The End of Cyberspace and Other Surprises

Sue Thomas

De Montfort University, UK

Abstract / This article reports on Web 2.0, the end of cyberspace, and the internet of things. It proposes that these concepts have synergies both with the current fashion for modifying physical objects with the features of virtual objects, as evidenced in O'Reilly's *MAKE* magazine and similar projects, and with the potential technologies for collective intelligence described by Bruce Sterling, Adam Greenfield, Julian Bleecker and others. It considers Alex Pang's research on the end of cyberspace and asks whether the 'new' of new media writing will have any meaning in a world that is updated by the microsecond every time there is fresh activity in the system.

Key Words / blogjects / books / collective intelligence / end of cyberspace / everyware / internet of things / new media writing / spimes / Web 2.0

1

In 2005 O'Reilly Media launched *MAKE*, 'the first magazine devoted entirely to DIY technology projects'. Resonant of the much earlier Homebrew Computer Club,[1] founded in 1975 and home of many early hobbyist technology inventions, the magazine 'unites, inspires and informs a growing community of resourceful people who undertake amazing projects in their backyards, basements and garages' (*MAKE Magazine*, n.d.). It is a print magazine, although of course it is supported by a website and blog and all the usual paraphernalia.

The copy I have before me, Volume 05, feels good in the hands and is printed on nice smooth paper. It contains articles on how to be the hit of the neighbourhood by building a backyard zipline; how to turn a remote control car into an alarm system, and how to create explosive visuals with water. The magazine costs $14.99 but the website is free and contains additional projects, including those linked to other sites. Like fans and hobbyists, *MAKE* people share their stuff. The project I would like to describe here can be found via the *MAKE* website and comes from Instructables.com. It gives step-by-step instructions on how to modify a Moleskine, which, you may remember, is the

pocket-sized notebook made famous by the late travel writer Bruce Chatwin. Having already learned how to hack code, the digerati community has seized upon the idea that physical objects – things – can also be hacked, modded, and enhanced. Indeed, today, not only can you hack your belongings, but you can also hack your life, as pioneered by David Allen in his book *Getting Things Done* (2001) and known as GTD.

The practice of GTD, aka life-hacking, is widespread among those who struggle to manage their data-ridden lives. This UGC (user generated content) generation is generating *so much* content that it is driven to create even more just to stay on top of everything. Perhaps because of its very simplicity and enjoyable tactility in a world of virtual objects, the Moleskine has attracted the special attention of the geeky life-hacking community, and they have devised many handmade modifications for it. The following instructions, devised by an individual called radiorental, and subtitled 'three little mods to make your moleskine, or any notebook for that matter, a little more functional',[2] are typical of the projects to be found at sites like *MAKE*, *Instructables*, *LifeHacker*, and *43Folders*:

> *Step 1 Pencil holder*
>
> *Using black masking tape you can build on a pencil/pen holder. Firstly wrap the pencil in tape . . . sticky side out. Stick this on to the end of the notebook and then tape the pencil to the notebook.*
>
> *Step 2 Tag your pages with post-it notes*
>
> *Using a good pair of scissors cut the sticky part of the post-its off. Bung them in the folder at the back, when you need to mark a new section of your notebook just fold it over a page and write a tag.*
>
> *Step 3 Pencil sharpener*
>
> *Two pieces of sandpaper, coarse for wood, fine to sharpen the lead to a nice point. Sticky back tape the sandpaper to the back of your notebook. (Fig. 1)*

This modded moleskine (Figure 1) is an intriguing attempt to address the same design goals of a PDA (personal digital assistant) by reverse-engineering towards a plain paper notebook without losing the functionality of a stylus, bookmarks, and metatags. The pencil sharpener, however, probably has no equivalent in the PDA which may be why this particular innovation is greeted with much applause by the users who post on radiorental's blog and offer suggestions for further mods:

> *sam says:*
>
> *– what if you incorporated the sharpener into the holder?*
>
> *radiorental says:*
>
> *that would be cool indeed.*

Another user, Darkman, re-invents the lined page that some readers will remember from Basildon Bond letter pads:

> *Hey . . . You could also print ruled lines on some card stock and cut to fit in the pages so that if you have bad handwriting you can write in a straight line in a sketchbook . . . then all you have to do is put the ruled page behind the page you are using and you should be able to see the lines. By the way, love the pencil sharpener.*

FIGURE 1[3]

The *Instructables* website, like others of its type, is woven through with metadata and usability features – for example, images can be downloaded in a range of seven convenient sizes from tiny (48 x 48) to original (600 x 505), each entry is tagged with keywords, and the site has a Creative Commons license. Needless to say, the RSS and Atom feeds mean that it can be aggregated, along with its tags, into del.icio.us, Flickr, blogs, and numerous other applications.

Elsewhere, in his blog Techkwondo.com, Julian Bleecker suggests another quality which might be manipulated and applied to real world experience – speed:
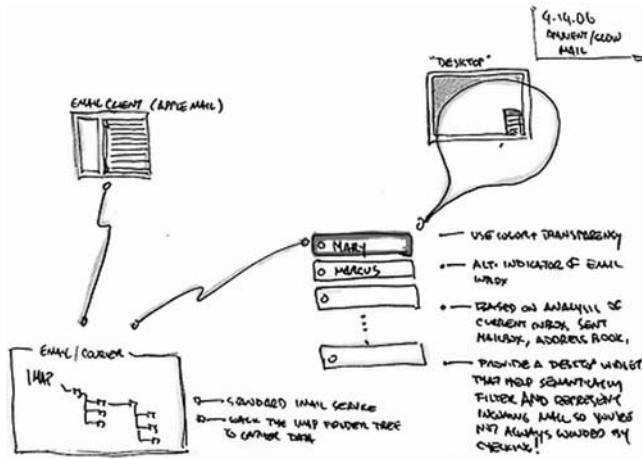
> Recently I worked closely with Carolyn Strauss of Slow Lab on a proposal for a kind of messaging delivery architecture that had a deliberate aesthetic component, and derived from a metaphor of paced slowness. The idea of having a variety of mechanics for social communication is important, I think. Rather than just email, instant messaging, SMS, mobile mail, etc., we thought together about a channel of communication that was more deliberate and writerly. Something that was an adjunct to these fast-fast instant modes, we architected something that was a kind of gummed up transport that, besides being slower, created a sense of anticipation on the part of the recipient in that they would be given some kind of unfolding, growing, articulation visualization indicating that a message was on its way. It may take days or longer for the message to arrive, but you'd know it was on its way.

Soon there will be a way to identify a hack with the object it was worked upon by means of an RFID tag and a splash of GPS, in which case we would be dealing with what Bleecker calls a 'blogject', Adam Greenfield calls 'everyware', and Bruce Sterling calls a 'spime'.

2

In March 2006, at the ETech Conference in San Diego, I heard about spimes for the first time. They were the subject of Bruce Sterling's keynote talk, and towards the end he

FIGURE 2[4]

made a comment that I wrote down in my notebook (an un-modded Moleskine, as it happens) to ask him about later. He had said that thanks to the spime: 'we will at last be comfortable with materiality'.

I thought he was referring to disembodiment, becoming immersed and merged into the machine as per futurologists like Ray Kurzweil, but as it turned out his answer was much simpler. He meant that he would no longer be weighed down, not by his physical body, but by his physical possessions. That he would no longer need to own hard copy artefacts, not even his own manuscripts, when he could access those texts through cyberspace from anywhere, and when most of his possessions could be discarded and replaced at low cost.

So what is a spime? *Shaping Things* (2006), Sterling's quasi-manifesto, is a short but complex book largely given over to making the case for the future existence of spimes. The key to the spime, he says, is identity. It is, by definition, the protagonist of a documented process, an 'historical entity with an accessible, precise trajectory through space and time' (2006: 77). Here is an example of such a trajectory, adapted from the author's description (with apologies if necessary), describing the online purchase of a bottle of wine:

1. You first encounter the spime while searching on a website, as a virtual image. This image is likely a glamorous publicity photo, but it is also deep-linked to the genuine, three-dimensional computer-designed engineering specifications of the object – engineering tolerances, materials specifications, and so forth. At this time, it has no material existence beyond a picture and a spec. Let us imagine, as Sterling does, that it is a bottle of wine.
2. You use your credit card to make an online purchase of one bottle, an act that integrates it into your own spime management inventory system while at the same time linking you to its customer management software. This link already holds the

bottle's unique ID code, history of ownership, geographical tracking hardware and software to establish its place in space and time, and numerous other data. Now your personal data is added to that to assist with further development of the object – direct customer profiling.

3. The bottle is delivered to your address with its own RFID and other tracking systems so that it can update itself in your database and inform you of any further service information you might require. Note: the product itself is not the spime, but just a materialised component of this particular iteration that you have selected. It is not every bottle, it is just this single purchase you have made.

4. You drink the wine and dispose of the bottle.

5. At the end of its lifespan, the spime is deactivated and disassembled to be folded back into the manufacturing stream. The data it generated remains available for historical analysis by a wide variety of interested parties, and the ways in which that data are analysed, especially the relationships between them, define the spime. Sterling says 'the spime is a set of relationships first and always, and an object now and then' (Sterling, 2006: 71).

The 'internet of things' will be composed of these entities, interacting with their users, but also often simply interacting with each other without any human agency at all. The advent of the spime goes some way towards addressing the call made by Vannevar Bush in 1945 that we should find ways to organize, share and interrogate the vast amounts of knowledge being gathered and accumulated by humankind. He imagined how this might be done:

> One can now picture a future investigator in his laboratory. His hands are free, and he is not anchored. As he moves about and observes, he photographs and comments. Time is automatically recorded to tie the two records together. If he goes into the field, he may be connected by radio to his recorder. As he ponders over his notes in the evening, he again talks his comments into the record. His typed record, as well as his photographs, may both be in miniature, so that he projects them for examination. (Bush, 1945: 2)

The usefulness of these records lies in the way they are interpreted and synthesized, and as a practical scientist Bush pays attention to the process of data management just as Sterling, with an interest in design, describes the manufacturing cycle of the spime. Bush also emphasizes the importance of ensuring that the human continues to have a creative and active role in the interpretation of knowledge:

> Much needs to occur, however, between the collection of data and observations, the extraction of parallel material from the existing record, and the final insertion of new material into the general body of the common record. For mature thought there is no mechanical substitute. But creative thought and essentially repetitive thought are very different things. For the latter there are, and may be, powerful mechanical aids. (Bush, 1945: 2)

What is missing from Bush's concept, though, is the increasingly seamless integration of user and system that can now be observed in many applications such as del.icio.us and Flickr, and in systems like that used by eBay to populate and manipulate masses of user-generated content, culminating in an evolving collective intelligence. Conceptually, Vannevar Bush was still tied to making a distinction between human and machine, a

distinction that is increasingly fading today when, every time we use eBay or write a Gmail, we make a trade-off between body, technology and nature by allowing our data to become part of that organization's knowledge base. Our meaty physiology does not put us outside the spime. On the contrary, it enhances the spime just as the spime enhances us. Sterling explains, for instance, how making a purchase embeds him in just one part of the business, the 'techno-social setup', of wine production:

> *. . . when I described that 'bottle of wine' a while ago, everybody presumably knew that I meant a particular, coherent object. Yet that 'bottle of wine' was a momentary congelation of material and energy flows. It has now become nameless, but it remains a process, still underway and mostly unknowable to me. That 'bottle of wine' was once sunlight on Italian earth, lakes of grape juice, yeast in fermentation tanks, wood pulp for the label, colored inks, cork from Spain or maybe Portugal, plus a Californian grocery chain reacting to consumer trends and stocking a brand with some shelf appeal. Then I found it, bought it, and consumed it. It continued as a dissociated flow of recyclable glass, consumed paper, hydrating fluids and a narcotic in my bloodstream, long since metabolized. (Sterling, 2006: 78)*

Identifying the beginning and the end of his role within that chain, Sterling marks his freedom from even having to know about the rest of the process. The primary advantage of an internet of things, he says, is:

> *that I no longer inventory my possessions inside my own head. They're inventoried through an automagical inventory voodoo, work done far beneath my notice by a host of machines . . . as long as machines can crunch the complexities, their interfaces make my relationship to objects feel much simpler and more immediate. (Sterling, 2006: 94)*

This desire to be free of managing his own stuff is a symptom of the need for a life-hack – the spime as ultimate remedy for GTD. With spimes, not only can you Get Things Done, but in many cases they actually do it for you. Freedom, as the author says, from materiality.

3

So, a spime is a phenomenon that exists at various times either virtually, as data, or materially, as physical object, or both, depending upon its cycle? Well, we can easily grasp that notion because today we are very accustomed to sometimes inhabiting cyberspace with our virtual personae and manipulating virtual materials such as emails, images, and other items; and other times inhabiting physical space such as streets, fields, and houses and manipulating physical materials such as bottles, books, and furniture. We have grown used to the binary of online/offline, but unfortunately that comfort may be about to come to an end. The world of the spime, with its threaded intertwinings through 'virtual' and 'real', is about to affect not just a bottle of wine, but the very table it stands on and, eventually, as Sterling implies, the very person who drinks it. Soon there will be no travelling between cyberspace and 'real' space, because there will no longer be any borders between the two. Life for the spime is about to become a lot easier.

In October 2005 I reported in the 'Writing and the Digital Life' blog comments made by Dion Hinchcliffe on 'J. LeRoy's recent observation that Web 2.0 will finally kill the concept of cyberspace as a viable ongoing concern.' And, he went on,

. . . he's probably right.

One of the key aspects of Web 2.0 is that it connects people so they can effortlessly participate in fluid conversations and dynamic information sharing. At the same time, computing devices are giving people permapresence on the Web through PDAs, phones, digital cameras, and a slew of other emerging devices.

Before now, you had to consciously go to cyberspace by sitting at a PC and looking at it through a window, in essence going to a place where you primarily observed and gathered knowledge. Not any more.

These days the boundaries between reality and cyberspace are becoming increasingly blurred and the activities on the Web are becoming more two way and integrated with reality, with the canonical example being the hypothetical Taxi button on a cellphone. With going into cyberspace no longer being a discrete step (folks are more and more always there now) and with the primary activity often being to interact with other folks transparently, you have a folding of cyberspace so severe that it just disappears into the ether.[5]

This extrapolation makes a lot of sense. After all, we've been longing for that always-on portal without perhaps realising that once we are always on, we are at the same time giving up the frisson of that step he describes.[6] Hinchcliffe's post was one of a growing number of observations that we could be on the way to seeing the end of cyberspace. This conversation is a spin-off from the notion of Web 2.0, coined in 2004 by Tim O'Reilly, and summarized by him as:

. . . the network as platform, spanning all connected devices; Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a continually-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form that allows remixing by others, creating network effects through an 'architecture of participation,' and going beyond the page metaphor of Web 1.0 to deliver rich user experiences.[7]

Web 2.0 has galvanized some sectors of the digital community to philosophize about wired-ness in a way that was notably missing for quite some years, ever since the initial euphoria of pre-web internet cultures was damped down by the dotcom boom-and-bust in the rush to monetize every pixel. But now, once again, we are talking seriously about what all of this really means. In January 2006, Alex Pang, a Research Director at the Institute for the Future in Silicon Valley, picked up the zeitgeist and launched a new blog called 'The End of Cyberspace' in which he provided a neatly organized FAQ and answered the question at the heart of the discussion:

Why is cyberspace coming to an end?

Our experience of interacting with digital information is changing. We're moving to a world in which we (or objects acting on our behalf) are online all the time, everywhere.

Designers and computer scientists are also trying hard to create a new generation of devices and interfaces that don't monopolize our attention, but ride on the edges of our awareness. We'll no longer have to choose between cyberspace and the world; we'll constantly access the first while being fully part of the second.

Because of this, the idea of cyberspace as separate from the real world will collapse.[8]

In February 2006, *Wired* magazine published Pang's invitation to various leading thinkers to propose a word to replace 'cyberspace' (Pang and Pescovitz, 2006) – beginning, of course, with the inventor of the original, William Gibson, who confessed he has not yet come up with an alternative. The suggestions included 'augmented reality',

'ubiquitous computing' and the 'infosphere', but my personal favourite was contributed by Neil Gershenfeld, Director of MIT's Center for Bits and Atoms: 'I'd vote for calling it "the world". Information technologies are finally growing up, so we can interact with them in our world instead of theirs.'[9]

What of new media writing? What of the book? Are they merging together into the tagged moleskine spime? Alex Pang:

> . . . in a rapidly-emerging world of mobile, always-on information devices (and eventually cybernetic implants, prosthetics, and swarm intelligence), the rules that define the relationship between information, places, and daily life are going to be rewritten. (Pang, 2006)

In that re-writing, the novelty of 'new media writing' is already being subsumed. New media were by-products of the early days of cyberspace, literary thought experiments easing our passage from print book to blogject and spime. Indeed, in recent years the 'newness' of new media has attracted an increasing groundswell of rebellion against using the term at all. This is fair. Nothing – not even the 'nouvelle' (novel) – can remain new for ever and soon, it seems, newness will become an obsolete concept. Will the 'new' have any meaning in a world that is updated by the microsecond every time there is fresh activity in the system? Where smart objects know what we want before we have even thought of it ourselves?

But what of the notion of an internet of things? At its most negative, it could emphasize even further the barrier between the digerati and the rest of the world. It could become a gated environment quickly penetrated and shaped by commercial interests we are helpless to resist, or, more optimistically, it could bring us comfort in our materiality, realize Vannevar Bush's hopes, and support an integrated cooperative collective intelligence that some may come to know as 'the world'. Certainly it will create an informational and physical ecology very different from the one we currently inhabit or, perhaps, expect. In 2000 the trAce Online Writing Centre surveyed a thousand UK writers about their views on the internet (Thomas, 2000). The question 'What worries you about the internet?' generated an image of cyberspace not unlike the wastelands of post-apocalyptic science fiction: 'erosion – contamination – swamp – dump – garbage – junk – viruses – chaos – fragmentation – waste'.[10] The opposite question 'What excites you about the internet?' produced a different landscape, one which might be likened to the scene beyond the viewing window of the USS Enterprise: 'freedom – huge – world – infinity – source – global – communication – explosion – growth – speed – vastness'[11] and so on. In fact, it is all of these and more. Imagine a bubbling teeming swamp beneath a night sky streaming with stars. What is crawling out of it? It is, of course, far too soon to know. Author Erik Davis, like many others, believes the network is developing independently and often in ways that are beyond our understanding:

> As more and more dimensions of the real are translated into the Boolean Esperanto of binary code, we open up the possibility for entirely unexpected modes of synthesis to arise, patterns of connection and integration that for now seem barely conceivable. Of course they will arise as an imagination. Of course they will take the form of a surprise. (Davis, 1999: 330)

But we have a little time to prepare. They say the ETA for the internet of things is about 30 years away. Readers are advised to check back then for an update.

Notes

1 http://en.wikipedia.org/wiki/Homebrew_computer_club (accessed May 2006).
2 http://www.instructables.com/ex/i/A4D8D886B57210289B50001143E7E506/?ALLSTEPS (accessed May 2006).
3 Figure 1 http://www.instructables.com/ex/i/A4D8D886B57210289B50001143E7E506/ (accessed May 2006).
4 Figure 2 http://research.techkwondo.com/blog/julian/207 (accessed May 2006).
5 http://www.hum.dmu.ac.uk/blogs/wdl/2005/10/the_death_of_cyberspace.html (accessed May 2006).
6 Although, however much I want it to happen, I will also mourn that loss, just as I still mourn the sound of the dial-up modem doing its musical hardware handshaking thing down the phone line.
7 http://radar.oreilly.com/archives/2005/10/web_20_compact_definition.html (accessed May 2006).
8 http://www.endofcyberspace.com/2006/01/my_argument_as_.html (accessed May 2006).
9 http://www.wired.com/wired/archive/14.02/start.html?pg=10 (accessed May 2006).
10 http://tracearchive.ntu.ac.uk/survey.htm#worries (accessed May 2006).
11 http://tracearchive.ntu.ac.uk/survey.htm#excites (accessed May 2006).

References

43Folders (n.d.), URL (accessed May 2006): http://www.43folders.com

Allen, D. (2001) *Getting Things Done*. New York: Viking Penguin.

Bleecker, J. (n.d.) *Research Techkwondo*, URL (accessed July 2006): http://research.techkwondo.com/blog/julian/239

Bush, V. (1945) 'As We May Think', *The Atlantic Monthly* 176(1): 101–8.

Davis, E. (1999) *Techgnosis*. London: Serpent's Tail.

Greenfield, A. (2006) *Everyware*. Berkeley, CA: New Riders Press.

Instructables (n.d.), URL (accessed May 2006): http://www.instructables.com

Lifehacker (n.d.), URL (accessed May 2006): http://www.lifehacker.com

MAKE Magazine website (n.d.), URL (accessed May/July 2006): http://www.makezine.com/magazine/

MAKE: technology on your time (February 2006) Vol. 05. O'Reilly Media Inc.

O'Reilly Radar (2004), URL (accessed May 2006): http://radar.oreilly.com/

Pang, A. (2006) 'The End of Cyberspace', URL (accessed May 2006): http://www.endofcyberspace.com/

Pang, A. and Pescovitz, D. (2006) 'Cyberspace is Dead', *Wired News*, URL (accessed May 2006): http://www.wired.com/wired/archive/14.02/start.html?pg=10 February 2006.

Slowlab (n.d.), URL (accessed May 2006): http://www.slowlab.net

Sterling, B. (2006) *Shaping Things*. Cambridge: MIT Press.

Techkwondo (n.d.), URL (accessed May 2006): http://research.techkwondo.com/

Thomas, S. (2000) 'The Wired Writer', URL (accessed May 2006): http://tracearchive.ntu.ac.uk/survey.htm

Sue Thomas *is Professor of New Media in the Faculty of Humanities and Programme Leader of the Online MA in Creative Writing & New Media at De Montfort University, Leicester, UK. Her most recent book is* Hello World: Travels in Virtuality *(2004). She founded the trAce Online Writing Centre in 1995 and was Artistic Director until 2005.*

Address *School of Media and Cultural Production, Faculty of Humanities, De Montfort University, The Gateway, Leicester LE1 9BH, UK. [email: sue.thomas@dmu.ac.uk]*