

# Reading Technology

## Curling up with a Good Information Appliance

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**M**y copy of *Scripts, Grooves and Writing Machines* split while I was reading it for the first time. Broken in two, a chunk of the book fell out, leaving an empty paper and card shell. Then it continued to break. Each turn of the page caused a leaf to sever from the sad, glued spine. Landow takes the durability of paperbacks seriously, observing their flimsy construction as an indication that we are “beyond the book”.<sup>1</sup> Referencing the student experience, Landow claims that books “embody ill-designed, fragile, short-lived objects”. Consequently, “students have lost much of the experience of the book, as we recall – and occasionally idealise – it”.<sup>2</sup> For Landow, the book, as a technology, is in the throes of decline and awaiting replacement by information technologies.

In this essay I address a tension between the technologies of ebooks and books as textual devices.<sup>3</sup> I present the practice of these technologies in the context of the everyday and habit. In recent years, there has been concentrated speculation and hype surrounding ebooks and their reading devices. Commentaries have been presented in trade and industry publications as well as the media. The spokespeople of multinational publishing houses waxed lyrical about electronic futures for publishing as moves were made into the field. While Coover’s commentary in *The New York Times* proclaiming “the end of books” seemed premature in 1992,<sup>4</sup> it fuelled a decade of debate and research about books and their electronic counterparts. His declamation is echoed, for example, in Landow’s claim that we are “beyond the book”.

### Habit, Memory and Everyday Practice

This discussion of reading and technology hinges on notions of ‘everyday practice’. Implicated in everyday practice are concepts of habit and memory which I discuss in concert to develop a framework through which to consider tech-



nology and textuality. I am referring to de Certeau's notion of everyday practice as "ways of operating or doing things".<sup>5</sup> With a focus on consumers – those users who are "dominated" in society – de Certeau undertakes a study of 'everyday' practices, including reading, in order to illuminate "models of action". Consumers do not only consume, they also "use", "make" or "do" with that which has been purchased or imposed. This making or doing gives rise to "tactics" which the user deploys, and so "many everyday practices are tactical in character".<sup>6</sup> Borrowing from Gitelman's account of late 19<sup>th</sup> and early 20<sup>th</sup>-century technologies, and Hayles' ideas about virtuality, print and electronic reading, technologies are addressed as habit and disruption. Gitelman proposes the 'successes' and 'failures' of emergent writing technologies as sites of negotiation for meaning and subjectivity. She proffers that technology is both physically and discursively constructed and that technologies of inscription are materialised theories of language.

A regularly repeated refrain, 'no one will ever curl up with a good ebook', dismisses ebooks. For many, this is a compelling argument against ebooks. With this statement an exchange between the reader and the book is charted. The book is imbued with a corporeal significance that a computer (or other reading device) cannot possibly displace. Clearly, 'curl up', as a comfortable or pleasurable embodiment for reading, is exclusively reserved for the book and it is unimaginable that the body would 'curl up' with a substitute book. A substitute book lacks authenticity. It is important to note that reading is a plural and variable practice which individuals do for diverse reasons: there are likely to be books for which this 'curled up' posture is not desirable or necessary but which are read regardless. For the purposes of this essay, I am interested in the 'curled up' posture because the presumed experience of reading from a different technology in this 'curled up' posture is allegedly not as desirable or pleasurable as reading a book in the same posture. It is not the same experience and therefore not as apparently rewarding.

In his exposition of memory and habit, Connerton addresses posture as an incorporating practice stating that: "where the characteristic postures of [for example] men and women are almost identical, there may be very little teaching of posture and there may be very little conscious learning of posture... Postural behaviour... may be so automatic that it is not recognised as isolatable pieces of behaviour".<sup>7</sup>

Learning the posture of 'curling up with a good book' emerges from sighted and practiced repetitions. This 'curling up' position as a reading posture results in contingent incorporating and inscriptive practices, or, as Connerton explains "no type of inscription is at all conceivable without... an irreducible incorporating act".<sup>8</sup> In reading, it is the body that 'curls up' and flips the pages and these actions are performed in concert with a knowledge of technology, language and writing. Further, "patterns of body use become ingrained through our interactions with objects... Postures and movements which are habit memories become sedimented into bodily conformation".<sup>9</sup> De Certeau suggests reading is a "silent production" in which a reader "insinuates into another person's text the ruses of pleasure and appropriation: he [sic] poaches on it, is transported into it, pluralises himself [sic] in it like the internal rumblings of one's body".<sup>10</sup> Reading is an embodied and technologically contingent practice in a web of other practices and circulations including pleasure and consumption.

'Curling up with a good book' has become both 'naturalised' and 'authentic'. There is

a perceived relationship, an exchange between body and book that another technology can neither account for nor accommodate. Building on Connerton's propositions, Hayles provides a framework through which to consider embodiment in an age of virtuality. This consists of two interacting polarities: body and embodiment, inscription and incorporation. She explains the interaction thus:

as the body is to embodiment, so inscription is to incorporation. Just as embodiment is in constant interplay with the body, so incorporating practices are in constant interplay with inscriptions that abstract the practices into signs. When the focus is on the body, the particularities of embodiment tend to fade from view; similarly, when the focus is on inscription, the particularities of incorporation tend to fade from view.<sup>11</sup>

Hayles contends that an "incorporating practice" is "an action that is encoded into bodily memory by repeated performances until it becomes habitual".<sup>12</sup> Connerton explains these practices "cannot be reduced to a sign which exists on a separate 'level' outside the immediate sphere of the body's acts. Habit is a knowledge and a remembering in the hands and in the body; and in the cultivation of habit, it is our body that 'understands'".<sup>13</sup> As a habit of reading, 'curling up' is a form of corporeal knowledge or embodied knowing. 'Curling up with a good book' is performed repeatedly and, ultimately, habitually. For Hayles, "habits do not occupy conscious thought; they are habitual precisely because they are done more or less automatically, as if the knowledge of how to perform the actions resided in one's fingers or physical mobility rather than in one's mind".<sup>14</sup> As a habitual movement, 'curling up with a good book' is accepted as an unconscious action and is rendered invisible when the technology and the text have disappeared into the task of reading. Subsequently, 'curling up with a good ebook' represents a threat or disruption to that habituated behaviour. This disruption is not straightforward due to reading's implication in other habitual practices and sensory experiences of literacy. In concert with reading and so much else that we do, these practices are also everyday practices. De Certeau states:

to read is to wander through an imposed system (that of the text, analogous to the constructed order of a city or of a supermarket)... [The reader] invents in texts something different from what [was] 'intended'. He [sic] detaches them from their (lost of accessory) origin. He combines their fragments and creates something unknown in the space organised by their capacity for allowing an indefinite plurality of meaning.<sup>15</sup>

'Curling up' becomes the posture which a reader adopts in order to undertake this "wandering through" and "reinvention" of the text. 'Curling up' is how we image or imagine ourselves reading in the realm of habit-memory and how we see others reading. As de Certeau posits, reading transports the reader "elsewhere", to a "secret scene" where the reader arrives and departs at will, and so, 'curling up' is the posture of this transportation. To proclaim that we are "beyond the book" dis-



avows this everyday quality of reading, of curling up, of split spines and torn pages. It also disavows, as Connerton suggests, that habit and corporeality or inscription and embodiment are tied to memory. Connerton argues that "every group will entrust to bodily automatisms the values and categories which they are most anxious to conserve. They will know how well the past can be kept in mind by a habitual memory sedimented in the body".<sup>16</sup> If reading books or 'curling up with a good book' is among those things that we seek to conserve and retain in habitual memory, then any attempt to replace the book meets with resistance. Hayles observes that when "changes in incorporating practices take place, they are often linked with new technologies that affect how people use their bodies and experience space and time".<sup>17</sup> The ebook reading device and the book, as technologies, are not the same, do not produce the same relationships with the body or embodiment, inscription or incorporation, and are not readily interchangeable.

Virtuality has bearing on the spatial arrangements of objects and bodies. Hayles defines virtuality as "the cultural perception that material objects are interpenetrated by information forms".<sup>18</sup> She refers to proprioception, "the sense that tells us where the boundaries of our bodies are", to describe human relations with books and computers, on screen and in print.<sup>19</sup> Accordingly, "proprioceptive coherence... refers to how these boundaries are formed through a combination of physiological feedback loops and habitual usage".<sup>20</sup> Hayles describes a difference in corporeal relations with various technologies and "although a reader can imaginatively project herself into a world represented within a print text, she is not likely to feel that she is becoming physically attached to the page itself".<sup>21</sup> Hayles attributes this to the tactile and kinaesthetic experience of print, which provides less feedback and less interaction. While the reader might feel that "she is moving through the page into another world", she is unlikely to experience the same sense of immersion and interactivity as with electronic interactive texts. The 'curled up' position seems to reiterate this experience of reading as boundary between reader and technology. In curling up, one's body, while drawn into a relationship with the technology, is distinct from it. The reader is wrapped around the book, cradling it with their body.

A question raised by Hayles' discussion of proprioception is how readers negotiate print forms replicated on screens, and whether a search or dictionary function is sufficient to afford the material experience of the screen text. For Hayles, "the materiality of... [our] interactions is one way in which our assumptions about virtual writing is being constituted as distinctively different from print. Even when its output is printed and bound into codex books, we know from the inside that it operates according to spatial principles and a topographical logic of its own".<sup>22</sup> In addressing technology as plural, decentred and indeterminate, Gitelman calls for technology to be "the reciprocal product of textual practices, rather than just a causal agent of change".<sup>23</sup> In this respect, "changes to writing and reading matter in large measure because they equal changes to writers and readers".<sup>24</sup> Likewise all new technologies and media, despite their uses, "inspire conflicted cultural moments of self-consciousness about the making of meaning". Hayles addresses technology in this way when she states that the integration of corporeal perceptions and movements with computer architectures and topologies has resulted in humans expressing cyborg subjectivity.

Readers, technologies (books, computers or reading devices) and texts are interde-

pendent, and consequently our habits of reading, technologies and texts are also interdependent. In the technology of the book, a reader is habituated to that particular relation of text and technology. The introduction of ebook reading devices threatens to disrupt that relation, charting other reciprocal relations between technology and textuality, virtuality and subjectivity. In focussing on the phrase 'curling up with a good book' as the locus for this exploration, I am concerned with how this framework can be applied to new reading technologies (ebooks, personal organisers and ebook reading devices) in order to consider the ways in which these technologies might affect reading and the subjectivities of reading as performances of the everyday.

### Reading, Appliances and Devices

At present, ebooks are produced for reading on a variety of platforms including personal computers, dedicated reading devices and multipurpose reading devices (such as personal organisers). Manufacturers are marketing, if not the 'best' then, the technology that they hope endures in the manner that Gitelman describes. In assessing the "successes" and "failures" of technologies, she asserts a problem of evaluation: "the notion that the 'best' technology succeeds only makes sense if 'best' can involve extrinsic as well as intrinsic advantages... Rather than try to settle which is the 'best' system, better to seek the variables of contemporary evaluation and the social and economic conditions that helps make those variables potent ones".<sup>25</sup> The success as well as succession of technologies is bound in a network of relations, negotiations and possibilities that determine their use and, ultimately, endurance. In his critique of the computer industry, Norman's criteria for 'best' technologies are those which are "human-centred" rather than technology-centred. He argues for technologies which are task-specific, fitting a task for which they are built. Such specificity produces the "information appliance", defined as "an appliance specialising in information: knowledge, facts, graphics, images, video, or sound... A distinguishing feature of information appliances is the ability to share information among themselves".<sup>26</sup> To be information appliances, reading devices must be specifically designed for the task of reading. Both the book and ebook reading devices are information appliances to different degrees. Using Norman's schema, the book is an effective information appliance because the technology has been absorbed into the task and become invisible: when we say we are reading a book, it is usually a text rather than a technology to which we refer.

For reading to shift beyond a naturalised and self-contained text and technology such as the book to digital technologies that require a reading device, software application and ebook, requires an effect on the social and material circumstances of reading. Importantly, in Western societies more authority is attributed to the printed word as textual representation, and much of what is presented in electronic formats is presented as untrustworthy.<sup>27</sup> For Duguid, "the advent of multiple new technologies is probably changing not only particular works, but also the social system in relation to which the works were written and read".<sup>28</sup> Ebooks and information appliances can generally be described as "disruptive technologies" in the sense that they disrupt established habits and tasks, bringing something new to those practices or tasks.<sup>29</sup> While habit might be stubborn, it is neither wholly intractable nor unnegotiable. Fidler argues "as



with traditional print media, digital forms must be comfortable and convenient to read while lying in bed, riding on a subway, dining in a restaurant, or sitting on a park bench".<sup>30</sup> Inasmuch as reading is a habituated practice, so too are the reading postures which Fidler identifies. Cultural artefacts such as books and technology should be considered as agents within social networks and exchanges. The network in its entirety is what shapes the artefact and imbues it with significance.

A reader knows – by their embodiment – the difference between an electronic and printed text, or an electronic and print technology, despite efforts by hardware manufacturers to make the ebook reader more 'bookish'. For Norman, personal document assistants or personal organisers are evolving into information appliances. Having learned from the failures of earlier models, manufacturers are honing their devices for usability and simplicity. Handheld devices fail as information appliances when they replicate the complexity of the desktop or laptop computer.<sup>31</sup> A question emerges about whether the differences between electronic and print information devices are acceptable to the reader or not. While several commentators have addressed this issue of 'sameness', current ebook readers are either single or multi-purpose devices, some of which resemble or simulate books while others resemble personal organisers or laptops. Many reading technologies seek to reproduce the linear reading experience with added functionality such as search and dictionary tools. While software that reproduces the sound of turning pages has been developed, some handheld devices allow the reader to 'dog-ear' pages, provide highlighting functions and post-it notes. Ditlea observes that the publicity surrounding ebooks "has been drawn to single-purpose devices whose function is to display reading matter in a booklike fashion".<sup>32</sup> Of the millions of personal computers now in use around the world, only a few hundred thousand users have downloaded ebooks.<sup>33</sup> As users develop their computer and information skills, download culture and other aspects of cyberculture such as online shopping and browsing can develop as everyday practice. Gasson proposes that "e-books have to look and feel better than p-books, or they aren't worth inventing".<sup>34</sup> Similarly, co-founder of ePress.com Kirvin admits that ebooks "don't have the curled-up-by-the-fireside aesthetic of a nice hardcover".<sup>35</sup> Also, O'Brien, CEO of Forrester Research, suggests that handheld devices will "ultimately... look and feel more like a magazine... the kinetic experience that people are used to".<sup>36</sup>

A 1999 study of reader preference for electronic (personal organiser and web site) and print formats of newspapers found that readers preferred portable document viewer formats to print and web site formats of newspapers. This study also found that "the more respondents wanted to own a PDV, the more they like that format".<sup>37</sup> Of course, reading a newspaper and reading a book are different readerly and reader experiences, but the role of desire in creating approval of new formats cannot be overlooked. Conversely, the more users desire printed formats, the more likely they are to disregard electronic formats. A reader takes more pleasure in a text which is read in a technology they desire. As Gitelman has pointed out, consumer expectation and behaviour plays a role in shaping the market and determining the use of particular technologies. Anderson Consulting predicts that by 2005, 28 million ebook reading devices will be in use worldwide.<sup>38</sup> By mid-2000, the number of single-purpose dedicated readers reached 20,000 while Palm devices – only one type of handheld PC – reached 6 million.<sup>39</sup> As 'information appliances', handheld PCs are

surpassing single-purpose device sales and winning buyers despite the task specificity of a single-purpose device. According to Wilson, the trend towards convergence is yet to reveal the form of overlapping functions and technology. The issue here is whether converged or dedicated technologies will have greater appeal among users. Wilson proposes that “the future shape of portable electronic books is, at least in part, dependent on whether the trend towards convergence applies equally to ebooks as it does other technologies”.<sup>40</sup>

From a reader's perspective, the cost of handheld PCs is prohibitive. When asked how much they were prepared to pay for a handheld device, 44% of respondents to a survey at BookBrowse.com wanted the devices to be free while 14% were prepared to pay over US\$ 100. Of the respondents, 4% already owned a handheld computer and 22% would buy one if it cost less than US\$ 100.<sup>41</sup> A *Wired* report proposes that the “industry will soar when an ebook reading device with a high quality screen and full PDA functionality hits the market for under US\$ 100, which is expected to happen [by the end of 2003]”.<sup>42</sup> Palm recently confirmed its plans to release high-end devices by the end of 2002.<sup>43</sup> These emerging trends indicate that one way competition among handheld devices may be manifest as ‘portable entertainment’. Anderson Consulting predicts a need for broad-based content and a growth in digital music and video on demand. These types of content should be available on the same device.<sup>44</sup> While Norman discusses task specificity as ‘writing’ or ‘note taking’, I prefer to think of tasks in a different way. Personal organisers are task oriented, and the task they are specific to is time management, mobility or personal organising. With their calendar, clock and diary functions, handheld organisers are used for marking and arranging time. One task is interconnected with other tasks, yet Norman tends to group tasks as disciplines such as music or photography rather than interconnections grouped as everyday practices. In their user's ‘free time’ or ‘spare time’, those devices are used to ‘fill in time’ in the sense that entertainment and leisure have a temporal or contextual quality which can be met by the device: read a book or play games while using public transport, or listen to music during lunch.

Ditlea proposes that content for electronic readers will be diversified, moving towards hypertextual, multimedia and interactive content. According to Stein, founder of Night Kitchen, the shift to electronic environments will happen because those environments are richer than print: “electronic media easily facilitates links to other information sources, it supports multimedia, and it affords richer interaction between authors, publishers and readers”.<sup>45</sup> It remains to be seen whether this richness will mean a wholesale shift and whether users will look to their PDAs for a particular kind of (media) richness. For Ditlea “lurking amidst e-publishing today is the notion of multimedia books that seamlessly incorporate hypertext, sound and animation. A hypertext branching narrative in a novel or a history book, for instance, would be impossible to reproduce in a book”.<sup>46</sup> Ditlea, like other commentators, is predicting that as content diversifies and as electronic texts do things not possible for print texts, electronic reading will become more desirable. It will provide something new and disruptive. A *Fortune* article suggests that consumers will ultimately demand ebooks that “do things” that print books cannot.<sup>47</sup> The opportunities for hypertext and other forms of new media writing in this environment should be apparent. Given the emergence of the Internet, MP3s, culture jam-



ming and sampling-type practices, there is the possibility that users will create their own content for their handheld devices. Users will continue to own other technologies such as computers, CD-players and burners, televisions and Playstations, using these technologies to develop or download content for their handheld device. The computer, in this context, occupies a different role: for storage, production, distribution, access and the like while handheld devices give users mobile information and content.

'Curling up with a good information appliance' may not have the same ring as other articulations of 'curling up', but this is not because the experience is a substitute for the real thing. This raises the question of whether books and ebooks should be regarded as different kinds of texts and technologies, perhaps necessitating a different kind of literacy. New reading tropes require definition against existing textual practices and need to be "contextualised".<sup>48</sup> I have sought to demonstrate that the handheld reading experience is *different* and requires a *different* kind of engagement with texts and technology. It does not necessarily supplant existing ways of reading or technologies of reading, and exists among a plurality of reading practices and technologies. In electronic environments, certain devices are redefining the functionality and, indeed, textuality of what we have come to know as books. For Gitelman, "digital textuality... [is] about the identity of authors and the psychology of authoring, about the subjectivity of reading in its relation to the subjectivities of buying, eating, driving, and all the rest of the things people do".<sup>49</sup> There is no apparent winner in the reading device race because it is not solely the prerogative of hardware manufacturers to determine which technology is 'best', which succeed or fail, or to be the only vested interest whose experiences of these devices as textual technologies matter.<sup>50</sup> Rather, it is local and global networks of exchanges, geographies, users, subjectivities, technologies, histories and so on that will determine the fate of handheld technologies. This complex field of influences, resistance and interaction is in keeping with everyday practices of technology and textuality, virtuality and subjectivity.

## NOTES

1. Landow, George "Twenty Minutes into the Future: Or How Are We Moving Beyond the Book?" (in Nunberg, Geoffrey (ed) *The Future of the Book* University of California Press, 1996, Berkley) p. 209ff.
2. *Ibid.*
3. As a provisional definition, "ebook" is shorthand for a range of technologies and is not a static form. It has included, warranted and evoked a plurality of formats, software and hardware. There has been some fluidity in the use of the terminology of electronic books resulting in uses of 'e-book', 'eBook', 'ebook' and other formations of 'e' and 'book' to evoke both the ebook reading device and the ebook (the text). For the purposes of this essay, I refer to ebook reader or reading device as the technologies used to display, interact with and read ebooks, the texts which are loaded, stored and read via the ebook reading devices. While this also includes desktop and laptop computers, this study is concerned with handheld devices.
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6. *Ibid.* p. xix

7. Connerton, Paul *How Societies Remember* (Cambridge University Press, 1989, Cambridge) p. 73.
8. *Ibid.* p. 76.
9. *Ibid.* p. 94.
10. de Certeau *op. cit.* p. xxi.
11. Hayles, N. Katherine *How We Became Posthuman: Virtual Bodies in Cyberspace, Literature, and Informatics* (University of Chicago Press, 1999, Chicago) p. 199.
12. *Ibid.* p. 102.
13. Connerton *op.cit.* p. 90.
14. Hayles *op.cit.* (1999) p. 204.
15. de Certeau *op.cit.* p. 169.
16. Connerton *op.cit.* p. 204-205.
17. Hayles *op.cit.* p. 205.
18. Hayles *op.cit.* p. 13-14.
19. Hayles, N. Katherine "The Condition of Virtuality" (in Lunenfeld, Peter (ed) *The Digital Dialectic: New Essays on New Media* MIT Press, 1999, Cambridge) p. 88.
20. *Ibid.*
21. *Ibid.*
22. *Ibid.* p. 89.
23. Gitelman, Lisa *Scripts, Grooves and Writing Machines: Representing Technology in the Edison Era* (Stanford University Press, 1999, Stanford) p. 2.
24. *Ibid.* p. 11.
25. *Ibid.* p. 28-29.
26. Norman, Donald *The Invisible Computer* (MIT Press, 1999, Cambridge) p. 53.
27. I mean a range of practices which may include: mutable identities, the proliferation of pornography, concerns about the 'safety' of children, excess of content, lack of regulatory controls on content which means anyone with access to the web can publish and so on.
28. Duguid, Paul "Material Matters: The Past and Futurology of the Book" (in Nunberg, Geoffrey (ed) *The Future of the Book* University of California Press, 1996, Berkley) p. 83.
29. Norman *op.cit.* p. 232.
30. Fidler, Roger *Mediamorphosis: Understanding New Media* (Pine Forge Press, 1997, Thousand Oaks) p. 236.
31. Norman *op.cit.* p. 237.
32. Ditlea, Steve "The Real E-books" (in *Technology Review* Vol. 103, No. 4, 2000) p. 77.
33. *Ibid.* p. 72.
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35. Jeff Kirvin cited by Broida, Rick "Not off the Presses – Paperless publishing is taking off with big-name authors and improved hardware. But are e-books require reading yet?" (in *Computer Shopper* March 2001) p. 149.
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44. Anderson Consulting *op.cit.*

45. Kahney, Leander "E-Books: The Next Killer App" (in *Wired* <http://www.wired.com/news/print/0,1294,21550,00.html>, 2 September 1999, accessed 20 April 2002).

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47. "Now Showing: Books: Digital books are beginning to do things that paper-and-ink versions can't. Get Ready for multimedia 'read-ies'" (in *Fortune* Vol. 142, No. 12, 2000) p. 281.

48. Gitelman *op.cit.* p. 99.

49. *Ibid.* p. 229

50. *Ibid.*