and thus interpret the work in ways that could have been done earlier but were practically impossible. No one could have set all versions of Blake's illuminated *Songs of Innocence and of Experience* next to each other on the same table to examine closely their similarities and differences, and now one can, using the Blake Archive (<http://www.blakearchive.org>). In the Rossetti Archive, a database associates numerous sketches, paintings, and poems, situating them next to each other (either sequentially or visually on a page) and changing that set of associations almost immediately as one moves through the archive. Speed here, as in McLuhan, is not trivial; as with the steam engine and train, speed transforms habitus — life lived — and so meaning.

McGann and Drucker see all works of art, electronic or not, as generative, as calling for human interaction and with it the generation of new thoughts. Artefacts encode or imagine the particular interactions that they afford as part of their self-presentation, as the set of questions generating them. When one digitises a material object, one captures its intrinsic code, ideally, and then lays over it another code for electronic, machine presentation (*RT* 138). The clash of codes is fascinating: how easy it is to call for smoking a pipe when a pipe, to call for seeing that a flat, painted surface as not a pipe when the call issues from a painting, and how difficult it is to reproduce the ironic epiphany of noticing that art is embodied when that call issues from the

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simulacrum that never made pretence to being a pipe. In the latter case, the painting might be coded, either via metadata or database fields that wrap or ensconce it, as ‘self-referential’ and ‘ironic’. In contrast, if one encoded the digital re-presentation of Magritte’s painting, its statement would be best designated ‘self-obvious’.

3. Can we begin to articulate a materialist analysis of digital objects or can we only ever articulate them through the textual?

I spoke just now of wrapping a picture in metadata or situating it in a context by allying it with various database fields: unlike texts, pictures cannot be coded. Matthew Kirschenbaum has described the difference between electronic text and images as resembling (though not strictly the same as) the difference between digital and analogue: that is, images as electronic impulses are a stream of unreadable stuff, whereas texts as electronic impulses turn into discrete, readable bits fairly quickly: they move from binary code, 1s and 0s, to diacritical marks that generate meaning, phonemes and letters. Johanna Drucker and Jerome McGann distinguish graphical displays from diacritical marks by saying that with the latter, texts are coded whereas with the former, texts are marked (*RT* 138). One sees marks, but reads codes; codes can be parsed by machines, markings cannot.

There are two ways of (re)producing visuals in electronic form: as raster graphics or bitmaps that code pixels, and as vector graphics or pictures coded as points on an x/y axis. None of that code is readable like letters of an alphabet, nor any binary code substituting for letters: pictures are not analysable as are texts, and so any discussion of ‘reading’ them is metaphorical. Selecting out significant elements from pictures and then specifying their ‘articulation’ or ‘syntax’ moves one away from language about space and into linguistic metaphor. That said, we often don’t notice that the page of a text, handwritten or printed, is also a picture, that Emily Dickinson, for instance, ‘designed her textual works in the manner of a visual or graphic artist’ (*RT* 78). On the page, spatial design and graphic marks make meaning in a way that words do not. Coding a text therefore also requires specifying spatial relationships and

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incorporating printers' embellishments into the text's code. The process of connecting texts that are coded and codable to pictures — page images — that are marked and mappable involves adequating linguistic and graphic design in functional rather than metaphorical ways. What that process will yield is still an open question.

III

Politics and Access

I wish to end my contribution to this forum by conflating the last two questions, and for a very specific reason. People around the world are confronted with a 'data deluge', as our current information system is often called. It is crucial to see that dumping huge quantities of data is as effective in limiting access to knowledge about history, and especially literary history, as is denial of access to data. Unshaped data hides just as much as no data. Since the human record will indeed be digitised, the question becomes, how can there be multiple shapings of information, including by scholars. Communities of scholars who tag interesting items and curate online exhibits will create maps for us, offer us Ariadne's thread as we wind through piles and piles of data. It is therefore essential that these communities exist openly, providing people access to the history of art and literature, as well as history itself, by interpreting it. NINES or the Networked Infrastructure for Nineteenth-century Electronic Scholarship (<http://www.nines.org>) is such a community, and there are more on the horizon.

Furthermore, commercial ventures for digitising data, insofar as inordinately priced, threaten to deepen the hierarchy between professors at schools that can afford them and those that cannot. As I write this, Harvard as led by Robert Darnton has declared all faculty publications 'open source': it will be a condition of getting an article from any faculty member that that article will be made freely available online. And Houghton library may choose, as other libraries have, to make their Marc records available to NINES for scholars to tag and analyse for each other and the public. But again, giving the public access to books is no more a democratic gesture than would be dumping them into the street using a front loader. Though many university libraries

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have perhaps given Google the right to reproduce their holdings that are no longer in copyright, we can really only model true democracy insofar as scholars are given the time, money and equipment to properly encode, shape and share in the digital world those texts and artefacts comprising the nineteenth-century world.

Endnotes:

¹ N. Katherine Hayles, *Writing Machines* (Cambridge, MA: MIT Press, 2002), p. 25. Cited hereafter in the text as *WM*.

² John Berger, *Ways of Seeing*, 2nd edn. (London: BBC, 1977), p. 29.

³ Walter Benjamin, 'The Work of Art in the Age of Mechanical Reproduction', in *Illuminations*, trans. by Harry Zohn (New York: 1936; repr. New York: Schocken Books, 1969), pp. 224-226. Cited hereafter in the text as *MR*.

⁴ Dino Buzzetti, 'Digital Representation and the Text Model', *New Literary History*, 33.1 (2002), 61-88.

⁵ See Matthew Kirschenbaum, 'The Word as Image in an Age of Digital Reproduction', in *Eloquent Images*, ed. by Mary E. Hocks and Michelle Kendrick (Cambridge, MA: MIT Press, 2003), pp. 137-156.

⁶ N. Katherine Hayles, *How We Became Posthuman* (Chicago: University of Chicago Press, 1999), pp. 5-49.

⁷ Henry Fox Talbot, *The Pencil of Nature* (London: Longman, Brown, Green & Longmans, 1844).

⁸ P5 TEI Online Guidelines, 23.3 Conformance, <<http://www.tei-c.org/release/doc/tei-p5-doc/en/html/USE.html#CFH>>

⁹ Alan Liu, 'Transcendental Data: Toward a Cultural History and Aesthetics of the New Encoded Data', *Critical Inquiry*, 31.1 (2004), 49-84.

¹⁰ The Modern Language Association insists that any electronic edition's code needs to be made available for all users of the archive to see (Electronic Scholarly Editions, <http://www.mla.org/resources/documents/rep_scholarly/cse_guidelinesH>, item V, 23.3). Ideally, coming to the archive, users will look at the code and read it to discover the text's editing principles.

¹¹ Jerome McGann, 'Marking Texts of Many Dimensions', in *A Companion to Digital Humanities*, ed. by Susan Schreibman, Ray Siemens and John Unsworth (Malden, MA: Blackwell, 2004), pp. 198-217 (p. 200).

¹² Jerome McGann, *Radiant Textuality* (New York: Palgrave, 2001), p. 83. Cited hereafter in the text as *RT*.

¹³ Buzzetti, 'Digital Representation and the Text Model', p. 127.

¹⁴ Alan Liu, 'Local Transcendence: Cultural Criticism, Postmodernism, and the Romanticism of Detail', *Representations*, 32 (1990), 75-113.

¹⁵ Tony Bennett, *The Birth of the Museum* (London: Routledge, 1995).

¹⁶ Barbara Maria Stafford, *Good Looking* (Cambridge, MA: MIT Press, 1996).