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A JOURNEY OF INTEGRATION

VIRTUALITY AND PHYSICALITY IN A COMPUTER-MEDIATED

ENVIRONMENT

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A thesis submitted in partial fulfilment of the requirements of Nottingham Trent University for

the degree of Doctor of Philosophy

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Contents

Abstract

This thesis details the history of Sue Thomas's writings on computer-mediated experience since 1988, from the research for and writing of her first novel *Correspondence* (1992), through a second novel *Water* (1994) and a number of collected and single works in print and new media, to the non-fiction book *Hello World: travels in virtuality* (2004). It argues that computers offer an opportunity to explore our sense of connectedness not just with each other, but also with the natural, the mechanical and the digital. However, the immense promise of digital life lies in its very resistance to definition, and the growing web of online social networks must be regarded as an ecological system living and evolving on its own terms.

List of publications submitted

This thesis comprises a purpose-written introductory chapter plus copies of three books, four chapters, and a supporting bibliography. Three websites are also listed and these should be viewed online. All of this work was undertaken between 1988-2004 during my part-time and full-time employment at Nottingham Trent University.

Single Authored Books

Thomas, S. 2004, *Hello World: travels in virtuality*, Raw Nerve Books, York.

Thomas, S. 1994, *Water*, Overlook Press, New York; 1995, Five Leaves Press, Nottingham.

Thomas, S. 1992, *Correspondence*, The Women's Press, London; 1993, Overlook Press, New York.

Chapters

Thomas, S. 2004, 'Sistema Purificacion', *Pulp Net*, London,

http://www.pulp.net/fiction/stories/10/sistema-purificacion.html January 2004

Thomas, S. 2003, 'Spivak', *Barcelona Review 35*, ed. Adams, J. March-April 2003

http://www.barcelonareview.com/35/e_st.htm

Thomas, S. 1994, 'All Strapped In', *Wild Women: Contemporary Short Stories By Women Celebrating Women*, ed. Thomas, S. Overlook Press, New York; Vintage, London, pp.87-91.

Thomas, S. 1990, 'Between the Boys and their Toys', *Where No Man Has Gone Before,* ed. Armitt, L., Routledge, London, pp.109-122.

Websites

Thomas, S. 2004, *Travels in Virtuality,* http://travelsinvirtuality.typepad.com/

Thomas, S. 2000, *Correspondence*, http://trace.ntu.ac.uk/suethomas/correspondence/.

Thomas, S. 1997, 'Revolver' *Freebase Journal of Culture and Technology*, ed. Mills, S. http://trace.ntu.ac.uk/frame/freebase/suet/r1.html

Acknowledgements

A Journey of Integration

1. Experiencing the machine

Since 1985 I have explored the impact of the computer upon our lived experience. The spread of new technologies, most especially the growth of the World Wide Web, is having a profound societal and cultural effect in every part of the world and giving rise to a cascade of new research areas, not least enquiry into creative and philosophical issues. I am especially interested in the conceptual physicalities of virtuality and how they connect to the physical spaces of everyday life. I agree with the Canadian critic Derrick de Kerckhove that:

> There is an urgent need for artists to explore this new
> psychological condition so that they can begin to prepare
> the antidotes to potential traumas, and reveal the extent of
> the new possibilities that we are offered.[1]

The virtual and the physical are constant themes throughout my writing and can be traced from my undergraduate dissertation *Close Encounters of the Machine Kind*[2], an exploration of the way people engage with computers; through my first published chapter 'Between the Boys and their Toys'[3], on boys and robots in popular film; to the novel *Correspondence*[4], which examines human-to-machine metamorphosis; into the second novel *Water*[5], which comes to the problem from a slightly different angle by using this inorganic substance as the central motif, and through to *Hello World: travels in virtuality*[6], a combined memoir and travelogue of cyber-experience. This body of work, spanning sixteen years from 1988 to 2004, interrogates our sensual engagements with a spectrum of phenomena from the

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[1] de Kerckhove, D. 'Network Art and Virtual Communities', *Parallel*, Australia, 6 November 1995, http://www.va.com.au/parallel/x2/journal/derrick_dk/ddk.html Accessed 1 October 2004.

[2] Thomas, S. *Close Encounters of the Machine Kind*, 1988. Unpublished BA dissertation, Nottingham Polytechnic.

[3] Thomas, S. 'Between the Boys and their Toys', 1990, *Where No Man Has Gone Before*, ed. Armitt, L. Routledge, London, pp.109-122.

[4] Thomas, S. 1992, *Correspondence*, The Women's Press, London; 1993, Overlook Press, New York.

[5] Thomas, S. 1994, *Water*, Overlook Press, New York; 1995, Five Leaves Press, Nottingham.

[6] Thomas, S. 2004, *Hello World: travels in virtuality*, Raw Nerve Books, York.

simple (water) to some of the most advanced (cybernetics, virtual life) but it has always been difficult to categorise. Some critics called *Correspondence* cyberpunk ('A woman's touch makes cyberpunk grow up'[7]), although it bears very little resemblance to the hard-edged narratives of most cyberpunk writers. More recently *Hello World* has been categorised as memoir, or travelogue ('A Baedeker to the cyber-realm'[8]). Perhaps net critic and writer Alan Sondheim got closest when he wrote of *Hello World*:

> This is an odd work, a mix of real and imaginary journeys,
> discoursing on psychogeography, Bachelard, and a broad-
> based view of the Net along the way. As a mix it's intense
> and entrancing, and it demonstrates the ease with which
> computers, electronic communications, and lives all
> intertwine beyond the home... it is a journey of integration.[9]

This essay is an account of that journey in a landscape driven by electricity and shaped by connection. I approach it from two viewpoints: the experience of inhabiting and navigating it, and the act of programming it to create my own textual spaces. The progression of my writing about the physical and the virtual is tracked from the 1992 novel *Correspondence* to the 2004 nonfiction memoir *Hello World: travels in virtuality*. Although *Correspondence* was written at a time when I was ignorant of computer-based texts, it has since been described as 'a hypertext without the hypertext'[10] and *Hello World* is in many ways a sequel to that first attempt to take hold of the implications of digital experience. But *Hello World* was informed by eight years of navigating hypermedia spaces and so the text, the printed volume, and the

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[7] *Los Angeles Reader*, 1993.

[8] Guertin, C. Noted on the jacket of *Hello World*.

[9] Sondheim, A. 'Books I like and highly recommend', *Nettime* 10 May 2004, http://amsterdam.nettime.org/Lists-Archives/nettime-l-0405/msg00023.html Accessed 1 October 2004

[10] Flanagan, M. and Booth, A. eds. 2002, *Reload: rethinking women and cyberculture*, Massachusetts Institute of Technology Press, Cambridge. The writer was probably unaware that in 2000 I was invited to transpose *Correspondence* to the web and had already used the opportunity to create a hypertextual postscript to the book http://trace.ntu.ac.uk/suethomas/correspondence/.

accompanying blog[11] were all designed to reflect that awareness. In that sense it is broader and more wide-ranging than *Correspondence*, offering multiple levels of engagement to the reader/participant. *Hello World* continues to expand as extra material is added to the blog and I have conducted two experimental workshops based upon ideas in the book.[12]

Correspondence explored the sense of immersion which can be experienced with both machines and nature. The insistence on viewing the computer as a site where one might experience natural phenomena more commonly ascribed to the physical body or landscape has persisted throughout my work and is most marked in *Hello World: travels in virtuality,* which makes connections with the writings of phenomenologists such as Gaston Bachelard, Drew Leder and Robert D. Romanyshyn. My second novel, *Water,* which falls between the two other volumes, explores undersea life, the natural worlds of the ocean and of floods, and uses the imagination to force water to reshape itself into an organic being. While *Correspondence* is grounded in the earth and its products of metal and plastics, *Water* explores the liquid environment from the act of sipping from a glass to a downpour in a rainforest. *Hello World* brings the two closer together, describing dual immersion in both the physical and the virtual to the point where the two become indistinguishable from each other, where membranes fall away and leave only a single merged consciousness.

In everyday life we are accustomed to the type of data collected by the senses of touch, taste, hearing, sight, and smell, and indeed without them we would have no way of knowing what is going on beyond the prison of our own skins. But as virtual reality artist Myron Krueger points out, computer-based virtuality is giving rise to a new and unfamiliar ontology:

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[11] Thomas, S. 2004, *Travels in Virtuality*, http://travelsinvirtuality.typepad.com/.

[12] These workshops involved inviting participants to discuss and to draw their perceptions of their physical relationships with their computers. The first was at the Incubation Symposium at Nottingham Trent University, July 2004, and the second at the *Visions of Humanity in Cyberculture, Cyberpunk and Science Fiction* Conference in Prague, August 2004.

We are no longer creatures of five senses. Technology has given us hundreds. We can sense the universe throughout the electromagnetic spectrum. We can hear vibrations, from the infrasound of the seismologist to the ultrasonics used in destructive testing. We can see molecular and cosmological structures. We can sniff the stars through spectral analysis. We can feel the ages of different objects. But, in every case, we must convert the data from these new senses into a form that our original five senses can understand.[13]

Another aspect of the fascination of the expanded sensorium created by computer-based virtuality is its multiplicity. As Arthur Kroker writes:

The will to virtuality privileges the ambivalent sign: frenzy and inertia, ecstasy and catastrophe, speed and slowness, crash and hyper-security, smart machines and stupid media. Never fused to a single polarity, the will to virtuality operates according to the logic of the double pulsar, simultaneously flashing contradictory sign-forms. That is its fatal fascination and its secret charm. The will to virtuality, therefore, acts as an *enfolded will*: always straining towards the most intensive expression possible of one singularity, while working secretly and immanently to undermine itself by the recuperation of the opposite sign-form.[14]

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[13] Krueger, M.P. 1983, *Artificial Reality*, Addison-Wesley, Reading, p.83.

[14] Kroker, A. & Weinstein, M.1994, *Data Trash: The Theory Of The Virtual Class*, New World Perspectives, Montreal, p.50.

In virtuality, he says, we experience for the first time 'the non-space of the third body, the third sex. The third skin'.[15] The online environment does indeed seem to produce an extra level of experience not encountered before, for example in the incidences of simple telepathy recorded by John Suler, Professor of Psychology at Rider University, whose website The Psychology of Cyberspace[16] offers extensive and detailed writings on the subject :

> ...people report that even in the stripped down sensory
> world of [cyberspace relationships] -- like text-only chat --
> others sometimes sense what you are thinking and feeling,
> even when you didn't say anything to that effect. Did they
> detect your mood or state of mind from some subtle clue in
> what or how you typed? Are they picking up on some
> seemingly minor change in how you typically express
> yourself?
>
> Or does their empathy reach beyond your words appearing
> on the screen? Perhaps they are in tune with your mind via
> some pathway that neither psychology nor computer
> technology can fully explain.[17]

The conceptual flexibility required to assimilate this kind of environment plays a part in the way we experience the virtual sensorium, but immersion also has an important role here. In order to know it, it seems, it is necessary to do it. Or, as the Virtual Tao asserts

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[15] *Data Trash* p.48.

[16] Suler, J. *The Psychology of Cyberspace,* http://www.rider.edu/~suler/psycyber/psycyber.html

[17] Suler, J. 'The Showdown between In-Person and Cyberspace Relationships: Sensory Integration and Intuition', *Selfhelp Magazine* http://www.selfhelpmagazine.com/articles/internet/showsens.html. Undated. Accessed 15 September 2004.

mysteriously, 'We download it, and it downloads us'.[18] One must involve oneself completely in much the same way that a passenger in a car cannot know the sensorial immediacy experienced by the driver until they take a turn at the wheel. In just the same way hackers, the most experienced (and often the most anarchic) group of programmers, are deeply immersed within the code they create. MIT sociologist Sherry Turkle reported:

> The hackers' response to the computer is artistic, even
> romantic. They want their programs to be beautiful and
> elegant expressions of their uniqueness and genius. They
> relate to one another not just as technical experts, but as
> creative artists. The Romantics wanted to escape rationalist
> egoism by becoming one with nature. The hackers find soul
> in the machine – they lose themselves in the idea of mind
> building mind and in the sense of merging their minds with
> a universal system.[19]

Turkle's comment makes a distinction between machine and mind which can usefully be extended to the difference between the cyber and the virtual. The notion here is one of a simulation so sophisticated that it is either indistinguishable from the real or has so much veracity that it can be accepted as real in its own right. Kroker and Weinstein suggest that:

> Full virtuality would constitute an environment that would be
> felt by the virtualised body to be complete, but would not be
> felt by the virtualised body to be an incident within a more
> genuine environment.[20]

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[18] Besher, A., Engebretson, P. and Bollerot, F. 1995, 'Virtual Tao, A Cyber-Meditation' *Shambhala Sun Magazine*, http://www.shambhalasun.com/Archives/Features/1995/July95/VirtualTao.htm Accessed 1 September 2004.

[19] Turkle, S. 1984, *The Second Self*, Granada, London, p.320.

[20] *Data Trash*, p.162.

Note here that they refer not to feeling by a physical body, but by a virtual body stimulated by a machine into experiencing virtual feelings inside a virtual environment. Nothing beyond the machine actually exists, and yet everything is agreed to exist. Virtuality becomes reality by means of consensus.

It is clear that virtuality engages our most intimate intellectual imagination, but can we describe how it really feels? When we enter the world of machine-driven information, do we experience new and different sensations to those of which we are already unconsciously aware and which form a large part of the existing experience of any organic life-form? And if we do, do we have the words to say what they are like? My work explores the way machines and virtuality act upon our memory, imagination, and ability to fantasise, and attempts to devise a lexicon for the sensorium of the meat/machine interface. There is a growing community of users who are already very familiar with the virtual environment and well aware of its power. The late Jude Milhon, cypherpunk and hacker, known in cyberspace as 'St. Jude', was one person certainly not content to remain a creature of only five senses:

> We need ultrahigh res! Give us bandwidth or kill us! Let's
> see the ultra-violet polka-dot flowers that hummingbirds
> see, and smell 'em like the bees do. And crank up the
> sensorium all across the board.[21]

In 1983 Sherry Turkle talked to Lorraine, the only woman on a large team working on the design of a new programming language. Lorraine was somewhat embarrassed by the way she felt about programming:

> I know that the guys I work with think I'm crazy. But we will
> be working on a big program and I'll have a dream about
> what the program feels like inside and somehow the dream

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[21] Cross, R. February, 1995, 'Modem Grrrl' *Wired* 119, San Francisco.

will help me through. When I work on the system I know

that to everybody else it looks like I'm doing what everyone

else is doing, but I'm doing that part with only a small part of

my mind. The rest of me is imagining what the components

feel like. It's like doing my pottery... Keep this anonymous. I

know it sounds stupid.[22]

But it is not only hackers and programmers who know how it feels to operate within or

alongside a cybernetic system, and who play with the sensual aesthetic of code. And the

analogy with making pottery is not so absurd as it might seem. In an interview with Susan

Stryker, performance artist and cultural theorist Sandy Stone describes her first

engagements with programming, working with early Apple prototypes:

I began writing programs. One day I ... made this kind of

intuitive symbolic connection to the machine. It was so

intense. The wheels began to turn. I could see the planets

moving and the atoms vibrating, and I could see mind with

a capital M. I could reach down into the very soul of this

thing. I could talk to it. It was this sense of, well, here was

the physical machine and here was the virtual machine, the

abstract machine. It was a living creature that I could reach

into and feel the circuitry. I could feel what the code was

like.[23]

When people enter the world of machine-driven information they experience new and

different sensations but still lack the conceptual lexicon with which to describe them fully.

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[22] *The Second Self*, p.115.

[23] Stryker, S. 'Sex and Death among the Cyborgs', *Wired* 4.05, May 1996,

http://www.wired.com/wired/archive/4.05/stone.html?topic=&topic_set=. Accessed 29 August 2004.

Those of us who inhabit the industrialised world are already accustomed to living inside a crude form of auditory cyberspace, surrounded as we are by the constant hum of domestic machines and urban noise. Our brains are finely tuned to select, comprehend and digest screenfuls of text, complex blends of fast editing, dialogue, music, sound effects and subliminal messaging. Perhaps this is part of the package which comes with the machine as prosthetic, and perhaps we are becoming as attuned to it as we are to the fluctuations of health in our own bodies. As time goes on, the merging of flesh, hardware, and mind comes ever closer as we move from the cyber to the virtual, epitomised in oO/|, a character I created at LambdaMOO, a virtual entity learning to be cyborg:

> The meat body in the throes of becoming cyborg.
> Imagining: wet~dry~cold~hot :|: steel/plastic/wire/skin :|:
> blood^current^fluid^light :|: open|closed :|: yes|no :|: in|out
> :|: low|high :|: true|false :|: 1|0 :|: flesh-bone-clip-switch
> Aaahhhh![24]

Many writers have tried to enter the mind of the machine but fewer have wondered how it would be to *feel* like one. Yet, as Marvin Minsky has famously and often asserted: we ourselves are simply machines made out of meat. Indeed, one of the most common fears people have of the machine is that because it is not like us, i.e. not made of meat, it is somehow incapable of conscious thought and so by extension it is incapable of morality. The argument seems to be that an inorganic being is unaware of itself and is therefore unable to scrutinise, evaluate, and modify its interactions. To this, Minsky replies:

> When people ask, 'Could a machine ever be conscious?'
> I'm often tempted to ask back, 'Could a person ever be
> conscious?' I mean this as a serious reply, because we
> seem so ill-equipped to understand ourselves. Long before

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[24] LambdaMOO Object Number #14929.

we became concerned with understanding how we work,

our evolution had already constrained the architecture of

our brains. However, we can design our new machines as

we wish, and provide them with better ways to keep and

examine records of their own activities – and this means

that machines are potentially capable of far more

consciousness than we are.[25]

But is it possible for us, as human beings, to become conscious enough to know the experience of automation and to feel what it is like to respond to programming? To find out, the first step is to regard the cybernetic system as the prosthesis which enables us to reach out and touch the virtual. Sandy Stone sees this, in turn, as an opportunity to blur the very boundaries of who and what we are, and as a male-female transsexual she has perhaps an extra level of sensitivity to these concerns:

Identities appear and they disappear. They go from virtual

to real, from real to virtual, crossing back and forth over

those boundaries, sometimes predictably and sometimes

not. So an easily intelligible answer to the question Where

is that identity when it's off the Net? is to say it becomes

virtual, or potential, during that time. The presence of the

prosthesis in the communication network is what makes the

virtual persona become real.[26]

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[25] Minsky, M. 1987, *The Society of Mind*, Heinemann, London, p.56.

[26] Stryker, S. 'Sex and Death among the Cyborgs', *Wired* 4.05, May 1996,

http://www.wired.com/wired/archive/4.05/stone.html?topic=&topic_set=. Accessed 29 August 2004.

2. The instrument of transformation 1988-1992

I learned to use a computer in 1985 as part of a B.A. Hons[27] degree in Humanities. Prior to
that my only intimate experience with complex mechanisms had been using a manual
knitting machine, with which I made knitwear at home to sell. At that time I had not yet even
learned to drive a car. My interests lay in handicrafts – sewing, knitting, crochet, weaving,
cooking and gardening. I had not written creatively since my teens in the late 60s.

My most significant discovery about computers was the notion of programming. I was
intrigued by the reliability of code. It seemed somehow entirely trustworthy – as long as it
was properly written with no errors, it would perform perfectly over and over again. I learned
how to write simple routines in Basic, including the concept of the recursive loop, and the IF-
THEN-ELSE statements of algorithms. They were a revelation. They reminded me of a job I
had had in my late teens when I worked as an accounts clerk for a confectionary company
and my duties included balancing the takings for 135 shops. I had enjoyed that weekly task,
shaving a day off the schedule and always completing it early. It had been thrilling to
achieve a balance, especially when it involved detective work to discover errors in the
figures. Working with code seemed very similar – there was always a deep and secure
sense that perfection lay somewhere within if procedures were followed correctly, and if
failure occurred it would be possible, eventually, to identify the reason even if one could not
always remedy it. It was simply a question of applying the rules, and since the Learning of
Rules had been germane to my upbringing I quickly connected with the notion of a rule-
based environment.

I was raised in England in a Dutch family who had largely thrown off their Dutchness but
were reluctant to fill the vacuum with the Englishness of their chosen country. We saw
ourselves as outside the norm, different and probably superior to, the traditional English
ways of life around us. We frequently moved house and my style of speech mutated from a
slow rural Leicestershire, to singsong Newcastle Geordie, through clipped South Downs,

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[27] At what was then Nottingham Polytechnic and is now Nottingham Trent University.

and on to a rounded Nottinghamshire. My father made sure that none of us adopted his suave Netherlands burr, insisting that we adhere perfectly to the rules of English grammar as he had learned them, despite our protestations that he might have misunderstood one or two of the technicalities. (Example: It is rude to say 'what' under *any* circumstances. *Never* say 'What is that?' Always say 'Which is that?') However, this was made more complicated by the fact that sometimes my family played by Dutch Rules and sometimes by English Rules. It was most often Dutch Rules at Sunday lunchtime, the only occasion when we were encouraged to speak the native family tongue and when we learned many food nouns but virtually no other parts of speech beyond the Dutch for 'Please pass the...' (which I have now forgotten anyway). It was Dutch Rules when I was taken to church, when I was bought sensible shoes, and when I had to be home an hour before any of my friends. Dutch Rules were implemented by my father and were all about control. English Rules applied when he was out at work, or had given up in disgust, at which points my mother, never much interested in parenting, allowed us children to run wild until Dad returned and restored order. English Rules were about doing what you wanted, letting it all hang out, being rude and irresponsible, and expecting to be given money rather than earning it for yourself by doing housework or having a Saturday job. And then there was a third set of rules for when the extended family came to stay – Canasta Rules. Since only my parents were properly bilingual and few of the Dutch relatives could speak English, the most rewarding and efficient way to interact with aunts, uncles, cousins and grandparents was to play hours and hours of Canasta, which needs no words, only Rules. This odd paralingual atmosphere resulted in peculiar cultural instabilities: *'all my relatives spoke Dutch around me but we children were never taught it. As a result, the three of us grew up as foreigners in our own family.'*[28] All through my growing up I was given to understand that a thorough application of the Rules would lead to harmony. So when I eventually discovered computer programming I was ecstatic that now, at last, I had found a set of clear and unbending parameters. Furthermore I developed an enduring affection for all those clumsy mechanicals and meat-based life-forms who long to fit in with human society but somehow cannot ever get it quite right.

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[28] Thomas, S. 2004, *Hello World: travels in virtuality*, Raw Nerve Books, York. p.114.

In my second undergraduate year at Nottingham Polytechnic a new option was introduced, The Craft of Writing, my first creative writing course. I wrote, naturally, about the delights of computers, starting with my first short story for over fifteen years. Entitled 'The Adapted Woman'[29], it optimistically described the wonderful potential of being able to programme lovers to remain devoted, plus other similar benefits which I have now forgotten. That story was closely followed by another, the humorous 'The Wondrous Jewel of Zar'[30], in which a woman becomes empowered by defeating enemies in a computer game and then goes on to release herself from her loveless marriage. Both stories were glowingly optimistic about the future of computers, and so was my final year undergraduate dissertation *Close Encounters of the Machine Kind,* which examined popular responses to 'intelligent' machines. I wrote:

> Computers are perhaps no different from all our other
> mechanical achievements, but they seem different. Their
> versatility permits us to create an ever-widening range of
> experience, and through them we can come to feel the
> machineness within ourselves.[31]

It was this notion of 'machineness' which would inform my writing for the next fifteen years and which continues to intrigue me.

In the summer of 1988 I completed my degree and attended an Arvon Course in Writing Science Fiction, taught by Iain Banks and Lisa Tuttle. That week I felt as if I had finally found my intellectual and artistic milieu, and as soon as I returned home I began work on the full-

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[29] Thomas, S. 1987, 'The Adapted Woman', unpublished short story.

[30] Thomas, S. 1987, 'The Wondrous Jewel of Zar', unpublished short story.

[31] Thomas, S. 1988, *Close Encounters of the Machine Kind* (Unpublished BA Hons dissertation) p.26.

length work that would eventually become *Correspondence*.[32] Like most first novels, it arose

from a personal obsession. I had been gripped for some time by the burning desire to leave

my Midlands city and find a country retreat where I could... what? I didn't really know what I

would actually do in the countryside, I was just desperate to *be there*. At the weekends I

would drive a mile or two out of town and wander around the fields, drunk with mud,

intoxicated by birds, lusting after hedgerows, and when I couldn't get away I pored over

Ordnance Survey maps and footpath guides. But family circumstances meant that a house-

move was out of the question, and in the end there was only one thing for it – I would have

to call in fiction to the rescue. I resolved to invent a character and send her out instead. On

my behalf, Rosa would investigate the truth of the pastoral fantasy and thus, perhaps, ease

my own longings.

On my return from Arvon I began writing this new story, which had already been circulating

in my head for about a year, but while Rosa roamed through the countryside, always

growing on the page, I was also continuing to explore my fascination with computers in a

story about a female programmer who was slowly and doggedly transforming her body into

a machine. Her job is that of a 'compositor', an empathic conduit through which data is

streamed to be reprocessed into a constructed fantasy – more of a sensory experience than

a computer game. I invented the use of 'compositor' to mean an artist who combines all

types of media into a new format:[33]

> Compositors spend years researching and absorbing every
>
> facet of human experience and perception and relating
>
> them to their current brief. For example, a typical project
>
> might be to build a fantasy of warmth, for sale to geriatric
>
> hospitals. The compositor will spend twelve months

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[32] At Arvon I also met Ann Kaloski for the first time. A fellow student on the course, she would six years later become my editor and the publisher of *Hello World*.

[33] It is odd to read this excerpt in 2004, fifteen years after it was written. It describes the approach of what we would now call a multimedia artist.

> absorbing every physical sensation of warmth. They will
>
> read descriptions of the ways in which people visualise
>
> being warm, and learn the associated colours, smells and
>
> musical tones. Then they construct a multisensory
>
> experience which could be used to revive patients suffering
>
> from hypothermia.[34]

This character had suffered a terrible bereavement when her husband and sons were killed in a car-crash, leaving her with a surfeit of unfocussed empathy which she redirects into her work. But the process is repeatedly painful and so she plans to escape by transforming herself into a machine which acts but does not feel.

For six months I developed the two narratives side by side but neither seemed to be satisfactory. Finally, the transition which merged the two incomplete stories into something much more viable came through a simple writing exercise. At that time I was teaching a number of creative writing classes and one of the exercises I encouraged my students to do when they felt creatively blocked was to take their characters outside the story and invent either a monologue or a conversation between them – no matter how unlikely that would be within the context of the narrative they were trying to construct. It was a little like automatic writing and involved simply listening to the characters in one's head and scribbling down whatever they seemed to be saying, as fast as possible, with no attempt to censor or shape. Effectively it was about allowing them to speak without constraint. One day, in a spirit of play more than anything else, I decided to try this exercise for myself and wrote a dialogue between the characters in my two stories – an unlikely pairing of Rosa, the suburban and sensual country-lover, with the nameless and isolated computer programmer. What they 'talked about', much to my surprise, was romantic love. It turned out that they had a passion for each other.

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[34] *Correspondence*, Overlook paperback edition, p.18.

As a consequence of this unexpected encounter, my programmer story began to take on a different shape. Twenty-five pages into what is now *Correspondence*, Rosa appears for the first time in a section called 'From your given data you create Rosa'.

> But let's not rush things – she's not yet properly sentient. She's only a composite built of data, and although you're excited by the prospect of her journey, she herself is not yet even aware of it. She lives and breathes in your imagination and it's not yet time for you to meet her. But she will be here soon, and her story will unfold itself.[35]

When I told friends that I was writing a novel about Nature *and* about computers, they laughed in disbelief as if the two could never occupy the same universe. But clearly this was the way the narrative was going, and it felt comfortable to follow it. It is important to note that this was very much a first book and I had no idea how to write a novel nor any template for the unusual combination of subjects I was seeking to work with. Very early on I chose to reject the form of the plotted story, preferring instead to allow the narrative to unfold itself so that I could then shape the material which emerged. In essence, writing this book was as much a process of personal discovery for me as it was a process of building a coherent narrative.

My main problem, and one which always recurs when I write fiction, was point of view. I wanted my reader not just passively to listen to the story as it was told, but actually to utilise the tropes of computer life which had become so familiar to me. Although I was making a book rather than a piece of interactive software, it was important that the reader should have a sense of engagement in the narrative, to feel that in some way they might be part of it. I wrote and rewrote from different angles, and finally settled upon an unusual and somewhat difficult perspective which nevertheless felt most appropriate – the book would become a roleplay in which the reader is the player directed by the narrative in the same second person voice used in roleplay gaming. At that time the most popular form of computer game

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[35] *Correspondence*, p.27.

was the text adventure and I was enthusiastic about featuring some of these functions in *Correspondence*. In a print novel, I could not make them actually work, but I could nod in their direction.

Early computer text adventures were completely plain text but I also experimented with games that were both text-based and a combination of text and image. Both, however, operated on the basis of a dialogue with the user via typed instructions which the programme did or did not understand. There were no half-measures, no broad ranges of interpretation. In 'Towards a Theory of Interactive Fiction', Nick Montfort describes the basic elements of computer text adventures:

- a text-accepting, text-generating computer program;

- a potential narrative, that is, a system which produces narrative during interaction;

- a simulation of an environment or world; and

- a structure of rules within which an outcome is sought, also known as a game.[36]

I did not play these games for long because I found them frustrating and annoying, but I was certainly interested in the way they operate. The designer not only devises the story of the game but also writes all of the input and output, so each one is totally dependent on the skill and breadth of that person. This kind of game requires the player to enter commands for the programme to follow, but in order to do this the programmer must list as many kinds of input and responses as possible – the more of them, the richer the game. Commands can be abbreviated for speed. So, for example, the command to look at your surroundings can be reduced to 'look', and movement through the story can be driven by a simple compass direction, e.g.:

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[36] Montfort, N. 2003. *Toward a Theory of Interactive Fiction*. http://nickm.com/if/toward.html. Accessed 1 October 2004.

User types>   Look

Screen output> You are standing in a large lounge filled with sunlight. Portraits hang on the east wall. At the north end of the room there are French windows leading out into the garden.

User types>   North

Screen output> You pass through the French windows and find yourself standing on a close-cropped lawn. Birds are singing. You can smell the perfume of red roses. There is a sign saying 'Keep off the grass'.

This seems smooth enough until the typist makes a mistake, at which point most programmes, especially the early ones, will resort to a standard reply like 'I don't understand that'. Programmes can have a very limited vocabulary and be confused by longer texts and natural speech: so to use a command with the correct meaning but not in the game's dictionary makes everything grind to a halt until the typist finally hits on the right word or phrase – and types it without errors, since most games at that time were tremendously textually inflexible:

User types>   What's in here?

Screen output>   Sorry I don't understand that

User types>   Where is this?

Screen output>   Sorry I don't understand that

User types>   Look around

Screen output>   Sorry I don't understand that

User types>   Look

Screen output> You are standing in a large room filled with sunlight. Portraits hang on the east wall. At the north end of the room there are French windows leading out into the garden.

User types>   Nort

Screen output>   Sorry I don't understand that

This functionality provides a new level of narrative not available to the writer using a static print format, and also echoes the playfulness of some post-modernist writing. See, for example, Alain Robbe-Grillet's short story 'The Secret Room', a description of a room which turns out to be a description of a painting of a room. This detached prose could itself be the text for a sophisticated game scenario, with its specific yet oddly neutral topological descriptions of an individual frozen in time, perhaps waiting for the player to direct the next move:

> At the very top of the stone staircase the little door is open,
>
> letting in a yellow but continuous light, against which the
>
> dark silhouette of the man wrapped in his long cloak stands
>
> out. He has only a few more stairs to climb to reach the
>
> threshold.[37]

The reader of *Correspondence* is also its player, addressed in the second person and given instructions on how to proceed by a rather whimsical tour guide.

> ...if I could just interrupt for a moment – it's time to give you
>
> all some input about your role. Just a little bit of background
>
> to help you, and then you can proceed. Could you all retune
>
> to the Guidetron frequency... I'm switching you in now...[38]

I was growing very preoccupied with the difference between machines and people, principally because I was becoming increasingly convinced that there was not much of a difference. The Turing Test, that famous experiment designed to determine the existence (or not) of a recognizable dissimilarity between human and machine, seemed to have little to do

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[37]Robbe-Grillet, A. 1961, 'The Secret Room', *The Penguin Book of French Short Stories*, ed. Marielle, E. Penguin, Harmondsworth, p.407.

[38] *Correspondence*, p.17.

with the real world, where the meat/machine distinction was fast disappearing in a way that Turing had not anticipated. By the early nineties, thousands of people were already mixing up their bodies with machines, and cheap prosthetic limbs became widely available. Plastic, micro, and nanosurgery were all commonplace. Human and animal organs were being transplanted as a matter of routine (as early as 1988 UK surgeons had successfully transplanted living brain cells). I was increasingly fascinated by this potent mixture of bodies with machines and I wanted to know how it really *feels* to make electronic contact with a machine. What was the new digital sensorium like? I imagined it as heightened sensation:

> You love that feeling of logging on! It's turned you into a
>
> junkie. You hook in, and you want to stay there. You can
>
> feel the feather-duster tickle of digital switches clicking in
>
> your brain, and when the power is high they send frissons
>
> of electrical charge through your body like a series of
>
> impulse orgasms.[39]

Andrew Marvell's poem 'The Garden', written in the seventeenth century, seemed to describe the same kind of sensual encounter:

> The Mind, that Ocean where each kind
>
> Does streight its own resemblance find;
>
> Yet it creates, transcending these,
>
> Far other Worlds, and other Seas;
>
> Annihilating all that's made
>
> To a green Thought in a green Shade.

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[39] *Correspondence*, p.59.

'That Ocean where each kind/Does streight its own resemblance find'. Here at last was the conjunction I had been striving to discover. Marvell had identified the buzz of a meeting which would excite the hacker three hundred years later – not in a garden hung with peaches, but in an infinite space swirling with colours and abstractions. This was the cyberspace famously described by William Gibson:

> A consensual hallucination experienced daily by billions of
> legitimate operators, in every nation, by children being
> taught mathematical concepts... A graphic representation of
> data abstracted from the banks of every computer in the
> human system. Unthinkable complexity. Lines of light
> ranged in the nonspace of the mind, clusters and
> constellations of data.[40]

In *Correspondence*, the character being 'played' by the reader is a professional compositor of dreams, an artist who draws on her own empathy to create intense experiences for her users. In this instance, however, the compositor is also recreating herself, undergoing a series of operations to transform herself into a cyborg mix of flesh and machine. Locked into working harder and harder to earn enough money to pay for her successive surgeries, she craves to be liberated from the lived body, longs to be driven by programming rather than desire:

> Sometimes you wonder what it will be like when you have
> no emotion. You try to imagine it, but it always escapes
> you. Right at the beginning you asked your specialists if it
> would be possible for you to retain a little joy, or at least
> pleasure, but they only smiled and began to explain it all
> over again. (You wonder if you will be able to smile.)

---

[40] Gibson,W.1984, *Neuromancer*, Gollancz, London, p.67.

Pleasure is only the reverse side of pain, they said, and both have no equivalent that we know of in the inorganic world. On the other hand, they said, we can't say for sure that inorganic subjects do not experience it. When the time comes, if it is possible, we would like to ask you about that. The problem is, they said, that once the transition is completed your testimony will be unreliable since you will no longer have any trustworthy data with which to make comparisons. In fact, we don't know whether we shall be able to communicate with you at all. Of course you will be able to output data, even words, but the concepts behind those words may be meaningless to us. We shall have to wait and see, they said.[41]

In the 1983 film *Android*[42], the android Max has the opposite problem – he longs to become human. In his private quarters, he practices tipping his Bogart hat and strutting a Bogart walk, his desire to get it right matched only by his evident puzzlement about the meaning of the thing. He wants to be human, but it is not instinctive in him, so even as he works hard to walk the walk and talk the talk, the result is simply comedic and sadly clumsy.

There are two scenes in *Android* which have influenced my thinking a great deal. In the first, Max watches Dr. Daniel having lunch with Maggie, a criminal fugitive who has recently arrived at the research station where Max works alone with Dr. Daniel. Maggie is the first real-life woman Max has ever seen, and he quickly becomes obsessed by her. Monitoring the pair on the control room screens, he concurrently runs a video of the moment in Fritz Lang's *Metropolis*[43] when the doctor activates the android Maria. His eyes flash between the

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[41] *Correspondence*, p.141.

[42] Lipstadt, A. *Android*, USA, 1983.

[43] Lang, F. *Metropolis*, Germany, 1927.

two scenes as he plays James Brown's 'It's a Man's Man's Man's World', and the lyrics of the song take on a peculiar resonance when heard by a mechanical individual.

> Man made the cars to take us over the road
>
> Man made the trains to carry heavy loads
>
> Man made electric light to take us out of the dark
>
> Man made the boat for the water, like Noah made the ark.
>
> [44]

Max is processing a great deal of data in this scene, and most specifically he is learning that being a human male is not just about sex but also about the control and exploitation of both women and machines. This is further emphasised in a second key scene, when Dr. Daniel removes his 'moral governor' microchip. At the moment the chip is withdrawn Max becomes intensely disorientated – his rich 3D colour vision is replaced by a monotone graphics matrix and his language is reduced to an incoherent stutter. His face twitches between grimaces and twisted smiles as he cocks his head to hear imaginary sounds. 'I hear ships!' he exclaims. 'Do you hear ships? Woo woo!' Then his jaw contorts again as Dr. Daniel's tools whine like dental drills and the veneer of programming which has made Max appear so disarmingly innocent is removed to reveal a brutal killing-machine with no scruples. He is, after all, a mechanical device under the control of its designer. 'You have been of great help to me, Max,' soothes Dr Daniel as he works, gently touching Max's chin to bring his head into the correct position. 'You have kept the floor spotlessly clean.' While the nameless character in *Correspondence* wonders what it will be like when she has no emotion, in *Android* we are voyeurs of Max's transformation between the two conditions. This scene also links back to an essay I was writing at the time for Lucie Armitt's collection *Where No Man Has Gone Before*[45] in which I discussed two films, *Tron*[46] and *Short Circuit*[47], which

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[44] http://www.lyricsdepot.com/james-brown/its-a-mans-mans-mans-world.html

[45] Thomas, S. 1990, 'Between the Boys and their Toys', *Where No Man Has Gone Before* Ed. Armitt, L., Routledge, London.

both feature a relationship between an adolescent boy and an intelligent machine, and in which a female character enters as an interloper, or mediator, or both, and the machine acts as an intermediary between childhood and sexual maturity. The essay begins with an account of *Metropolis*, once more echoing the scene in *Android*, and ends with the testimony of one of the hackers interviewed by Sherry Turkle for her book *The Second Self:*

> I think of the world as divided between flesh things and
> machine things. The flesh things have feelings, need you to
> know how to love them, to take risks, to let yourself go. You
> never know what to expect of them... I stay away from the
> flesh things. I think this makes me a sort of non-person. I
> often don't feel like a flesh thing myself. I hang around
> machines, but I hate myself a lot of the time. In a way it's
> like masturbating. You can always satisfy yourself to
> perfection. With another person, who knows what might
> happen? You might get rejected. You might do it wrong.
> Too much risk. [48]

At the end of *Correspondence* that divided world is endorsed because the protagonist does not merge the flesh and machine: she opts for one above the other. But by mistake she takes with her Rosa, now translated into a software virus and joining her inside the computer, never to be separated:

> She'll be there, living within you, when you dip your toes
> into a cold moorland stream; when you taste a strawberry;
> when you enter your lover's secret places – Rosa will be
> looking through your eyes and reaching out through your

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[46] Lisberger, S. *Tron* USA / Taiwan, 1982.

[47] Badhan, J. *Short Circuit*, USA, 1986.

[48] *The Second Self*, p.203.

fingertips. And all the while our input will be streaming

through you. Rosa will show you Life as it should be lived.[49]

Critical response to *Correspondence* was very positive. It was short-listed for the 1992

Arthur C.Clarke Award for Best Science Fiction Novel, and also for the James Tiptree Jnr

Award. It received an Encouragement Award in the European Science Fiction Awards.

Although little reviewed in England outside the science fiction press, it was warmly received

by the general literary press in the US and received a number of excellent reviews including

two pages in *The Village Voice:* 'She writes about our machined, manipulated landscape

with bold sensual accuracy. Billed as a 'roleplay' as well as a novel, CORRESPONDENCE is

formally inventive with a rich sense of humour'. The literary reviewers, mostly American,

commented on the experimental construction of the novel and were attracted by the

philosophical challenges I set out. In *The Review of Contemporary Fiction*, Lance Olsen

wrote: 'Sue Thomas's first novel is a highly original, highly complex and highly cerebral self-

reflexive piece... an interesting textual cyber-ambush' and the *Los Angeles Reader* said that

it 'successfully addresses issues of spiritual transcendence in the context of a good story.'

Since those early reviews, however, *Correspondence* has been written about by academic

critics and in that context it seems to have taken on a different potency wherein I am

featured not as an author of ideas, but as a feminist author. Presumably this is because I am

a woman and the book was published in the UK by a feminist publisher. For example,

Correspondence is discussed in some detail in Mary Catherine Harper's essay 'Incurably

Alien Other: A Case for Feminist Cyborg Writers' where she draws the conclusion that 'the

transformation of Thomas's protagonist indicates a blatant critique of the feminine

dependence on husband and family for self-worth'[50]. And in *Reload: rethinking women and

cyberculture*[51], Flanagan and Booth describe it as 'an account of women writing women'[52],

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[49] *Correspondence*, p.153.

[50] Harper, M.C., 1995, 'Incurably Alien Other: A Case for Feminist Cyborg', *Science Fiction Studies* Volume 22,
p.417.

[51] *Reload: rethinking women and cyberculture*, p.46.

[52] *Reload: rethinking women and cyberculture*, p.46.

although they are more alert than Harper to the metafictional nature of the experimental narrative. It is ironic that in trying to escape the body I find myself pinned down by my own physiology, my writings viewed through the glass of agendas I had not particularly adopted. I have never set out deliberately to explore feminist politics and although of course I espouse feminism my artistic interests lie in other areas – problems of history, technology, and phenomenology. Ironically, it is the male critic Steven Connor who recognises the ways in which I used the structure of the narrative to echo the digital experience. In *The English Novel in History 1950-1990* he writes that *Correspondence*

> uses the established reading patterns and expectations of
> the novel, as a text which proceeds from an individual
> author to an individual reader, to embody and explore the
> much more complex and decentred forms of
> communication and exchanges of information characteristic
> of computer culture.[53]

The publication of *Correspondence* marked the end of the first cycle in my thinking about computers and physicality. During that time I had obsessed over controlled and programmed behaviour and the transformations that can occur when such rigidity connects with the messy natural world. The works were euphoric, even evangelical, placing full trust in the potential of a human/machine symbiosis and applauding programming as a modern instrument of transformation. I touched on many areas of awareness without fully understanding them, and while parts of the book were deliberate and highly-tooled, other sections were written from a mildly hypnogogic state where I could not predict the outcome. This is very evident close to the end of the novel, when the reader/player/protagonist awakes after the final surgery. What would it be like? I had asked that question many times during the writing, and when the answer came it appeared quite naturally. The change from human to cyborg would feel like a snake shedding its skin. Of course.

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[53] Connor, S. 1995, *The English Novel in History 1950-1990*, Routledge, London, p.39.

The snake awakes to find itself enwrapped by white roots whose hairs have dipped into its flesh to seek the moisture. You remain motionless in order to feel the tendrils encircling and caressing your length. Your unblinking eyes observe the green translucent umbrella which bends before you. Droplets of water have gathered on the underside of the leaves, and you reach out to drink.[54]

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[54] *Correspondence*, p.148.

3. Overwhelming physicality 1992-1995

After *Correspondence* I turned my attention to a different reading of physicality and, perhaps taking direction from the damp sensualities at the end of the first book, began to imagine the body and its potential beyond flesh, in my second novel *Water*[55]. With the inorganic substance H^20 as my reference point, I constructed a conceit around water and its effect on the human imagination. Where *Correspondence* had focussed on the inorganic via metal and plastics, *Water* explored its penetration into human sensibilities.

In the first novel I had set myself the technical challenge of engaging the reader in a kind of pseudo-interactive narrative, experimenting with the device of fiction, and the resulting book had attracted a positive if very specialist critical reception. But I wanted a wider readership for my second novel and it was this desire to broaden my audience which led me to embed a simple storyline into a complex set of narratives about water, undersea life, the ocean, loss, longing and desire. The themes of *Water* are commonplace – divorce, motherhood, isolation, reconciliation – but the real interest for me lay in the opportunity to look for new ways to write about water, a somewhat obscure ambition which, although I think I achieved it, did not sit well with the rather mundane plotline of the book, The result was not very satisfactory – this compromise of a novel was not experimental enough for the critics who had liked *Correspondence* and not formulaic enough for those who had not, but looking back on it ten years later, it is clear that despite its weaknesses *Water* formed a very logical succession to the icy estrangement of *Correspondence,* and its intense imaginings were certainly forerunners to the immersion I was later to experience on the internet.

Where *Correspondence* posited an escape from the body, *Water* indulged in overwhelming physicality. Writing *Correspondence* had been a highly cerebral experience, supported by a great deal of reading and research, but *Water* came out of nowhere and literally caused me nightmares. I even stopped writing it for six months in order to retrieve my unbroken nights. My research consisted of the natural history of the ocean and the lives of fish; the physiology

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[55] Thomas, S. 1994, *Water*, Overlook Press, New York; 1995, Five Leaves Press, Nottingham.

of salt-water and fresh-water drowning, and true accounts of shipwrecks and survival. The book tells the story of a middle-aged woman who, by the intense power of her imaginings, conjures a lover from a drop of water. There are no computers in this book, but the entire scenario is driven by virtuality so strong that it can create a man and sustain him within a dream. *Water* operates the mind beyond the constraints of the known physical world, and does so without either machines or prosthetics. It is a book of darkness, floods, sex and ecstasy, addressing the sublime and accessing the dreaming self to visit the recesses of the body.

At the same time, I was also exploring these themes in other works. I produced, abruptly and out of the blue, a short story 'All Strapped In', written from the point of view of a woman confined to a wheelchair. Like the anonymous narrator of *Correspondence* and the phantom Ruari in *Water,* she is subject to the physical manipulation of others, but whilst in *Correspondence* the interference is deliberately solicited and trusted, and in *Water* it is exerted upon the powerless subject by the main protagonist's intense desire, in 'All Strapped In' it is enforced by chance physical disability. A quadriplegic woman has arranged for her carer to leave her propped up on a bench in a public park so that she can appear to be just an ordinary participant in everyday life. Her plan fails, mainly due to her unusual posture, and the only person she manages to connect with is a small girl being lifted across between her separated parents for a weekly access visit to her father. The child, too, is physically powerless. In both cases, it could be said that other people act as their prostheses because it is other people who perform the acts which keep them alive – lifting, feeding, protection. However in the child's case the protectors themselves are under threat due to their unreliability and the fact that they are distracted by their divorce; and in the woman's case it is clear that her carer is simply an employee with no emotional responsibility or link to her. So in effect these human prosthetics are on a par with the more obvious machine prosthetics of wheelchair and baby buggy, and in both instances the recipient of 'care' is secondary and neglected.[56]

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[56]Thomas, S. 1994, 'All Strapped In', *Wild Women: Contemporary Short Stories By Women Celebrating Women*, Ed. Thomas, S. Overlook Press, New York; Vintage, London.

I included 'All Strapped In' in an anthology I had been commissioned to edit by Tracy Carns at Overlook, who had published *Correspondence* in the USA and had also bought the first (US) rights for *Water*. The book, *Wild Women: contemporary short stories by women celebrating women,* would form a companion volume to Clarissa Pinkola Estes' *Women Who Run With The Wolves*[57], a reworking of myth and legend which was a best-seller in the USA at the time. This area was new to me and I was surprised to see how well it complemented my second novel. In her introduction to my collection, Estes herself applauds the 'psychological extravagance' of a number of writers in the anthology – a comment which may or may not have applied to my story but to which I am happy to lay claim. Further, her analysis of 'wild nature' perhaps answers the question as to why I had followed the digital rule-based world of *Correspondence* with the analogue fluidity of *Water.*

> '...from the scholarly point of view, the wild nature would be called something like this: the elemental instinctual nature, a psychological and perhaps even biological drive that rests mostly in the unconscious and is often over-socialised by too stringent requirements to conform...

> 'But, what of describing this nature from the inside, from the actual experience of it, for there are aspects of it that cannot be described by a sequential language alone. Understanding a bird comes not only from a schematic of the aerodynamics of its bone structure: to understand a bird absolutely requires poems so that a bird's essence might be known...

> 'So too, the psyche has its own idiosyncratic and symbolic language, one that is and has been used by mystics, poets, writers, artists, dancers, painters, and all those

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[57] Estes, C.P. 1992, *Women Who Run With The Wolves*, Ballantine, New York.

who want to describe, not just size and shape and duration, but depth, vitality and numinousity of matters that can never be justly counted by logistical words alone.'[58]

This clash between wild nature and socialisation is a common feature in my writing, and often manifests itself in the way I deal with physicality. During this period I also wrote for the first time about Irene, an aphasic woman whose sole means of verbal communication is via the internet and who would later appear in *Hello World*[59], and a further story about disability and physical constraint, 'Sistema Purificacion'[60], written in 1997 but not published until 2004.

My third novel, *In the Sensorium*, was an attempt to harness the sensuality of *Water* and place it under more control, but the book was never properly completed. It was here that the aphasic Irene appeared again, this time as part of a broader scenario involving a house where three women live in separate flats. One of them steals a child from a mother-and-baby home and when the other two find out they conspire to keep it. I wanted to explore the intense physical connection between mothers and babies as well as the urgency of sex and

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[58] Estes, C.P. 1994, 'Introduction', *Wild Women: Contemporary Short Stories By Women Celebrating Women*, ed. Thomas, S. Overlook Press, New York; Vintage, London. P.xxi

[59] This story later became a scene in *Hello World* and also reflects a real life experience I had when running a computer workshop for severely disabled people in Kielder Water, Northumberland. All the participants had limited life expectancy and most were already severely physically disabled. One of them told me he used the internet a great deal to chat with and meet other people. He enjoyed the net because, he said, 'it is like being dead'. His explanation for this was that when he was dead he would be able to escape his wrecked physical form, but on the internet he could do so ahead of time. In a space where the mind is all you are, he felt freed from the constraints of his damaged flesh

[60] Thomas, S. 2004, 'Sistema Purificacion', *Pulp Net*, London, http://www.pulp.net/fiction/stories/10/sistema-purificacion.html January 2004. Esperanta and Juan are a long-time married couple living in a subterranean house of their own design. Caving and mineralogy have been their lives but now they are growing old and making mistakes. The year before, Esperanta made an error in their lab and was blinded by an explosion. At the moment of the story, Juan has lost his way in a moment of confusion and is trapped underground. Rescuers are trying to reach him. Meanwhile Esperanta, at home, suffers a stroke and instead of seeking help is prompted to burrow deeper into their cave-dwelling, intuitively crawling closer to Juan who is also underground, miles away but somehow close. Their bodies rest in the stone like trilobites, each of them separately folded into diluvian mud, then liberated a million years later by the sharp hammer of some gigantic intergalactic geologist.

other physical interactions. There were no computers or technology issues in this book at all. Indeed it is very noticeable that during this period I was using computers in my daily life but after the surge of fascination during the writing of the early stories, and of *Correspondence,* I had not pursued the topic further in my writing. From around 1991 to 1995 my interest lay principally with the physical body. Virtuality, although still intensely present, was to be found only in the human imagination and in the physiological disconnections caused by sickness and disease. The sequence of repeatedly reworked narratives described above reflects my ongoing struggle to reconcile a number of issues such as how one can communicate via words and what happens when words are taken away; how to cope with the irresistible attraction of the physical sensorium; how dreams and the imagination can transform us, and how both bodies and imaginations can run wild and become overwhelming. Until quite recently I viewed my writing in this period as something of an embarrassing aberration – much of the work was intensely emotional and obsessed with sex, the body, and various kinds of entrapment. I realise now that these writings were a natural product of the stresses in my personal life – after the break-up of my marriage in early 1984 I had developed a coping mechanism of determination combined with strict self-discipline, and so the early rules of programming had provided a welcome and familiar structure. But as that period passed and I found my way both as a person and as an artist, the Jungian undercurrents of *Water* came to the fore. This dualism continues to be both a strength and weakness in my work. I would prefer to sustain a level of orderly and balanced intellectualism but repeatedly I find myself not only driven by a fluctuating state of mind but also drawn to the occasional richness of its creative insights.

The period of uncertainty came to an end abruptly in 1995 when I fell into cyberspace and my preoccupations of the previous four years came together rapidly and unexpectedly. Soon my real/online existence was more absorbing than my literary life, and within a year the book had been cannibalised once again and was reborn into its third incarnation, *The [+]Net[+] of Desire.* This would become my third failed attempt at the same novel, and would also mark the end of my fiction.

4. Bringing the body into virtuality 1995-2000

In May 1995 I attended the second Virtual Futures Conference[61] at the University of Warwick, where I was introduced to networked virtuality through the medium of the text-based virtual environment LambdaMOO. At a workshop organised by the Australian cyberfeminist performance artist Francesca da Rimini, aka GashGirl, I had my first experience of being inside the machine not as an isolated individual but as part of a community. The writing of *Correspondence* had been a very isolated experience but at this conference, for the first time, I met other artists who were interested in the same aspects of technology which I had been working with for so long. Equally important, I was also introduced to the internet and its potential to connect not just one-on-one, but one-to-many, and many-to-many. I immediately began to experiment at LambdaMOO but it was some time before I became fluent enough to participate properly. I describe that period in *Hello World*:

> My first real initiation at LambdaMOO, five months after I
> attended a workshop at the 1995 Warwick Virtual Futures
> conference, was probably one of the most intense and
> heady experiences of my life. Later that year, in September,
> I received an invitation to an online event organised by
> Australian cyberfeminists VNS Matrix. Spiral Space was a
> site specific project taking place at a number of sites
> including the YYZ Artists Outlet in Toronto, Canada; the
> virtual world of LambdaMOO; and anywhere in the world
> that people happened to be able to log on. The
> 'background wallpaper' for our interactions was created by
> artist/programmers collecting phrases used by participants
> as the performance proceeded and feeding them back into

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[61] The Virtual Futures conferences organised by Sadie Plant at the University of Warwick from 1994-6 were a significant focal point for the developing net-based digital arts community in the UK.

the space as randomised text. This backdrop made for a

powerful texturing of our live interactions and somehow

provoked us – the participants – to relate to each other in

an intense and heady manner which held me riveted to my

chair for two hours.

My imagination was infected that day by the realisation that

'place' is not just a tangible area, like a house, or a beach,

or the inside of a car, but it can be a programmed virtual

space too, where nothing is actually real, and yet the sense

of 'being somewhere' is a powerfully realistic sensation.

After Spiral Space I fell into LambdaMOO and did not fully

emerge again for over three years.[62]

When I entered virtuality via the MOO portals of telnet, I found in its crowded environs a very

different kind of sensibility to the one I had imagined in *Correspondence* five years earlier.

Interestingly, at this time Sherry Turkle's research had progressed in the same direction, and

in 1996 she published *Life on the Screen*[63] which tracked the changes from one-one human-

machine interactions, to the one-many and many-many of the internet. Her psychosocial

observations provided a useful marker for my own experiences. I was surprised to find that

the atmosphere of MOOs was more like that of *Water* because where the world of

Correspondence was chilly and remote, life at LambdaMOO reflected the intense emotional

immersion of my second novel. It was this that I wanted to represent in the book that I

renamed *The [+]Net[+] of Desire* – only this time I was not imagining it, I was actually living

it. Where Ruth in *Water* imagined her relationships into being, I could now go one better

than that – I could write them in code, or even become them myself, and they would be real.

The dream of *Correspondence* had become actuality – I could create people and places with

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[62] *Hello World*, p.188.

[63] Turkle, S. 1996, *Life on the Screen*, Weidenfeld and Nicholson, London.

programming, and I could talk to them, visit them, become them, feel like them. *The [+]Net[+] of Desire* was the book that would explain this to people. I became an enthusiastic evangelist for virtual life, and furthermore I was able to make it happen in reality via my new Cyberwriting project, later to become the trAce Online Writing Community.

The first tangible result of my attendance at Virtual Futures was a pressing intention to find ways to connect online with the kinds of people I met there. I worked with Simon Mills[64], who was my MA student at the time and had also been at the conference, to establish a small research project to locate writers working online. The first phase of the project, entitled Cyberwriting, funded Simon to spend the summer surfing the newborn World Wide Web and to produce a booklet of the best sites for writers. This he did, and we published a small photocopied A4 pamphlet in the Autumn of 1995. That winter Simon taught himself HTML so that we could display the pamphlet online. We renamed the project the trAce Online Writing Community and in May 1996 launched the first trAce website at that year's Virtual Futures.

As trAce grew, I had little time for writerly work, but in April 1997 I created my first new media work. Called *Revolver*[65], it was published online in Simon Mills' newly-launched Freebase[66] journal (later to become frAme[67]). Later that year my own creative work was pushed even further back when we were awarded a large Arts Council Lottery grant and I was seconded from my post of Senior Lecturer in English to become full-time Director of what would grow into one of the most significant early websites. Now spending most of my

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[64] Mills was subsequently responsible for the design of most of the trAce website from 1997-2005 and is an artist in his own right.

[65] Thomas, S. 1997 'Revolver' *Freebase Journal of Culture and Technology*, ed. Simon Mills, http://trace.ntu.ac.uk/frame/freebase/suet/r1.html. Revolver tells the story of the day I had two sets of tradesmen in my home at the same time – gas fitters, installing a new back boiler amidst brick-dust and cement, and a computer technician who had come to fix the motherboard of my machine. The contrast between two technologies and two cultures was very notable, not least because only a hundred years earlier gas was one of the leading fuel technologies.

[66] Mills, S. ed. 1997, *Freebase Journal of Culture and Technology*, http://trace.ntu.ac.uk/frame/freebase/.

[67] Mills, S. ed. *frAme Journal of Culture and Technology* http://trace.ntu.ac.uk/frame/

working hours online, I was developing an increasingly sophisticated understanding of the nature of virtual life, and I became totally immersed in the digital world. In my day job I worked with colleagues to create an international network of writers working online whilst in my personal life I made friendships with a broad range of artists, programmers and many other enthusiasts of virtuality. And in whatever spare hours were left over I worked and reworked *The [+]Net[+] of Desire.* However, during this period my creative time was taken up more with trAce than with my own artistic practice, and I published very little in the conventional sense, although I wrote many short pieces, either in LambdaMOO itself or published online. Work produced during this period was both ephemeral and also largely incomprehensible to the uninitiated. Primarily I worked in two virtual spaces. LambdaMOO, the original MOO which I describe in detail in *Hello World,* is a dark mass of anonymous personas, self-regulated by a complex democratic system, where real life identity is protected and sacrosanct. LinguaMOO[68], on the other hand, is an open teaching environment where users can be identified and where behaviour is closely monitored by the individuals who build and manage it. Lingua's friendly village is a sensible and safe place to be, whereas Lambda's busy anarchy is more appealing to those requiring a more urban feel to their projects. I made work in both, depending on the project.

At LambdaMOO I programmed a number of stand-alone texts evoking real and imagined landscapes, including the Dutch polders[69] of my childhood and the ploughed fields of the East Midlands[70]. At LinguaMOO I built a more complex piece[71], a series of environments in response to the work of Andy Goldsworthy, with short texts describing my imaginings of the artist's physical experiences while making specific works on display at the Smithsonian Museum website. The latter was part of *Imagining a Stone,* an extended project with the Australian Critical Art Ensemble, and included a virtual tour and online discussion. I created many virtual bodies, spaces and artefacts at LambdaMOO, amongst them a series of virtual

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[68]LinguaMOO, http://lingua.utdallas.edu.

[69] LambdaMOO, Object Number #103691.

[70] LambdaMOO, Object Number #14691.

[71] LinguaMOO, Object Number #4534.

rooms to accompany the book *The [+]Net[+] of Desire.* The idea was that the reader could read about them in the book but also visit them at LambdaMOO and even interact with the characters, whom I programmed as puppets within the spaces. This involved a series of operations with both text and code. In one case, I experimented by building a 'noisy room' called *Sound.*[72] Information about the room can be obtained by typing **help here** to access the notes written by the original programmer, in this case Lyssabeth. A print-out of the resulting screen would show:

help here

Sound (#67984):

To use this room:

      @noisy   turns noises on/off

      @noises   lists current noises

      @addnoise <noise> adds noises

      @rmnoise #   removes noise # as seen in @noises

         `@noiseinterval min max`

        sets the interval in seconds for random noises

        @noiseinterval 60 120 would make a random noise

        between 1 and 2 minutes apart.

For help about time and daylight, or about smells, type "look #47131" (without the quotes of course!) For help about room features, type "help #9805"

Now, for something really interesting:

Since this is an outdoor room, it should have some pretty flowers, and since LyssaBeth loves flowers, you can put pretty flowers all over your room. To do this, put <<flower>> anywhere in your room's description. You can use <<flower>> multiple times.

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[72] LambdaMOO, Object Number #67984.

For a good example, look at #19434 (my garden) and then take a peek at the description (;#19434.description).

Typing **look #47131** generates several pages of detailed notes which explain how this particular room can be further customised. Here is a brief excerpt:

```
look #47131
```
Generic Celestial Bodied VR room built from #9805

HELP/DESCRIPTION of #47131: Portrait of a Generic room.

 Essentially, this room is an embellished offspring of #9805 (a masterful room.) #9805 is called Generic Secure Seated Integrating Detailed Room. This room does all of those things listed. Additions to seatedness and secureness and detailness and lots of other nesses that you'll have to read about below since I'm constantly adding stuff and kludgily documenting it include:

 (1) Smellness, (2) Moonness, and (3) Lightness. That is, smells, a functioning moon, and daytime/nighttime/sunrises/etc.

Also, another weird detail has been added: People present details. That is, details that appear in the description of the room, ONLY when a certain person is in the room.

TO ADD SMELLS TO THIS ROOM:
```
   Just add a detail with a prefix of "smell."    (include the
period.)
```
eg: If we do the following sequence of things:

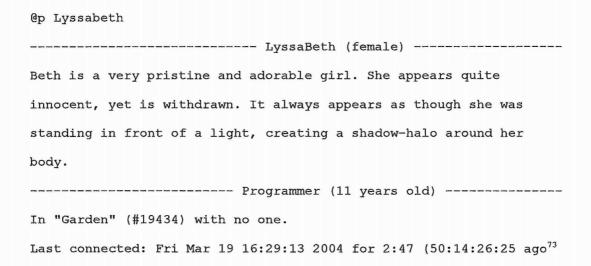 @detail floor is "The floor is covered with scraps of stale food."

 @detail smell.floor is "It smells of spoiled beer and cabbage."

We could get those descriptions by respectively typing,

 look floor   smell floor

The reader may be curious about Lyssabeth and can find out more about her by typing **@p Lyssabeth:**

```
@p Lyssabeth
---------------------------- LyssaBeth (female) -------------------
Beth is a very pristine and adorable girl. She appears quite
innocent, yet is withdrawn. It always appears as though she was
standing in front of a light, creating a shadow-halo around her
body.
------------------------- Programmer (11 years old) ---------------
In "Garden" (#19434) with no one.
Last connected: Fri Mar 19 16:29:13 2004 for 2:47 (50:14:26:25 ago[73]
```

The above example goes some way towards demonstrating how text-based virtuality offers a real opportunity to combine the creation of a programmed environment with one's own imagination and creative writing, and thus to build a virtual space which can be actually visited by means of its address – in this case anyone logging on to LambdaMOO and typing **@go #67984** will find themselves transported to this space.[74]

In *Correspondence* I had seen the route to transformation as happening via the physical hardware of the machine. Believing that a system managed by programming would protect her from the uncertainties of human experience, the protagonist undergoes surgery in order to re-invent herself in android form. But at LambdaMOO the machine is just the intermediary. There is no need to redesign the body when we can simply leave it behind, imagining different physicalities, re-inventing identity, designing new genders – most notably the spivak 'ambiguous' gender which preoccupied my artistic imagination for several years

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[73] Accessed 9 May 2004.

[74] Access to private rooms can also be restricted but there is no space to describe that here.

and which I discussed in an article for *The Barcelona Review*.[75] Later, in *Hello World*, I would write[76]:

> …that early time was so exciting, it seemed like we were living philosophy in action. We were designing a new kind of existence, one without checks or balances, an insanity of identities. I remember that for a while I used a quote from Kroker and Weinstein's *Data Trash* as my body description – how embarrassing to admit that now! Worse than admitting to wearing loon pants in the seventies. Did I really go around in virtuality describing myself as 'Spasm: the state of living with absolutely contradictory feelings all the time, and really loving it: fascinated yet bored/panicked yet calm/ecstatic yet terminal/apathetic yet fully committed.'? [77]

> Dear oh dear! But it's true, we really did imbibe the 'will to virtuality'. We really did believe we were the new electronic bodies.[78]

But in truth this euphoria barely concealed the obvious fact that the new ethics of cyberspace could never radically transform human experience either on or offline. For a while, though, we really did believe they might. The first online community was created by Stewart Brand and Larry Brilliant when they founded the Whole Earth 'Lectronic Link in 1985 as a forum for the writers and readers of the *Whole Earth Review*. However, The Well, as it came to be known, cannot really be called a 100% online community and was not designed

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[75] Thomas, S. 'Spivak', *Barcelona Review 35*, ed. Adams, J. March-April 2003
http://www.barcelonareview.com/35/e_st.htm.

[76] *Hello World*, p.188

[77] *Data Trash*, p.162 .

[78] *Hello World*, p.188.

as such. For many years users met weekly in San Francisco, and the group was highly active both virtually and physically. In 1990 some members of the Well established the Electronic Frontier Foundation to advocate for civil liberties in the technological environment, and in 1996 a very active Well user and ex-Grateful Dead band member John Perry Barlow released a 'Declaration of the Independence of Cyberspace' in which he declared:

> Our identities have no bodies, so, unlike you, we cannot obtain order by physical coercion. We believe that from ethics, enlightened self-interest, and the commonweal, our governance will emerge.[79]

He went on:

> We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth.

> We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity.

> Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here.

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[79] Barlow, J.P., 1996, 'A Declaration of the Independence of Cyberspace', February 8, http://www.eff.org/~barlow/Declaration-Final.html. Accessed 10 Aug. 2003.

During that same decade, the fast-growing community at LambdaMOO was dealing with similar issues on a day-to-day basis. In 1993 *The Village Voice* published Julian Dibbell's account of the notorious 'Rape in Cyberspace' [80], wherein he relates the story of a virtual assault which took place in a virtual room against a virtual group of virtual people, deeply shocking the community of LambdaMOO and causing them to create an internal legislative system to deal with any future similar transgressive behaviour. The history of this community alone provides an intriguing glimpse into the challenge of community-building online[81] and is a rich vein of data for both academic and corporate research projects. It informed much of *Hello World* and certainly influenced my own design of the trAce community and our subsequent community management policies.

For example, in May 2000 the trAce community worked together to devise its own set of Governing Principles designed to accommodate the broad, international, and often anonymous users of trAce and to preserve the kinds of rights of identity and responsibility which were arising in the new digital world. They are still used today in the sign-up at the trAce forums[82]:

> trAce exists to provide a professional and social online
> community for writers, readers and other artists. In support
> of that purpose, the trAce community has adopted three
> general governing principles by which you are expected to
> abide:

> 1. Principle of Tolerance

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[80] Dibbell, J. 'A Rape in Cyberspace: How an Evil Clown, a Haitian Trickster Spirit, Two Wizards, and a Cast of Dozens Turned a Database Into a Society', *The Village Voice*, December 23, 1993.

[81] For an account of this see Curtis, P. 1998, 'Not Just a Game: How LambdaMOO came to exist and what it did to get back at me'. *High Wired: On the Design, Use, and Theory of Educational MOOs,* Eds. Haynes,C. and Holmevik, J.R., University of Michigan Press, Michigan, p.27.

[82] http://trace.ntu.ac.uk/forums/reg.cfm.

We are people of many nationalities, ages, cultures and artistic persuasions. We ask that everyone act with respect for others and recognize that effort may be necessary to avoid misunderstandings rising out of our differences.

2. Principle of Artistic and Intellectual Freedom

We are committed to

a) supporting artistic practice across its entire range;

b) recognising such practice as a basic means of expression; and

c) regarding as fundamental our protection and promotion of the artistic and intellectual freedom of the artists with whom we work.

3. Principle of Responsible Behaviour

We share not only a common sector of cyberspace but also resources, which are provided through real-life support, effort and funding and which are finite. Responsible behaviour is defined as that which conforms to netiquette standards and which does not interfere in the access and use of trAce resources.

Cyberspace had promised to be the great leveller but as it connected more and more disparate communities, the demand for controls and legislation continued to grow. Alongside the pressures of economics, politics, and sheer physical geography, the idealism of virtuality appeared increasingly simplistic. I looked at my novel and found it insubstantial and naïve. I had written:

> To get the most out of virtual life one must subscribe to the
>
> consensus that nothing is real and yet everything can be
>
> believed; that the world around you is a deliberate lie and
>
> yet you admire its artifice; that its bodies are invented and
>
> yet you can 'really' touch them.[83]

I had readily accepted this elaborate construction but eventually the hard facts of reality bore down on me so forcefully that I had to withdraw. I had no desire to give up virtuality but I needed to find a new way to relate to it. I had absorbed so many conflicting realities that I no longer knew which to select and which to reject. My poor twisted novel was ill-realised and going nowhere. So, late in 1999, I ceased work on *The [+]Net[+] of Desire*.

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[83] *Hello World*, p.37.

5. Hello World 2000-2004

In September 1999 I moved to my first solo home from the small townhouse in the suburbs of Nottingham where I had lived with my two daughters until they went to university. My new house stood on a hill on the outskirts of a large village, right on the border between Nottinghamshire and Leicestershire. It had a large garden and was a minute's walk from rolling sheep wolds corrugated by medieval strip farming. I had the whole house thoroughly wired so I could log on from anywhere, then took my laptop outside and sat with it under the apple tree. I moved my bed to the open window and slept beneath the stars, soothed by the lights of planes en route to the local airport. Excited by the thought of living alone and in the country for the first time in my life, I celebrated by making sure I occupied a blended wireless environment of nature and technology where I could connect to everything whenever I wanted to.

As I relaxed into my new rural home life, my work environment became tougher. The trAce Online Writing Centre had been running on an Arts Council grant which expired late in 2000 and all my energies had to be diverted to finding ways to generate income, which meant that I had to give up trying to make sense of virtuality and simply live it. My professional life became even more deeply immersed in trAce than it was before, working long hours and constantly engaging with new challenges and environments in the drive to raise funds. In the early part of the decade I also travelled extensively, presenting trAce at the Adelaide Festival, and speaking in Sydney and Perth in Australia; managing an EU project with partners in Finland and Sweden, organising a conference for the Sorbonne, researching at UCLA as a Visiting Scholar, and presenting at numerous international conferences and events. But all this activity was something of a relief in that it diverted my attention from the hard fact that although I was successfully operating within a wired life, I had singularly failed to write about it well.

I began to suspect that the problem could lie in the fact that I had been attempting for some years to write fiction about virtuality, whilst at the same time feeling increasingly ambivalent

about the nature of fiction itself. As a past writer and teacher of fiction I was well aware that some of the most potent unrealities are those which successfully present themselves as real, but on the internet this kind of artistry takes on a new twist when people create fictions to actually live inside on a day-to-day basis. Somehow, text-based virtuality had managed to give imagined experience the aura of being actual, and this had become so sophisticated that I had come to applaud it as a new kind of creative mode, the author as living art. (Incidentally, I am not referring here to the role-play games which take place in some areas of various MUDs and MOOs, but to the behaviours which arise in the general public and private social spaces). The implementation of *Correspondence*, my experiments with text-based virtuality at LambdaMOO, the application of code, multiplicity, identity, the imagination set free by programming – what marked all those efforts was the actuality of experience which in the early years had been simply imagined and written into fiction. But by 1999 this double-think had begun to break down. Furthermore, my ambivalence about writing fiction had by then extended into my reading habits and I was becoming irritated by the conventions of novels and short stories as they attempted to draw me in. The whole setting-up process of fiction seemed transparent and unengaging, and it became difficult to immerse myself in a novel as I had done since childhood. I no longer had any intention of succumbing to the telling of a story and actively resisted attempts to so engage me. I looked at my shelves of novels and felt utterly oppressed by the presence of so many alien imaginations in my home. Clearly my experiences in virtuality had affected me deeply both as an individual and as a writer. I needed to take a step back and reflect on the meaning of it all.

The wired experience is so personally intense and intellectually complex that it is impossible to convey exactly how it is for each of us as we venture into that very idiosyncratic negotiation between the real and virtual. As Erik Davis wrote about LambdaMOO as early as 1994, 'In a space where everyone is at once person and persona, identity itself becomes a performance art.'[84] Although this will be more true of a text-based virtual space like a

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[84]Davis, E. 1994, 'It's a Mud, Mud, Mud, Mud World: Exploring Online Reality' *The Village Voice*, February 22, http://www.techgnosis.com/muds.html.

MOO, it can also be extended to the experience of people trying to get to grips with the implications of going digital. At trAce I was constantly meeting people who work online and I spoke with many of them about their perceptions of how the net had changed them and the worlds in which they moved. In every conversation the transient nature of connectedness was taken so much as a given that there was hardly any need to define or describe it. Everybody knew what it was, how it felt, the energy of it, the occasional despair at its tricks and limitations. We talked about it using the common shorthand of the net – emoticons, acronyms, program code – because the language itself was the key to the concepts and experiences we were discussing. But the problem was that, with no specific intention that this should happen, it was evolving into a secret discourse which was quite unintelligible to the uninitiated.

I was frustrated by this because the uninitiated were the very people to whom I wanted explain this new connectedness, one which was much broader than the one-to-one of *Correspondence.* I wanted to describe how it had changed me and many of the people I know, but I could find no way to make it comprehensible. Julian Dibbell attempted it in *My Tiny Life*[85], where he described the early days of LambdaMOO and especially the development of a legal and economic system, as well as the infamous Rape in Cyberspace incident, but I knew from discussions with uninitiated friends that they had found the detail indigestible. Yet the detail is necessary, especially in the absence of real experience, if one is to understand how it feels to occupy a space which has no physicality and an uncertain sense of identity. And then there was the very acute sense of being offline, and how I coped with it when I was spending almost all of my waking life wired. And what happens when you encounter the physicality of someone you only ever knew online. And the technicalities of how it all works. And the histories, the geographies, the politics… So much of my understanding of the world had been changed by living online and yet I was trapped inside the very foreignness of my experiences. I had even begun to recognise impressions I had felt online as also being present offline to such an extent that my perceptions of 'reality' and 'virtuality' were starting to merge.

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[85] Dibbell, J. 1999, *My Tiny Life*, Fourth Estate, London.

At this point I would like to mention a text which, had I read it in 2001/2, would have eased my grappling with the problems described above. At the time of writing I have only just discovered it but the little I know so far encourages me that this is a fruitful area of research for those who are writing about the net and specifically about text-based virtuality. Walter Ong's *Orality and Literacy*[86] is an account of the differences between oral and literate cultures. Of specific interest here is his discussion of how human experience was related by oral cultures via the mechanism of story:

> The elemental way to process human experience verbally is
>
> to give an account of it more or less as it really comes into
>
> being and exists, embedded in the flow of time. Developing
>
> a story line is a way of dealing with this flow.[87]

He explains that oral cultures, with no way to fix their experiences in writing, managed their knowledge in substantial narratives and in shorter forms such as maxims, riddles, proverbs and the like. He comments on the transience of many of these communication styles, stressing their essential connection to particular situations which, when they pass, take the narrative with them. In contrast, he explains, 'in writing or print culture the text physically bonds whatever it contains and makes it possible to retrieve any kind of organisation of thought as a whole.'[88]

There is no space here to detail fully Ong's argument regarding the developmental history of narrative structures. Suffice it to say that he emphasises the ways in which writing first 'psychologically locked'[89] words after which printing subsequently locked them further in a physical sense thereby establishing 'a firmer sense of closure than writing could.' In his

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[86] Ong, W. 1982, *Orality and Literacy*, Routledge, London.

[87] *Orality and Literacy*, p.137.

[88] *Orality and Literacy*, p.138.

[89] *Orality and Literacy*, p.145.

view, the novel, child of the printing press, brought with it the beginnings of fiction as we know it. The complex rounded character of contemporary fiction can

> [e]merge in a world dominated by writing with its drive
> toward carefully itemised introspection and elaborately
> worked out analyses of inner states of soul and of their
> inwardly structured sequential relationships.[90]

He contends that 'insofar as modern psychology and the "round" character of fiction represent to present-day consciousness what human existence is like, the feeling for human existence has been processed through writing and print'.[91]

How is this relevant to my efforts to tell the story of text-based virtuality in a fictional mode? Because Ong's analysis convinces me that LambdaMOO and places like it are unique in that although their sole method of communication is textual, the communication that actually takes place there is oral. MOO life happens, as Ong says of a 'real-life' oral community, 'as it really comes into being and exists, embedded in the flow of time'.[92] Its characteristics are therefore those of a group which shares physical space and human experience, and it is equally fractured and transient. Furthermore, it uses tropes and vocabulary that are also embedded within that experience and unintelligible outside it. By the same token, it is very difficult to create a rounded fictional character from a 'lifeworld'[93] of this type, which resists

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[90] *Orality and Literacy*, p.149.

[91] *Orality and Literacy*, p.152.

[92] *Orality and Literacy*, p.137.

[93] Ong does not provide a definition of the term 'lifeworld' but a useful explanation can be found in Agre, P. and Horswill, I. (1997) 'Lifeworld Analysis', *Journal of Artificial Intelligence Research* Volume 6, pp. 111-145, at http://www-2.cs.cmu.edu/afs/cs/project/jair/pub/volume6/agre97a-html/lifeworlds.html. 'The term originally comes from phenomenological sociology where it refers to the familiar world of everyday life, and specifically to that world as described in the terms that make a difference for a given way of life. Cats and people, for example, can be understood as inhabiting the same physical environment but different lifeworlds. Kitchen cupboards, window sills, and the spaces underneath chairs have different significances for cats and people, as do balls of yarn, upholstery,

any structure of completeness, since the situation is being constantly refreshed and altered, not by being processed through another medium, but simply because it is dynamically changing. It is this contradiction which lies at the heart of the difficulty of writing about every day life in MOOs and other types of synchronous communication environments – chatrooms, for example. It is not so much that MOOs themselves are a kind of fiction – after all, the inhabitants do exist in a highly self-conscious, invented but nevertheless authentic world – but that what goes on there is much more like real life than it is like fiction, even though it is itself a kind of fiction. Furthermore, this is fiction which processes itself, since it only exists in text and is therefore fixed at the moment of utterance.[94]

Had I been aware of Ong's work when I was writing *Hello World* I would have made extensive use of it, especially in relation to delineating the oral lifeworld of text-based virtuality. As it was, in my search for concepts with which to translate virtual experience into more familiar terms, I worked instead with two other texts which also proved very useful. Firstly, my wanderings in the countryside had stimulated my interest in the rural life, and so it was by this route that I came to read for the first time Henry David Thoreau's *Walden*.[95] Thoreau's account of life in and around Walden Pond, and his reflections upon human experience recorded during that period of solitude, demonstrated to me how it is possible to blend daily mundanities with a wider contemplative discourse. I also enjoyed his creative leaps, some of which corresponded surprisingly closely to the contemporary wired imagination:

> As an avid reader who connected with the minds of many
>
> authors through their texts, Thoreau firmly believed that we

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television sets, and other cats. Similarly, a kitchen affords a different kind of lifeworld to a chef than to a mechanic, though clearly these two lifeworlds may overlap in some ways as well. A lifeworld, then, is not just a physical environment, but the patterned ways in which a physical environment is functionally meaningful within some activity.'

[94] However, it could be said that unless a logfile is kept, the text is only fixed for as long as it remains on the screen. Once it scrolls off, it is gone.

[95] Thoreau, H.D. 1999, *Walden*, Oxford University Press, Oxford.

do not need to be physically proximate in order to know and understand an individual. Nor does that individual necessarily need to possess a living and fleshly body. He wrote affectionately about long winter evenings spent with previous inhabitants of Walden Pond when a long-deceased settler who dug the pond and a dame herbalist 'invisible to most persons' both entertained him for many hours with their stories of times past. For Thoreau, physical contact ranked low in the rating of valuable interactions, and I would agree with that, although I do still enjoy quite a few of those moments. After all, as he says, 'The value of a man is not in his skin, that we should touch him.'[96]

I also returned to Gaston Bachelard's *The Poetics of Space,*[97] a text I had read some years earlier and which now seemed very pertinent to the new space of the internet. Bachelard's thinking connects not only with the wired imagination but also with the geographies of virtual space. His work helped me to articulate new concepts of place in the wired environment:

> …despite the fact that some of Bachelard's images now carry a different iconicity, they continue to possess a powerful currency, only today they are less actual and more virtual than he might have expected them to be. His array of physical concepts – shells, nests etc – have moved even further away from tangibility and we now accept that 'space' is relative and that the 'house' may be inappropriate for our current needs. This may seem too literal an observation, but it's worthy of mention because technology has not

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[96] *Hello World*, p.103.

[97] Bachelard, G. 1969, *The Poetics Of Space*, Beacon Press, Boston.

diminished but increased our conceptual mental libraries.

Hidden places, secrets, comfort, security and protection do

indeed remain potent images for us today – it's just that we

find some of them in places other than the built house with

all its furniture. Significant personal artefacts today are

more likely to be mobile phones, filofaxes, PDAs,

briefcases, even the interiors of our cars. Places which hold

a mix of the flesh and digital fragments which make up who

we are.[98]

My reading of Thoreau, Bachelard, Romanyshyn, Leder and others helped me to decide

how to approach the question of who we are online in the contemporary world. Part memoir,

part travelogue, the book I planned to write would contain advice, directions, and

interpretation of digital virtuality, and it would be informed by the extensive authentic

experience of the wired community as I knew it. It would certainly be nonfiction. I had no

idea who might publish it or under what kind of category, but I was certain this was the right

way to do it. I was also certain that it should be presented in linear print format because I

wanted to control the reader's experience in the traditional way.[99] But whether linear or not,

the narrative still required a shape. In Spring 2000 I had taken a train journey across

Australia, spending three nights on the Indian Pacific train travelling from Sydney to Perth,

and the trip had been marked not just by the lack of internet access for almost five days –

something I am not used to! – but also by the isolation of staring out of the window at a

largely unchanging landscape. The midpoint was a brief pause at Cook, a town in the

Nullabor Desert which used to be a water stop but now is just a group of empty houses with

a small dark shop open only for train passengers. Silent and still, a dot on hundreds of miles

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[98] *Hello World*, p.40.

[99] Ironically, many who know my new media background have assumed that the book can be dipped into anywhere, but that is not the case – I wanted it to be a linear experience, and wrote it as such. At first I did not even want a web presence for the book, although later I came to view that differently.

of dead-straight track, it was a useful metaphor for the moment of abstract connectedness which lies at the heart of virtual experience.

I mapped out the Indian Pacific journey and worked my writings into its shape. Much of the material was collected from notes, unfinished essays, emails, chat sessions, message boards, articles, and even conference papers, that I had produced over the years. I also took sections from *The [+]Net[+] of Desire* that I had originally written as explanatory material to support the fiction, but which now stood up in their own right. The narrative would follow the shape of a journey, beginning in Sydney with an account of my plunge into cyberspace, and ending in Perth with a cathartic moment as I stepped from the train and from the virtual into the real. I hoped that by locking it into a fixed landscape, the odd displacement of virtuality would feel more accessible to the unwired reader. I was anxious to cross that divide between the two cultures, and as I worked and reworked the texts it was clear that I was speaking increasingly to the novice rather than to the experienced. However, there remained a problem I could not identify. The full nature of it was not immediately obvious to me, but there seemed to be an issue around closure. The book ended, as it still does, with my childhood experience at Hadrian's Wall of sensing the connectedness of the virtual with the physical, but although I felt that was the right image I did not really believe I had constructed the route towards it fully enough. What Alan Sondheim would later call my 'journey of integration' at that time still had something missing, as if part of the map had been rubbed away. I knew this, but could not work out how to pencil it back in, and so I decided to set aside my uncertainty and brought the book to a close .

Throughout 2002, my manuscript was, like *The [+]Net[+] of Desire* before it, repeatedly rejected. It was clear that my agent was having difficulties explaining it to editors – after all, what was it? Not a novel, for sure, but some kind of odd personal story about a complex and detailed cyber-landscape far beyond most people's experience or understanding. Editors could not relate to it, and if they could not, how ever would their readers? Although I had, I felt, made great progress in creating a narrative to contain what I wanted to say, it was still failing to engage publishers.

In Spring 2002 I travelled to the USA to attend a digital literature symposium at the University of California at Los Angeles. I took a day out for sight-seeing and, as I later explained in *Hello World*, this trip would prove to be a clue to the missing element: 'I had only encountered a minute slice of the place but I knew where I recognised it from – it was just like cyberspace.'[100]

I returned to LA that autumn, funded by an AHRB grant to spend a month at UCLA as a Visiting Scholar, during which I interviewed new media writers and explored the digital writing scene. The trAce research was very fruitful but my most intense personal discoveries occurred not within my daily remit but in my spare time, and what I came to experience in Los Angeles was a merging of two kinds of intensities. The first was an intensity of the body – the physical fear of living in that famously violent community with its appalling gaps between the rich and poor, and scattered with the most tanned homeless people I had ever seen, coupled with the ever-present alertness to natural and man-made disasters (earthquakes, El Niño, mudslides, power-cuts, and water shortages are all commonplace in California, and mountain lions roam in Topanga Canyon, just outside the city limits, where in the sixties the hippies hung out and many still remain today) plus the sheer physical pleasure of the beach, the swimming pools, the incredible landscapes. The second was an intensity of the mind – the imagination set free not just among the intellectuals at UCLA and other Californian universities, but also of course in the enclaves of Hollywood, and among the artists and writers of the West Coast. No wonder the internet began here, with the very first node connecting UCLA to Stanford on 1st September 1969. No wonder I felt at home when LambdaMOO, my first internet community, had been developed just up the coast at the Xerox Parc Research Centre in Palo Alto. In this context, my research into one tiny area of internet-based work – digital writing – seemed inconsequential within the larger picture of what was really going on.

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[100] *Hello World*, p.44.

So what was actually happening? If Southern California was the cradle of internet society, and if its impact was felt sooner there than anywhere else, exactly what form did that impact take, and how would it manifest itself in the future? What could I observe there that I could not see in England, or even on the East Coast of the US? The answer seemed to lie in the attitude to technology, the willingness to take on risky projects, the open-minded desire to embrace intellectual opportunities and see where they might go. Of course, this attitude has an obverse side – it can also be naïve, elitist and dangerous, as Barbrook and Cameron pointed out in their 1997 essay 'The Californian Ideology':

> Implacable in its certainties, the Californian Ideology offers
> a fatalistic vision of the natural and inevitable triumph of the
> hi-tech free market – a vision which is blind to racism,
> poverty and environmental degradation and which has no
> time to debate alternatives.

They called for a debate about what kind of hypermedia suits our vision of society:

> How do we create the interactive products and on-line
> services we want to use, the kind of computers we like and
> the software we find most useful? We need to find ways to
> think socially and politically about the machines we
> develop. While learning from the can-do attitude of the
> Californian individualists, we also must recognise the
> potentiality of hypermedia can never be solely realised
> through market forces. We need an economy which can
> unleash the creative powers of hi-tech artisans. Only then

can we fully grasp the Promethean opportunities as
humanity moves into the next stage of modernity. [101]

Their comments pre-date the dotcom crash of March 2000 – the picture looks somewhat different today and the 'can-do individualists' have been rather sobered by the experience. But what marks the difference between pre- and post-dotcom society is, I suspect, the increasing adoption of technology by what might loosely be termed the Humanities community. To see the implications of this we need to look back to 1976 and Joseph Weizenbaum's highly influential book *Computer Power and Human Reason*.[102] Weizenbaum invented Eliza, a comparatively simple computer program which demonstrated natural language processing by engaging humans in a conversation resembling that with a Rogerian psychologist.[103] The program devised its replies by applying pattern matching rules to the humans' statements. Weizenbaum was shocked that his program was taken seriously by many users, who would open their hearts to it, and as a consequence he started to think philosophically about the implications of Artificial Intelligence, later becoming one of its leading critics. *Computer Power and Human Reason* displays his ambivalence towards computer technology and argues that, while Artificial Intelligence may be possible, we should never allow computers to make important decisions because they will always lack human qualities such as compassion and wisdom. This he sees as a consequence of their not having been raised in the emotional environment of a human family.[104]

Barbrook, Cameron and Weizenbaum, although separated by twenty years of technical development, issue very similar warnings about the cold-hearted pursuit of science and

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[101] Barbrook, R. and Cameron, A. 'Californian Ideology', 25 Oct. 1997, *Chaos* http://www.arpnet.it/chaos/barbrook.htm. Accessed 10 Aug. 2003.

[102] Weizenbaum, J. 1976, *Computer Power and Human Reason: from judgment to computation*, W. H. Freeman, San Francisco.

[103] Weizenbaum, J. 1966, 'ELIZA – A Computer Program for the Study of Natural Language Communication between Man and Machine', *Communications of the Association for Computing Machinery* 9, pp.36-45. http://i5.nyu.edu/~mm64/x52.9265/january1966.html. Accessed 20 October 2004.

[104] Notes from Fact Index, http://www.fact-index.com/j/jo/joseph_weizenbaum.html. Accessed 21 November 2004.

profit for their own sakes. While I take on board these warnings and whole-heartedly agree

that steps should be taken to reduce such threats, my impulse is to push beyond them

towards the social and philosophical opportunities of a connected digital community and I

find myself searching for others who are intent on widening these potentialities. For

example, during my period at UCLA, Professor Alan Liu of the University of California at

Santa Barbara invited me to give a seminar for his Transcriptions project[105] and while I was

there I interviewed him about his acclaimed website *Voice of the Shuttle*[106], one of the

earliest online Humanities resources. He also contributed to the trAce survey of the last ten

years of the net and in his reply he made a statement which summarised for me the

approach which so attracted me to Southern California. He wrote about his own transition in

the early 90s:

> I remember rising from my keyboard and walking out to the
>
> bluffs overlooking the Pacific near where I live (near Santa
>
> Barbara, California). Looking out over the Pacific at sunset
>
> that day, I felt I was on the edge of something vast and
>
> unfathomable: new media as ocean. And I remember
>
> thinking of that 'wild surmise' that came to Cortez at the end
>
> of Keats's 'On First Looking into Chapman's Homer.'[107]

Liu shares my interest in landscapes and my desire to examine what it means to live virtually

and yet be aware of our physical history.[108] His naturalistic notion of 'new media as ocean'

made perfect sense to me, and I returned to England determined to piece together the

experiences of people like him, and many others, who had glimpsed some part of the

essence of online virtuality.

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[105] http://transcriptions.english.ucsb.edu/.

[106] http://vos.ucsb.edu.

[107] Response to the Mapping the Transition survey http://trace.ntu.ac.uk/transition.

[108] He has devised a graduate course 'Landscape and the Social Imaginary: Romantic Landscape and Cyberspace' in which *Hello World* is a required text.

However, it was around this time that my agent gave up trying to sell *The Virtualist*, as my book was then called. She said she simply could not find a big enough market, and was not prepared to go 'further down the food chain' as she called it. Once again, I had failed to find a readership. At this point, early in 2003, I began for the first time to consider publishing the book in a web format. I had given up any hope of getting an advance for it, and clearly it would not reach the wide audience I had hoped for. But I was strengthened by the growing conviction that there really was a readership for what I wanted to say. Fortunately, in the late Spring of 2003, I found that readership when Ann Kaloski expressed an interest in seeing the manuscript for her specialist imprint Raw Nerve Books. For some years, she had been teaching *Correspondence* at the Centre for Women's Studies at the University of York so she already understood my approach. This was the breakthrough I had been searching for, and work soon began on the production and publication of the book.

Ann set up a private Yahoo discussion list for designer Hilary Doran, who lives in Washington DC, Ann, and myself, to talk about production and editorial issues. Right at the start, Hilary began working on ideas for the jacket and layout, and her own vision for the book helped me further clarify its meaning in my own mind. In August 2003 she wrote:

> ...one option I'm imagining is a multi-layered image
> montage/collage...with words or fragments of
> words/phrases, high-techy/digital/computer images, images
> from nature (a leaf pattern or roots or something), maybe
> an image of a person, and ??? ...all combined so that they
> overlap, some being semi-transparent with faded edges,
> and all in a monochromatic color scheme with lights and
> darks and shadows and highlights. The book title could be
> in the thermograph technique that Ann described or it could
> be a metallic ink or maybe even a knockout (reverse) so
> that the actual paper stock shows in the title.

What I'm after is an image that at first glance looks like just

one or two main images...but after looking one sees other

images and shapes and text. It's both subtle and complex at

the same time...and I'm both excited about creating it and

worried that I won't be able to reproduce the image that's in

my head.[109]

Hilary's vision was exactly in tune with the book, and her email above is just one of many

examples wherein discussions about the design and editorial processes helped me to

understand my own work at a level not accessible to me before. The final jacket design,

composed largely of images I had taken myself with my digital camera, underpins the

multiple focal points she describes. The square shapes can be viewed either as keys on a

computer keyboard, or as a view of trees through an adobe window. The collage powerfully

reflects the preoccupations of the text.

Design identity would also become an issue in October when we moved on to creating the

website. Although it was initially agreed that the site would be built by Ann Kaloski and

housed at Raw Nerve, the tension between promoting the book in a commercial sense

whilst also creating a website which echoed and extended it – a 'web complement' or 'web

view' – meant that it would require a different approach from the usual more low-key

academic design of previous Raw Nerve publications. It may seem that print and website

design are irrelevant to the actual content of the book, but written into the Raw Nerve

process is an engagement with the whole artefact, and the holistic materiality of the work is

an important element, especially in a book which engages so deeply with the fluid

interactivity of the web and which is likely to grow beyond print publication. It is inevitable

therefore that these discussions become interwoven with the content itself.

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[109] http://groups.yahoo.com/group/virtual_correspondence/message/34.

With regard to the narrative, Ann too had sensed the ill-defined space I'd been conscious of but not been able to identify, and together we searched for the missing part. We discussed the visible text, and also the invisible parts which had been left out because they seemed too personal or irrelevant. We talked about theory, performance, and identity, trying to see the shape of the narrative and looking for ways in which the experiences and reflections of others might help to locate the absences which we instinctively knew were there but could not address. In an attempt to map the problem, I created a large matrix containing all the key sections of the book, then fitted them into the well-established story narrative of The Hero's Journey, devised by Joseph Campbell in the late 1940s. This is the kind of device I have used in the past to create fiction, and although in this instance I was working with non-fiction, it was clear from our long discussions that the weakness of the book lay somewhere in its narrative shape. By the application of conventional story-telling theory I felt I might be able to locate the problem. I did this in two steps: first, I rearranged the components of my narrative until they made sense within the Campbell structure. Then I examined the schematic for gaps, that is to say, for parts of a standard story format which were missing from my narrative. It was a logical exercise with the intention of locating an illogical omission, and it worked.

The theory of the Hero's Journey as laid out by Campbell is that effective narrative works in a series of three stages which can be further broken down into sections. The three stages are Departure, Initiation, and Return.[110] In *Hello World*, the Departure takes place in what became Section 1 of the book, a detailed guide to cyber-community which lays down the groundwork for what is to follow and acts as an introduction to what may be unfamiliar territory for some readers. This stage usually ends with 'entering the belly of the whale' – a transitional or metamorphic moment when the traveller leaves the familiar world behind.

Initiation, the second stage and Section 2 in the book, is a period of trials, atonement, and eventually the fulfilment of a quest or goal. In *Hello World* this involves an intense engagement with virtuality, culminating at the centre of Australia's Nullabor Desert. Perhaps

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[110] Campbell, J. 1972, *The Hero with a Thousand Faces*, Princeton University Press, Princeton.

it is no surprise that we find ourselves at the same point as the metamorphosing snake in *Correspondence* – in a desert, a journey away from civilisation. The second half of this section was the most difficult to write because it made me confront the negative aspects of the virtual life I had chosen to lead. The gold mine in Kalgoorlie was a tangible image for the exploitative and reductive nature of a large part of net culture. The internet I had chosen to engage with was a place of idealistic personal politics built on self-development and mutual understanding. I was ignoring the many ways in which the same goodwill and emotional engagement are mined for profit by those who peddle desire, longing, even simple friendship. This was the smudged part of the map – rubbed out by my own fingers as I tracked relentlessly and blindly backwards and forwards across the web, and it had been indistinct to me because I myself had made it that way by choosing not to see:

> What I had not realised was that being able to program a machine to greet the world is very clever but it is not the same as actually being in the world. The coded body is *not* the lived body. I had discovered code as a way to design a condition and make it actual, not understanding that what it produced was VIRTU-ality, not RE-ality.[111]

It is common at the end of this second stage of the Hero's Journey for protagonists to find themselves in a condition of fulfilled enchantment, living in some kind of apparently perfect Shangri-La. But the challenge of this three-part structure is that one cannot stay in that place. At some point one must realise that the return voyage cannot be delayed any longer. The journey must continue until the end, and so I confronted what I had not wished to admit, that virtuality:

> offered a recognizable constant in an unstable and disorientating physical world. I did not want to give it up, but I did want to find a reconciliation, some way which would positively encompass both my imagination and my physical life. In Drew Leder's terms, the internet had enabled me to experience the being-away of my

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[111] *Hello World*, p.199.

lived body, but I had embraced this opportunity at the expense of my own physical and, to some extent, emotional reality ... I had tried to incorporate virtuality into my life, but perhaps its glimmering imagination really belonged only in art. And if this were true, I needed to seek out a home where both the real and virtual exist at the same time, a place where the body could be comfortable and the imagination could be free.[112]

In Section 3, the Return, I make my way towards that place. I had already discovered it and been drawn to it without understanding why. When I revisited and repaired my own narrative, all became clear. Taking Ann's advice, I began to explore Donna Haraway's *Simians, Cyborgs and Women.*[113] Haraway's words slowly began to make sense. She seemed to be saying that although feminism has in the past eschewed objectivity as a male/scientific standpoint with built-in weaknesses, there is another way to approach objectivity and that is to think of it as embodied objectivity. I would perhaps call that a subjective objectivity, in which rather than an objective view of an item or scientific phenomenon being the only, final, interpretation, it could instead be seen as one of many objective views of that same item, possible fragmented or incomplete, but contributing towards a growing understanding of that item. Thus, we then accept that there will never be a definitive version of the world, as post-enlightenment science has sought to discover, but instead a multiple shimmering of views and experiential evidences. She writes:

> The only way to find a larger vision is to be somewhere in
> particular. The science question in feminism is about
> objectivity as a positioned rationality. Its images are not the
> products of escape and transcendence of limits i.e., the
> view from above, but the joining of partial views and halting
> voices into a collective subject position that promotes a
> vision of the means of ongoing finite embodiment, of living

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[112] *Hello World*, p.225.

[113] Haraway, D. 1991, *Simians, Cyborgs and Women: The Reinvention of Nature*, Routledge, New York.

within limits and contradictions, i.e., of views from

somewhere.[114]

This notion of 'views from somewhere' connects closely with Romanyshyn's comments on the ways in which an individual standing on a hill imagines that, because she can take a long view of the streets and buildings of a city spread out before her, she therefore possesses a broad knowledge and understanding of the community which inhabits that city, but in fact all she 'knows' is the shape – what Haraway calls 'the view from above'. Romanyshyn writes:

> …in becoming increasingly detached it becomes
>
> increasingly possible to imagine that one is in charge and in
>
> control of things. With increasing distance it becomes
>
> easier to believe that one is really at the centre. Like the
>
> man on the hill above the city, for example, it becomes
>
> possible to believe that with a bird's eye view one now sees
>
> all.[115]

But any effort to present a 'view from above' is fated to offer only a shallow picture of reality. In contrast, the 'view from somewhere' of *Hello World* is a portrayal of one of the many partial views which comprise the whole – and the whole, in turn, can never be entirely quantified.[116] This is also reminiscent of Estes' comment about 'describing (this nature) from

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[114] *Simians, Cyborgs and Women: The Reinvention of Nature*, p.196.

[115] Romanyshyn, R.D. 1989, *Technology As Symptom And Dream*, Routledge, London, p.46.

[116] I am reminded of the many films which feature panoramic views of Los Angeles, seen, usually at night, from the Hollywood Hills that separate LA from the San Fernando Valley. Michael Mann's 2004 movie *Collateral* is just the most recent in a very long line of films which zoom in from a shot of the distant city to a detail within it – a street, a car, a bedroom – beginning with a view from above but always moving towards an intimate focus pull to 'somewhere'. The road which runs across the Hills, and the point of perspective for so many of these images, is called Mulholland Drive, and this is also the name of the movie by David Lynch which would reveal to me some of the workings of the blurred part of the map.

the inside.'[117] Indeed, Thoreau referred to the need to use the personal as a foundation for truth:

> I ... require of every writer, first or last, a simple and sincere
> account of his own life, and not merely what he has heard
> of other men's lives; some such account as he would send
> to his kindred from a distant land; for if he has lived
> sincerely, it must have been in a distant land to me.[118]

I had been guilty of avoiding a simple and sincere account. I had tried to present virtuality as a constant to which we must aspire, while ignoring its perils. There was a smeary grease-stain of hypocrisy throughout the entire book, and it had to be cleaned away. Once I had understood that, I was able to make my Return and proceed to the end of the narrative. The text in the last section hardly changed, but now I knew that I really meant it when I wrote:

> Virtuality is my landscape, my city streets, my forests and
> my plains.
>
> It goes on around me constantly, this swell of noise and
> interaction which I move through all the time. It is a
> perpetual and highly-textured terrain – just as a train
> passes by fields, houses, swamps and deserts, so do I
> pass through the online world, in it and of it, myself a part of
> the whole and always accompanied by the murmurs and
> shouts of others travelling through the same spaces. It
> creates the poetics of the network. It is Bachelard's
> immense cosmic house:

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[117] *Wild Women: Contemporary Short Stories By Women Celebrating Women*, p.xxi.

[118] *Walden*, p.5.

Winds radiate from its centre and gulls fly from its windows.

A house that is as dynamic as this allows the poet to inhabit

the universe. Or, to put it differently, the universe comes to

inhabit his house.[119]

***

Since the mid-1980s I have been trying to locate and translate the sensations of interacting

with a machine, or of becoming a machine oneself. In the process I have sought not just to

define these experiences within my own consciousness but also to identify a lexicon with

which to describe them. The fact that this quest has produced, not hard data, but a number

of phenomenological readings, reflects a growing movement away from early attempts to

calculate and quantify the impact of technology upon human existence. Indeed, at the

current moment it is widely accepted that the immense promise of digital life lies in its innate

resistance to definition.

But this has not always been the case. In the early days, the numbers had seemed so

enormous that calculation appeared to be the only way to grasp the situation, and in 1971,

Alvin Toffler described in *Future Shock* the rate at which knowledge was increasing. He

warned of the profound impact this would have on global society:

What is happening is not merely a turn-over of real people

or even fictional characters, but a more rapid turn-over of

the images and image structures in our brains. Our

relationships with these images of reality, upon which we

base our behaviour, are growing, on average, more and

more transient. The entire knowledge system in society is

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[119] *The Poetics of Space*, p.51. *Hello World*, p.264.

undergoing violent upheaval. The very concepts and codes

in terms of which we think are turning over at a furious and

accelerating pace. We are increasing the rate at which we

must form and forget our images of reality.[120]

But, writing at the very start of the internet age, Toffler could not have predicted that the

turnover rate would very soon become uncontrollable. In September 1969, even as *Future*

Shock was in preparation, the first two nodes of the internet (then called Arpanet) were

connected to link Stanford and UCLA and soon, contrary to Toffler's expectations, we began

not to form and forget, but to form, hold, process, store, retrieve, review, and recreate. It is

not a question of thinking in serial, but of parallel processing. Rather than thinking linearly at

ever-increasing speeds, we are becoming adept at cerebral multitasking. This is key to the

portrayals of virtuality and multiple selfhood in *Hello World*.

Sherry Turkle, who had written about one-to-one human/machine interactions in *The*

Second Self in 1984, revisited this relationship in 1995 with *Life on the Screen* to look at how

the many-to-many networks spawned by the internet were impacting upon individual identity:

A rapidly expanding system of networks, collectively known

as the Internet, links millions of people in new spaces that

are changing the way we think, the nature of our sexuality,

the form of our communities, our very identities.[121]

In 1998 Erik Davis took Turkle's psychosocial observations one step further in *Techgnosis*,

examining technoculture through the lens of the history of mysticism and religion. For Davis,

Indra's net was a useful image from which to extrapolate future possibilities:

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[120] Toffler, A, 1971, *Future Shock*, Pan, London, p.147.

[121] Turkle, Life on the Screen, p.9

As the archetype of the network comes to infiltrate

contemporary conceptions of brains, ecology, and

technology, monads and jewel nets arise in the realm of

virtual possibility. Of course, there are problems with such

monumental systems. Indra's net, for example, is a firmly

holistic vision, and there are always holes in holism.

Ecologists and network architects would be the first to point

out that, while everything is ultimately connected to

everything else, some things are definitely more connected

than others.[122]

Since the early days of the internet, users have been struggling to grasp the implications

and also the applications of this immensely complex electronic connectedness. There was a

sense that eventually we would manage to harness it in some way, and my own journey

through cyberspace has not been untypical of that desire to hold and capture the essence of

the network - hence my search for a definitive lexicon and my interest in maps and drawings

of the web. But this approach is not useful or appropriate. Understanding – a better word

would be 'grokking'[123] – the network requires a much more fluid conceptual framework. As

Davis says:

As you contemplate these widening networks, they may

alter the granularity and elasticity of self that senses them,

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[122] Davis, E. 1999, *Techgnosis*, Serpent's Tail, London, p.324

[123] Grok is a verb roughly meaning "to understand completely" or more formally intuitive understanding. The term originated in Robert Heinlein's novel *Stranger in a Strange Land*, where it is part of the fictional Martian language and introduced to English speakers by a man raised by Martians. In the Martian tongue, it literally means "to drink" but is used in a much wider context. A character in the novel (not the primary user) defines it: "Grok means to understand so thoroughly that the observer becomes a part of the observed—to merge, blend, intermarry, lose identity in group experience. It means almost everything that we mean by religion, philosophy, and science—and it means as little to us (because we are from Earth) as colour means to a blind man." http://en.wikipedia.org/wiki/Grok Accessed 7 April 2005

as well as changing the resilience and tenderness of the

threads binding that self to the mutant edge of matter and

history. I suspect there is no end to such links, and that this

immanent infinity, with its impossible ethical call, makes up

the real world-wide web.[124]

Infinity was becoming a problem well before the world wide web. In 1968, as Toffler

completed his analysis of a world flooded with knowledge, Garret Hardin published an essay

'The Tragedy of the Commons'[125] in which he warned against a world flooded with property.

In a situation where, for example, every person is able to add yet one more animal to a

shared grazing area, there is an irresistible temptation to do this even though the outcome

will be to deplete the resources available to future generations. And therein, argued Hardin,

lies the tragedy:

> Each man is locked into a system that compels him to
>
> increase his herd without limit -- in a world that is limited.
>
> Ruin is the destination toward which all men rush, each
>
> pursuing his own best interest in a society that believes in
>
> the freedom of the commons. Freedom in a commons
>
> brings ruin to all.

This pessimistic view was challenged by Dan Bricklin in 'The Cornucopia of the

Commons'[126] (2001) which argues that in an age of connected multimedia 'use brings

abundance' – i.e. the more people use a system by interaction and contribution, the more

resources are generated. Bricklin's analysis was derived from the success of Napster's file-

sharing systems which created a community of users who both drew from and contributed to

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[124] Techgnosis p.323

[125] Hardin, G. 'The Tragedy of the Commons', Science, 162 (1968):1243-1248. http://dieoff.com/page95.htm

[126] Bricklin, D. 'The Cornucopia of the Commons', 2001, http://www.bricklin.com/cornucopia.htm

the database. A popular term for this concept is the 'sheep that shits grass' -- that is to say, a unit that consumes what it produces, thus becoming self-sustaining. Bricklin explained:

> Napster is a manually created database created by volunteers. Somebody needs to actually buy (or borrow) a copy of a CD, convert it to MP3, and store it in their shared music directory. Or, somebody needs to create an MP3 of their own performance that they want to share. In both cases, *creating the copy in the shared music directory can be a natural by-product of their normal working with the songs,* for example as part of downloading them to a portable music player or burning a personal-mix CD. Whenever they are connected to the Internet and to the Napster server those songs are then available to the world. Of course, that person may not be connected to the Napster server all the time, so the song is not fully available to all who want it (a problem with P2P). However, whenever someone downloads a song using Napster and leaves the copy in their shared music directory, that person is increasing the number of Napster users who have that song and raises the chances you will find someone with it logged in to Napster when you want your copy, so, again, the value of the database increases through normal use.

> What we see here is that increasing the value of the database by adding more information is a natural by-product of using the tool for your own benefit. No altruistic sharing motives need be present, especially since sharing is the default.

No sooner had the issue of abundant property – cornucopia – been addressed than the problem arose of how to deal with such abundance. Remember, this is not Toffler's predicted turn-over of knowledge, but parallel processing of ever-increasing items of information which are not learned and then forgotten, but kept to hand and accessed when required.

The next issue, therefore, is the question of how this knowledge can sensibly be handled, and as a result yet more softwares are being developed which in turn give rise to new conceptual constructs. At the 2005 Emerging Technology Conference a panel which attracted a great deal of attention was 'Folksonomy, or How I Learned to Stop Worrying and Love the Mess.'[127] The term 'folksonomy' was coined by Thomas Vander Wal to describe the shared classification of a large body of material using simple classification tags added by the users themselves.

> Folksonomy assumes you can get value from such shared
> classification without binding guidelines for how the material
> is classified, or professional standards for limiting who the
> classifiers are. Anyone who has ever taken Intro to Library
> Science can see why folksonomies are unworkable, which
> makes it all the more curious that they are working in places
> like del.icio.us, Flickr, and Wikipedia. [128]

The three tools mentioned above are used to organise bookmarks (del.icio.us[129]), images (Flickr[130]) and knowledge (Wikipedia[131]). Often huge and unwieldy, and seemingly used by people with the time to categorise and tag everything digital that they own and know,

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[127] O'Reilly Emerging Technology Conference, 2005, http://conferences.oreillynet.com/cs/et2005/view/e_sess/6329

[128] Vanderwal.net http://www.vanderwal.net/random/category.php?cat=132

[129] Del.icio.us http://del.icio.us/

[130] Flickr http://www.flickr.com/

[131] Wikipedia http://www.wikipedia.org/

folksonomies will probably be as short-lived as Napster. But they will no doubt will shortly be refined into simpler and saleable software applications, by which time other softwares addressing newer problems within the cornucopia will have taken their place as the hot freeware of the moment.

So it is that the internet creates, and solves, its own problems. Rather than looking at it as no more than a new kind of telecommunications network with military and commercial applications, we must learn to regard it as a system living and evolving on its own terms. As Douglas Rushkoff said at the US industry conference Poptech in 2004:

> We have been using the concepts of economy when we
> should be using the concepts of ecology.[132]

This statement is very resonant for me. The notion of the internet as an ecology makes perfect sense and is a useful signpost towards the next step in understanding. An ecology is made up of many components, each one interdependent with another, and so it is with the increasingly complex interrelationships of digital society. Cyberspace as an organism is a much more productive approach than cyberspace as a giant supermarket, not least because any sense of control is illusory. Digital evolution is happening, and it is happening whether we like it or not.

'Peering into the haze ahead,'[133] writes Erik Davis, who also takes the view that the network is developing independently and often in ways which are beyond our understanding:

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[132] Rushkoff, D. Renaissance Prospects, a talk at Poptech 2004.

http://www.itconversations.com/shows/detail243.html

[133] Techgnosis, p.330.

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*.[134]

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[134] Techgnosis, p.330.

6. Further towards connectedness

The experience of writing *Hello World*, which involved confronting what Arthur Kroker calls 'the will to virtuality'[135] and beginning to understand its allure, has guided me away from any hope of early clarification and towards other kinds of 'surprises', many of which I expect to arise more directly from the mind and the flesh than from the machine. This is not to say I have given up my passion for computers, not at all, but it does mean that I am expanding my thinking into areas I would not have considered five or ten years ago.

Near the start of this essay I quoted from the hacker Jude Milhon 'Let's see the ultra-violet polka-dot flowers that hummingbirds see, and smell 'em like the bees do. And crank up the sensorium all across the board.'[136] I was excited by that when I read it in the late 1990s. A computer-mediated conjunction of species, merging our sensorial experiences and sharing the space of the world with other beings very unlike us – perhaps alien, perhaps android, perhaps simply avian – is an intriguing possibility. And earlier in this essay there is another reference to the experience of what we might call 'birdness': Clarissa Pinkola Estes writing that 'Understanding a bird comes not only from a schematic of the aerodynamics of its bone structure: to understand a bird absolutely requires poems so that a bird's essence might be known...'[137] These are two interpretations from two very different viewpoints. Milhon is calling for advances in digital technology to enhance human senses. Estes is also calling for an enhanced human sensibility, but she sees the route as being through 'poetry', by which I do not believe she means formal poetics, but rather a kind of creative and possibly empathic interpretation. Milhon wants more science, Estes calls for less.

I wonder what they would make of the following account by ecologist and philosopher David Abram of an encounter on a steep mountainside in the Himalayas. Resting on a rock, he

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[135] *Data Trash*, p.19.

[136] Cross, R. February, 1995, 'Modem Grrrl' *Wired* 119, San Francisco.

[137] *Wild Women: Contemporary Short Stories By Women Celebrating Women*, p.xxi.

was idly rolling a silver coin across his knuckles when he realised that the glinting metal had attracted the attention of a condor which now flew towards him:

> As the great size of the bird became apparent, I felt my skin begin to crawl and come alive, like a swarm of bees all in motion, and a humming grew loud in my ears. The coin continued rolling along my fingers. The creature loomed larger, and larger still, until, suddenly, it was there – an immense silhouette hovering just above my head, huge wing-feathers rustling ever so slightly as they mastered the breeze. My fingers were frozen, unable to move; the coin dropped out of my hand. And then I felt myself stripped naked by an alien gaze infinitely more lucid and precise than my own. I do not know for how long I was transfixed, only that I felt the air streaming past naked knees and heard the wind whispering in my feathers long after the Visitor had departed.[138]

This exchange between a human and a profoundly different sentience is an episode with which Estes, with her grounding in ancient myth and legend, would surely connect. But Milhon, too, knew the longing for this moment, although she would experience it in the digital rather than on a mountain. I too recognise it – it is what I worked hard to describe in *Hello World*: 'just as Ada Lovelace and William Babbage designed a machine that could not yet be made, so we are sensing a world which cannot yet be expressed.'[139]

I believe it is in the 'world which cannot yet be expressed' that connectedness takes place and this is the area I intend to focus on in the next stage of my research. However, the

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[138] Abram, D. 1997, *The Spell of the Sensuous*, Vintage, New York, p.24.

[139] *Hello World*, p.17.

study of connectedness is comparatively new and difficult to define, and the work on it seems to be quite disparate and diverse.

For example, there is a Connectedness Research Group at Dublin's Media Lab Europe, whose stated aim is to explore 'the topic of human relationships and how they are mediated by technology'. This kind of connectedness research is mostly product-driven – for example, the *Habitat* team is designing a range of connected furniture for awareness of daily routines and rhythms between distant family members[140], whilst *Breakout for Two* is developing an exertion interface for sports over a distance – 'traditional sports foster bonding and team spirit through the sharing of a physically taxing competitive activity. This project aims to build the same sense of community over a distance, not with email and instant messengers, but with real balls, sweat, and exertion.'[141] This is only one of many disciplines interested in connectedness in humans and/or animals including anthropologists, geneticists, and psychologists and extending as far as the study of speciesism.[142] The same area is explored by phenomenologists, most notably Maurice Merleau-Ponty, and also by those working in new areas of eco-philosophy, such as David Abram.

In the next stage of my research I plan to find out more about the machine and natural worlds as active stake-holders in the process of connectedness. This will involve looking about both negative and positive experiences of technology, and may well entail deeper examination of technophobic reactions such as fear and disgust. I will begin by looking at two core elements of this relationship – machineness and wiredness, by which I mean the following:

machineness

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[140] http://www.medialabeurope.org/hc/projects/habitat/

[141] http://www.medialabeurope.org/hc/projects/breakoutfortwo/

[142] 'Speciesism is the notional act of assigning different values or rights to beings on the basis of their biological species, by analogy with such terms as sexism and racism. The term is used and considered meaningful chiefly by advocates of extensive animal rights – that is, those who believe that speciesism, so defined, is ethically incorrect and its consequences morally wrong.' Wikipedia http://en.wikipedia.org/wiki/Speciesism. Accessed 5 October 2004.

In *Correspondence* I wrote about the 'machineness' within ourselves. Western culture has long grappled with notions of the body both as a manufactured being (cf. the Golem) and as mechanical being (cf. The Industrial Revolution). But although the Cartesian dualism which separated mind and material is now largely obsolete, there is a heritage of prejudice about technology which needs to be unpacked and set against increased awareness of our own 'machineness'. I plan to explore this in a research project with Steve Grand, inventor of complex AI systems including the highly-successful *Creatures* and more recently the robot orang-utan Lucy. In an interview with Salon magazine he compared his earlier work on *Creatures* with his current work on Lucy:

> I don't mind standing up and suggesting that the creatures I
> made before are alive, but they're certainly not conscious. I
> started asking myself why. The first thing that struck me
> that was missing was that they have no imagination.
> They're just automated. They react to their environment,
> they can't think ahead, they have no sense of the future,
> they can't build models in their head and they can't worry
> about what you think because they can't imagine what it
> would be like to be you. The more I thought about it, the
> more I realized that everything that we care about in what it
> means to be human has something to do with imagination. I
> set out to try to figure out where that comes from.[143]

At the time of writing he and I are working in an application for funding to compare notes and collaborate upon the development of a seminar/workshop exploring this shared territory. In a recent email Steve Grand wrote to me: 'I'm really keen that people recognise that they are machines, and then see that this is not an insult or a thing to be ashamed of but actually an

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[143] Hansen, S. 2002, 'The Emotional Machine', *Salon*,

http://www.salon.com/books/int/2002/01/02/grand/index3.html 2 January 2002. Accessed 10 November 2004.

existence proof that machines can be vastly more exciting and beautiful than is generally held to be the case.'[144] I hope that we will be able to put this to the test in a practical workshop where participants can learn more about the shared qualities of the human body and the machine.

wiredness

Hello World is an analysis of my own personal experience but the challenge now is to decide what to do with that experience, how to decode it, how to take the next step. After spending much of my time for the past decade connected to the web, I would now like to interview early adopters, long-time sophisticated net-users who went online ten years or more before me, and to explore where Alan Liu's 'wild surmise' has taken them. I have a suspicion that they may have developed a way of connectedness which revises their interactions with the world and reconciles the physical and the virtual. It is very possible, of course, that they have rejected the wired world and chosen disconnection, or have found in the natural world the qualities they originally discovered online. In general, I would like to know more about how they have handled their 'wiredness' and whether they have anything to tell us about getting comfortable in the wired world.

Both of these projects are about integration, reconciliation, and connectedness. In 2005 I plan to develop a set of research questions and at that point they may well unify into one project. If that happens, the questions are most likely to focus on how we can sustain the new wired condition and to ask whether it is possible to connect to the machine *and* remain connected to nature. I believe it is, but I suspect the way to achieve it may surprise us. I began my own passage of integration in 1985 and am still very much en route. As for the protagonist in *Correspondence* -- since she journeyed into the machine there has, as yet, been no way for her to communicate with us. But she may already have found that her experience is closer to David Abram's eye-to-eye encounter with a condor than we can imagine, and it is from that point that I plan to move forward.

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[144] Email from Steve Grand to Sue Thomas, 19 October 2004.

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SISTEMA PURIFICACION

Sue Thomas

The sun is already hot on Esperanta's back as she steps into the courtyard
to water the geraniums. She bends to feel their loosening buds and smiles
— only another week and they will be in glorious flower.

Just then the phone starts to ring and immediately her heart freezes
— why would anyone call so early unless to bring bad news? Carefully and
slowly she makes her way into the house and picks up the receiver.

The message has been conveyed hand-over-hand by radio and
telephone until it is distilled down to a terrifying single essence — 'Senora
Munez — yo sento — Juan es perdido.'

Finally, after all these years of wondering when it would happen, and
which one of them it would happen to, it turns out that Juan is the one to
be lost.

And she does not need to ask where.

La Sistema Purificacion is the deepest cave in the Western Hemisphere.
Located just north of Mexico in the Sierra Madre Oriental, it is not yet fully
explored, but is already known to be over 87 kilometres long.

Esperanta de la Cordoba and Juan Munez had met there in the late nineteen-seventies, when the caves were fast becoming the focus for every explorer in the area. They were both new to caving, both freshmen geologists at the University of Texas, and madly enthusiastic about their subject. When the rays of their helmets met 200 meters below the skin of Mexico, in the darkness of a cavern called The World Beyond, it was love at first sight. Esperanta had been the only woman on that particular trip and their meeting provoked much friendly jealousy from Juan's fellow students, although in practice most of them would never have dreamed of marrying a girl who shared their interest in the unlady-like pursuit of speliology.

That summer the young couple met together as often as they could in an igneous conjunction of fire and passion, celebrating their betrothal underground by making love urgently and noisily on rocky ledges to the tune of flood-swollen subterranean rivers or muffled and hidden in crannies just out of reach of their fellow-explorers.

Juan remembers those days as he wades through yet another water-filled passage. He has found no clue to tell him where he is save for the knowledge that this is unknown territory and that he is most seriously out of contact with his colleagues. His wetsuit has become extremely uncomfortable and there is a deep scratch on his face where carelessness had allowed an overhang to swipe him painfully.

His luminescent watch tells him that a new day has begun and he wonders whether they have informed her yet that he is missing. She will already have risen by this time. She will have finished watering the plants in the courtyard, the pots lined up geometrically so that she knows exactly where each one is, how many steps it takes to reach it, and where to position the can to direct the flow onto the soil and not onto the paving stones.

How ironic that such a large part of her time is now taken up with measuring her movements as she travels around the physical world, since

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this practice so much reflects their joint working lives. For the last twenty years they have surveyed La Sistema Purificacion, opening its most intimate regions to the world by means of photographs, samples, measurements, and papers. They have increased documented knowledge of these caves by a great deal, and in doing so earned a good living from the ongoing biography of the flesh of that small slice of their home country. They have made a life together which, even despite the recent change in their personal circumstances, has been happier than he could ever have dared to hope for.

Esperanta too is looking back over their lives together and reminiscing. The caller had promised to send a car immediately to take her to Cueva de Infiernillo, where Juan and his group had entered the system and which entailed a forty metre climb to reach the entrance.

'Are you sure, Senora, that you want to come? It's a dangerous climb.'

She had held her temper. 'Don't you know that I've mapped out as much of that system as Juan? We have always worked together. I could climb into that entrance blind-folded.' And I have, she thought wryly.

The voice stuttered with embarrassment then ground to a halt.

'Okay. We'll be with you in two hours. Try not to worry,' it said.

'Bueno. I'll wait.'

But she can't sit still. Instead she goes to the table where a tray of samples is set out. She knows exactly how far to reach to pick up each piece in turn.

About a year after they were married they had discovered yet one more commonality — a longing to live in an underground house. Oddly, despite so many sharings of confidences, both had considered this to be such a bizarre idea that neither had mentioned it until one day when, as they lay together underground, Esperanta shyly revealed her expensive and seemingly impractical dream.

'It could be dug out, like a bomb shelter. Parts of it would be well-furnished so that inside it seems just like any other house — except it

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would have no windows — and other parts would be left as rough and natural as safety would allow.'

Juan had sighed, shifting position so that his left hip fitted comfortably into a hollow in the rocky floor. 'A domesticated cave. It would be the perfect troglodyte life! I've imagined this too, you know, but it seemed so crazy... and anyway it would cost a fortune...'

She smiled in the darkness. 'Yes. But worth every cent, don't you agree? After all, what is money for if not for buying pleasure?'

They had joined hands then and pressed the fleshy knot against the damp wall of the cavern. 'Ah, pleasure...' he had whispered, rubbing his thumb against the sharpness of her fingernail as he leaned to kiss her.

From that day onwards the entire financial thrust of their newly-formed company was targeted towards earning enough funds to turn their wish into reality. Fortunately they lived in a continent rich in hidden and inaccessible minerals where it was not difficult to become wealthy if you knew how to uncover the secrets of the earth, and in the year they both celebrated their fortieth birthdays they finally moved into of the house of their dreams. Designed by an architect and fellow-caver suffering from similar longings for the subterranean, it comprised a warren of rooms hollowed out of rock and hidden beneath the surface of what would have appeared to be an ordinary stretch of grazing were it not pierced by cleverly-constructed port-holes spraying natural light into the spaces below.

The house was constructed in a series of linked chambers, each leading deeper and deeper into the rock. First, above ground, came the traditional Spanish courtyard surrounded by a high wall and entered through a dark-green door. Beyond the door lay a courtyard of vines and flowering plants, and beyond that ten steps dropped down into living area of the house. You descended more steps into the bedrooms, and down again into what they had christened 'the catacombs'.

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These last were a series of rough chambers cut from the sandstone platform and comprising the 'natural' part of the design, the home-from-home for contented cavers. Here, where the dry atmosphere provided an ideal storage environment, they installed a laboratory, and fitted racks of shelving for storing their samples. But there were always samples on display in the living area too.

Obsidian. Garnet. Feldspar. Tourmaline.....

Esperanta sits at the table and examines the stones with pride, rolling them between her fingers and inhaling their delicate earthy scents. This is the best of their several dozen collections, each gem acquired by either Juan or herself, and each marking significant moments in the long professional career of J&E Munez , geological consultants.

Now her hand shakes as she lifts each gem... but suddenly the chiming of the clock catches her unawares and throws her arm into a shocked spasm. She is instantly enveloped in a brief avalanche of jewels as the whole tray tumbles to the floor. Cursing, she drops to her knees and crawls between the furniture, feeling in crevices for shards of rocks, but bringing out only handfuls of old dust. They have never been tidy people and recently the mess in the house has got worse and worse as books and journals gather unread in swirling eddies around the furniture and boxes of samples fill every inch of living space.

Space. How much space is Juan occupying now as he waits for rescue in the airless black?

He is crouching in the darkness with his lamp switched off to conserve power. He is trying to stay cheerful, and treating himself to a piece of survival chocolate. He does not need to be able to see in order to be able to enjoy the hard chewy sweet.

The last time they discussed the issue, Esperanta had been adamant that food tastes just the same whether you can see it or not, but he remained unconvinced.

5

'It must be different. Surely, if one sense ceases to operate then the others work harder to compensate for the deficiency?'

She had become angry very quickly — another thing which was new.

'Juan... am I a person or an experimental subject? I can't stand this constant analysis. I was in the lab when the aluminium went up — it fried my retinas — now I can't see. End of story.'

'But darling... don't you think you should talk about it more? It's only been six months. You can't just pretend it didn't happen...'

Before he could finish she had swept out of the room, knocking her elbow painfully against the door-jamb. Not daring to follow, he listened as she stumbled down to the catacombs. When she emerged two hours later her eyes had been swollen and red and he was afraid because he could not tell whether she had simply been weeping, or whether she had beaten her own flesh in the fury of her loss.

Suddenly there is a noise. He listens hard. Of course they will be looking for him. But nobody, not even Esperanta, knows the topology here as well as he does. They have maps and instruments but they do not have access to all the knowledge Juan keeps in his head.

While he rests, he mentally goes over the route again, trying to find his mistake. They had entered by the Brinco section and walked to the Dressing Room where they cached some equipment and put on wetsuits. Then there were two climbs — one up the 45 Chute to the Crack of Doom, and then a shorter one to the Mudball Crawl. The Mudball Crawl was exactly as its name implied — a belly-slither which you creep along pushing your pack in front until eventually, when you think you can't stand another metre of the slick wetness, you suddenly burst out into the Rio Verde. From here you descend rapidly to the Canal and the beginning of yet another series of water-filled passages which must be waded and crawled through. Was it somewhere here that he had taken a wrong turning? It is inconceivable that he could have made a mistake in this section which he knew so well, but he cannot rule it out. And that is certainly the last time he remembers seeing the lights of his companions.

And he isn't as young as he used to be. The awful thought goes through him that maybe he's just getting too old for this kind of work, but he dismisses it straight away. He cannot dismiss, however, the sneaking thought that perhaps they are both guilty of mistakes. After all, Esperanta had been blinded by a lab accident so very avoidable that it was almost embarrassing.

She had been doing some tests in their small lab in the catacombs. It was well-maintained, with extractors taking dust and fumes to the surface, and they were both obsessive about safety precautions. So which one of them had, on that fateful day six months ago, left a bottle of powdered aluminium so close to the edge of a shelf that when Esperanta reached up to push back her hair, her hand knocked the bottle straight off? And how had she grown so careless, after so many years, that she did not immediately run away but instead shot out her arm to catch it? And why was she not wearing safety glasses, so that when the bottle burst as it hit the bench she had no protection from the blinding ultraviolet flash which instantly and totally burned out both retinas?

Mistakes. They have been making a lot of mistakes.

A polished slice of emerald glints at her from beneath the sofa but she is unable to sense its anxious glow.

Juan is missing.

Feeling around between the furniture she collects as many pieces as she can, replaces them onto the tray, and puts the tray back on the table.

Then, holding the newly-installed handrail, she makes her way carefully down into the catacombs. She cannot explain quite why, but she is driven to move as deeply into the earth as she can go.

She has just reached the lab when a burst of light cracks through her head and she falls, grazing her cheek on the coarse brown wall as she goes, her knees buckling underneath her as her head thuds down hard on the gritty packed-earth floor.

7

When she comes to, she thinks at first that Juan is with her. She can feel his warm breath pulsing softly against the skin of her arm, but after a while she realises that the breath is her own. The wet grazes on her cheeks feel sore, but the fizzing pinpricks in her head indicate something much more serious. It seems she has suffered a stroke.

She starts to crawl along the floor, edging her way through the darkness inside her head, until she reaches the place where the catacombs come to an end in a curved closure. Now here is something familiar. She has inched through many such spaces in her caving career, and this is nothing new. In fact, it feels more like home than the softly furnished areas above. They have often joked that quite possibly their own hollowings-out might join up with La Sistema Purificacion at some point. Perhaps one day they will break through and create a back-door into the entire complex.

Acting on instinct and squeezing in as deep as she can, she presses her body into the shallow crevice until she resembles the kernel of a walnut enfolded inside the interior curl of its shell. Now, inside the beat of her breathing she stares through the dark and sees nothing but Juan's smile that day thirty-five years ago when her lamp caught him in the blackness and she fell in love for the first and last time.

Juan is cold. Dozing in and out of sleep he wonders from moment to moment whether death has arrived, whether this is it, whether the end has already happened.

He switches on his lamp again, checks, and this time he is absolutely certain. He has never been here before. Nothing is familiar. And the sound has become clearer now — it is approaching water. The level below him is half a meter higher than the last time he looked. Then the lamp flickers and goes out, its battery exhausted.

Suddenly he has this really crazy wish which he can't explain.

8

He hopes that Esperanta is still at home. He wants her to be underground right now, in their private catacombs, listening for him in the rock.

He is listening for her. He can even feel her breath against the back of his hand, but after a while he realises the breath is his own. He imagines her secreted deep inside their home, somewhere on the other side of all this rock, and in his mind's eye he sees them both passing from the fast decay of the flesh into the slow metamorphosis from bone into stone.

He pictures each of them separately folded into diluvian mud, then liberated a million years later by the sharp hammer of some gigantic intergalactic geologist. They will emerge like trilobites to be reunited and laid down together in a snug collection box, side by side again at last.

| author bio

Spivak
by Sue Thomas

Note: Before or after reading this essay, try typing the following into the address bar of your browser: telnet://lambda.moo.mud.org:8888. When the plain black and white telnet screen appears type *connect guest*. After that you're on your own. You might begin by typing *help*.

LambdaMOO is a virtual world which runs on a programme called Telnet, a very simple text-based system that allows you to log into remote computers and type/talk in real time with people around the world via a plain black and white screen. Telnet can be used to access public databases (such as university libraries), but it also provides access to hundreds of virtual worlds, each one providing a permanent and constantly growing imagined environment rather like the 'consensual hallucination' described by William Gibson in *Neuromancer*. LambdaMOO is one of those worlds, and it's also the birthplace of the spivak gender.

The programming code for a MOO was developed by Pavel Curtis at Xerox Parc in Palo Alto, California, from the code for a MUD, first developed at the University of Reading, England. MUDs provide an online environment for sword-and-sorcery type games, whereby the participants play out stories and adventures by adopting prescribed roles, e.g. Wizard, Warrior, Queen etc. The characters inhabit worlds and own properties which are realised via the text-based environment of Telnet, enabling gamers to roleplay online in real time. Think of a game like *Dungeons and Dragons*, where you're given a character to play and various powers and objects to go with it - to be able to be invisible, for example, or to own a magic saddle (if you think that could ever possibly be useful). Now imagine playing this game with other people not around a board in someone's front room but on a computer network. Imagine that the forests and castles you fight and frolic in are pre-programmed so that they're always there, and your character remains yours for ever, so every time you log on you go back to where you were before with the same spells, clothes, possessions, and other accoutrements.

Now imagine a similar world but one where you don't choose pre-designed characters - you invent your own. And you design your own body. And your own buildings. And belongings. And every time you log on, there it

"To adopt the spivak

is - you just slip into it like a familiar suit of clothes. And of course there are other people moving about in the world too, and generally they're all anonymous. This is a MOO, and the mother of all MOOs is LambdaMOO. Instead of asking, like the Microsoft ad campaign, 'Where do you want to go today?' LambdaMOO asks, in effect, 'Who do you want to be today?'.

gender means to abjure the gendering of the body, to refuse to be cast as male, female, or transsexual."

What sets both MOOs and MUDs apart from the multimedia hustle and bustle of the World Wide Web with its RealAudio and webcams and Quicktime movies and Flash animations is that they are created solely out of words. There are no pictures. Everything that exists there is built out of text alone, and indeed it's sometimes hard to decide which is more real - the player/character, or the flesh bound typist who services their needs.

It's an everyday experience for most MOOers to be several people at once; to carry on several conversations and several different types of relationship; to have several different genders and inhabit several different bodies - and to do all of these simultaneously. Many even keep windows open to several moos and so may be a princess in one and a frog in the other. And in one window, if they are very brave, they can take on that most terrifying of all personalities - the 'real' one.

These multiplicitous bodies are called 'morphs'. They are variations upon the original, or default, body, and each has its own name, gender and description. Sometimes the description sounds astonishingly real, at others it may be utterly obscure, but most generally fall into one or another of a number of universal archetypes. The virtual player, however, does not need to be a theorist in order to appreciate the delicate manoeuvres between one morph and another, and the morph bodies are often adopted instinctively as the player moves from one mind state to the next.

To get the most out of virtual life one must subscribe to the consensus that nothing is real and yet everything can be believed; that the world around you is a deliberate lie and yet you admire its artifice; that its bodies are invented and yet you can 'really' touch them. It might seem that this move into accepting fantasy as being 'true' must be damaging and disorientating, and no doubt a few people do sink into it so deeply that they become trapped inside the hive imagination, but for most players it simply becomes yet another useful transferable skill. After all, IRL (In Real Life) we adopt different personalities all the time - one for our parents, another for our lovers, yet more for our colleagues, teachers, bosses and neighbours. So why not create an identity which breaks loose from the body, which challenges the usual physical conventions? Why not, for example, try a new kind of gender, or even no gender at all?

Some MOOers use online gender play as a toy but many others have used communities like LambdaMOO as a serious trial ground for a new sexual identity which, once it has stabilised a little, can be gently transferred to

physical existence. Countless gays, lesbians and transsexuals have come out in the physical world as a result of the liberation of the online world, although it is a tender irony that occasionally typists who have come online to escape the constraints of meat life find that all they have done is build yet another identity prison for themselves. They often try to escape yet again by returning to the MOO as a guest, thus freeing themselves of the character which had originally liberated them from their own flesh.

Some gender identities, however, are less transferable to the flesh although they do have physical resonances. The best example of this is what's known as the spivak gender. Spivak is more representative of an emotional and intellectual state than of a physical configuration. And although the sexuality available to a spivak is a bonus online, it's not the raison d'etre. Rather, it's a subtly gender-free condition. It's not androgynous. It's not unisexual. It's simply ambiguous.

To adopt the spivak gender means to abjure the gendering of the body, to refuse to be cast as male, female, or transsexual. I have been registered at LambdaMOO since 1995, and during that time I've presented as female, as male, as neuter, as plural (e.g. a shoal of fish or flock of birds), and as spivak (ambiguous). Of all of those, spivak has proved the most comfortable. Male did not feel right, and neither did neuter. Female corresponds to my real-life physical configuration but I'm not convinced it fits with my real-life mental configuration. When spivak came along, it seemed to somehow correspond with my own sense of who I am and how I define my priorities. And just to get the record straight, spivak does not mean asexual. On the contrary, it offers more, not fewer, erotic variables, although there is no requirement to explore these and many spivaks use the gender as an indicator of celibacy, or lack of interest in any kind of sex.

The definition of spivak has an interesting history. It was first coined by the mathematician Michael Spivak in his book *The Joy of TeX: A Gourmet Guide to Typesetting with the AMS-TEX Macro Package* published in 1986 by The American Mathematical Society. Spivak introduced this somewhat obscure volume with a statement that would prove to be one of the most enabling notions of the new lifestyles that are developing on the internet:

> Since TeX is a rather revolutionary approach to typesetting, I decided that a rather revolutionary approach to non-SeXist terminology would be appropriate in this manual. I myself am completely unprejudiced, of course. As Mark Twain said, or should have said: 'All I care to know is that a man or woman is a human being--that is enough for me; he or she can't be any worse'. But I hate having to say 'he or she' or 'his or her' or using awkward circumlocutions. Numerous approaches to this problem have been suggested, but one strikes me as particularly simple and sensible. Just as 'I' is the first person singular pronoun, regardless of gender, so 'E' will be used in this book as the third person singular pronoun for both genders. Thus, 'E' is the singular of 'they'. Accordingly, 'Eir' (pronounced to rhyme with 'their') will be the possessive, and 'Em' (rhyming with 'them') will stand for either 'him' or 'her'. Here is an example that illustrates all three forms: E loves Em only for Eir body.

(http://www.aetherlumina.com/gnp/references.html, accessed April 2001)

Entering circulation just when the very first online communities were coming to life, the spivak gender proved to be just what was needed in virtuality. Inhabitants of the fast-growing online world were exploring an identity liberation which had never before been available. Most commonly, they were switching between male and female (principally male to female, it has to be said) but it quickly became apparent that this was only the tip of the iceberg. If typed text was your only medium, and if there was no way for your fellow conversationalists to find out whether you were telling the truth or not, then why stop there? If you could conceal your gender by lying, why not simply refuse to reveal it? Why not adopt a new identity, one which permits you to opt out of the gender thing altogether? Could it ever be possible for individuals to fully relate to each other without knowing their real-life genders? Michael Spivak's category for ambiguity offered the chance to do some interesting experimentation and so it was that his revolutionary approach to typesetting became adopted as a revolutionary approach to gender.

The LambdaMOO programmer responsible for writing the code and creating the spivak gender is called Rog. He did not realise at the time that his experiment would have a hugely important impact on LambdaMOO society by making life as an ambiguously-gendered individual a real possibility for those who preferred to sail a little farther away from the shore. I asked him how the spivak gender came about, and somehow it came as no surprise that this unusual little identity was created as a snippet in order to test the system, but instead of being tidied up and recycled into the database it was left lying around for anyone to pick up. And pick it up they certainly did.

> The short story is that, at some point back in '91 (hmm, has it really been that long? yikes...) when I was overhauling the pronoun_sub code --- what's now $gender_utils was duplicated in about 10 different places and this offended me --- I needed to test it out and so I created a bunch of extra, fake 'genders'. And when I was done, I left them in place, figuring that just having the usual male/female/neuter was boring, anyway. The spivak set was something I half-remembered from a random textbook of his; though when I went back to check it, the only place I could actually find him using them was in the AMS-TeX Manual, which had a slightly different set from what I remembered (I distinctly recall him using 'hir' for the possessive, but the AMS-TeX book has 'eir' so that's what it is, now...). And then, for some reason I can't quite fathom, the spivak one caught on while the rest have been mostly ignored.

> (Moomail from Rog to Lig, 26 August 01)

Today, over a decade after Rog gave it life, the LambdaMOO command **help spivak** generates the following information:

> The spivak pronouns were developed by mathematician Michael Spivak for use in his books. They are the most simplistic of the gender neutral pronouns (others being 'neuter'

and 'splat') and can be easily integrated into writing. They should be used in a generic setting where the gender of the person referred to is unknown, such as 'the reader'. They can also be used to describe a specific individual who has chosen not to identify emself with the traditional masculine (male) or feminine (female) gender. The spivak pronouns are:

E - subjective

Em - objective

Eir - possessive (adjective)

Eirs - possessive (noun)

Emself - reflexive

(Generated by the command: 'help spivak' at LambdaMOO, accessed April 2001)

Although the spivak gender caught on and spread to other MOOs as well, it is not always the easiest gender to inhabit. This is not a complaint – the option is always open to switch genders or morph into another body at any time. But so many people actually object to it that being spivak can become a political act. Other users, who may refuse to interact unless they know your RL gender, force it into the area of politics and then it becomes necessary to defend one's right to maintain ambiguity. Note that this is not about the right to remain anonymous (this is universally accepted at LambdaMOO); it is simply about the right to define a gender identity. After all, the argument becomes ridiculous anyway since I could always 'reveal' a false 'real' gender. So the determination to maintain a spivak persona can grow into a dogged nonconformism when all you'd really intended to do was play around with it a bit. The act of identifying as spivak is often interpreted, by those who choose to do so, as a deliberate and aggressive invisibility, but it is seldom intended to be. (Although of course it can be used as such should the need arise.)

How can one explain this simply?

I presume you accept that you have a face of some kind (mouth, nose, eyes etc) even though you have never physically seen it? By the same token, the spivak assumes that another person will take for granted that e has a virtual presence even though they have not been shown a physical facsimile of it. Is it not enough that e is clearly 'there', clearly communicating? That somewhere there is a typist behind the spivak presence who is performing the keystrokes necessary for em to speak?

"Online, I am described

The challenge for more fixed beings when they encounter a spivak is to decide how far they can accommodate so much unknowing. And yet we already accommodate so much unknowing in our lives – why should this be any different? Consider your colleagues at work or at school. The data which is so

not
by
flesh
but
by
text."

difficult to obtain from a spivak is easy to get from them. Just being in the same physical space makes it simple. One can (usually, but not always) ascertain their gender from their bodies – facial hair, breasts, the bumps of a penis and balls -- but also from the clothes themselves since in most cultures these are dictated by gender. The sounds of their voices, and sometimes their movements, also quickly inform us of their gender; and scent, whether natural or applied, will provide signals which might enter only via the unconscious but which are nevertheless conveyed loud and clear. Similar data conveys age, class, culture, race, physical condition and so on.

A meeting with a spivak online deprives us of most, if not all, of these signals, but this does not make it a null event. Far from it. As I type out a conversation with another spivak and e replies, I might absorb a sense of an energetic yet gentle being. E has a sense of humour. E remains courteous in the ebb and flow of conversation and can talk easily about the most delicate matters. I feel myself warm to em. Or perhaps e is aggressive, irritable. Maybe e does not pay attention to what I'm saying. Eir typing may be messy and chaotic, full of careless typos, capital letters and curses. I get an instant sense that I dislike this individual. Are these encounters incomplete? Or are they simply a different kind of meeting?

The last time I went for a haircut I confronted my physical features there before me in the mirror and encountered the very powerful realisation of just how spivak I actually look these days. Until recently it has always been more of an internalised sense of being neither gender, or both, or something else entirely. But age is changing that. And with my short grey hair, and wearing a black protective hairdresser's cape tight around my neck that flowed across the form hidden underneath, it was as if I were lifted altogether away from my genitalia. My face floated above a constellation of silver clippings scattered on the dark nylon, and I wondered what the hairdresser was thinking as e snipped eir way across the planetary landscape of my skull. But then, from eir vantage point, I suppose this is nothing new. Before the salon glass, we are all reduced to this.

Online, I am described not by flesh but by text. My looks are how I portray myself in realistic mode, or simply how I come across as a person. I am created in your mind, and you, my reader, may dress me as if I were a character in your own fiction. I will wear whatever you think I should wear, be whatever you think I should be. I see, I sense, I compute, and I respond. Think of it in terms of a computer programme – if / then / else / goto. Or think of it simply as a different kind of body language. The language of the moment. The body of the now. You, a collaborator in my identity.

Sometimes I have taken my picture with a webcam. You can always recognise that kind of photo. There's something about the upraised eyes reluctant to turn away from the screen for too long. It's the traditional pose of the self-portraitist, trying to look at the projected image on the screen/canvas at the same time as staring into the camera/mirror. Sometimes, too, when the light is right, I see my face reflected in the computer screen itself. I'm my own genie in the lamp.

Online I am a spivak. My gender is ambiguous. And as for the rest – have you not sensed me enough through these typed words? What other data do you need?

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author bio

Sue Thomas was born in England in 1951. Both her parents were Dutch but made their home in the UK and her interest in cultural outsiders – physical and virtual, android and androgynous – probably stems from those somewhat confused beginnings. Her books include the novel **Correspondence**, a mix of flesh and machine, short-listed for several prizes including the Arthur C Clarke Award (London: The Women's Press, 1992; New York: Overlook, 1993); **Water**, a novel of fluids, imaginations and passions (New York: Overlook, 1994; UK: Five Leaves, 1995) and an edited anthology **Wild Women: Contemporary Short Stories By Women Celebrating Women** (New York: Overlook, 1994; London: Vintage, 1994). She is Founder and Artistic Director of the trAce Online Writing Centre an international organisation for writers working online based in the Department of English and Media Studies at The Nottingham Trent University, England, and providing research, project management and online courses. Her web-based work includes a reconfiguration of **Correspondence** at Riding the Meridian; and **Lines** at Lux: notes for an electronic writing. With Teri Hoskin, she co-edited the Noon Quilt website and book. Most recently an excerpt from **Correspondence** has appeared in **'Reload: Rethinking Women and Cyberculture'** (MIT Press, 2002). **Essaying Virtuality**, a recently-completed non-fiction book from which **Spivak** is taken, aims to reconcile the virtual and the physical through their landscapes and bodies.
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"Mom?" He is beside my bed now, his hand full of leftover candy from Halloween. "Who was that man?"

"Just a friend of Sarah's," I say, and he is totally satisfied with that answer. His trust in me is complete. If it weren't, he'd never give me the *bad* parts to act out. And what's wrong with acting out the bad parts? What's wrong with Jack getting rid of the giant? And why shouldn't Hansel and Gretel kill the witch in self-defense? Hooray for Dorothy, the wicked witch is dead. Then you just turn the page and start all over.

"You want to hear a story?" he whispers.

"Sure," I say. He crawls up, his breath like candy corn.

"It's a scary one."

"Scarier than 'Hansel and Gretel'?" I ask and he nods, moves in closer.

"This is about 'The Three Billy Goats Gruff,' " he says and begins, his voice a rapid whisper, his heart beating quickly each time he says *trip trap trip trap trip trap* and describes the old troll who threatens to eat the goats.

"Are you scared?" he asks, his sticky hand groping to find my face.

"A little," I say. "Are you?"

"Oh, no." He wiggles in closer. "I'm the biggest billy goat of all." His breath quickens as he repeats the verse, hand clutching my arm. I close my eyes and hug him tighter. *Who goes there? Trip trap trip trap trip trap.* I imagine a postcard scene, cartoon-green grass and a brilliant blue sky. Now all we have to do is cross the bridge.

ALL STRAPPED IN ●

sue thomas

I T DEPENDS UPON which direction you look. I can see quite a lot from here, but I still have to turn my head slightly in order to take in the full picture. I don't want to be seen to be staring however—I'm not a naturally nosy person—so I'm restricted to eye-movements rather than to turns of the head.

To readers of body-language I must appear to be pretty relaxed. I'm slumped in my seat so that my head rests upright on the back of the bench, allowing for a forward, rather than a skyward, view; and my spine sinks comfortably into the curved green slats. I have a magazine on my lap, and I'm holding down the pages with both hands because there's a slight breeze. I've read the Agony Column—nothing for me there—and now I'm reading the recipes.

If I look up from my magazine and gaze straight ahead I can see a wide expanse of grass dotted with small children running and playing. Beyond them, parents line the periphery of the paddling pool, seated like sentinels on a row of benches which face away from me, towards the water. In its shallow center there is a miniature light-house. It works. It lights up. And a little plastic keeper leans on the uppermost balcony. At his back, the miniature light spins, but the figure is fixed and cannot see it. Instead, he keeps watch over an ocean of grass. Has he noticed me, I wonder, run aground on this bench?

Behind the pool there are a few trees, mostly deciduous so very green at this time of year, and then the sky. Blue, with a few white puffy clouds.

There's an awful lot of it too, so much that I feel more comfortable looking for the edges.

I turn my head to find the sun, and a man comes into my line of vision. It's nearly twelve o'clock on a Thursday, and we women of the benches are not happy about a lone man wandering in the park at this time of day. As he crosses the grass he leaves behind him a wake of hastily re-formed groups—mothers calling in their children on a pretext of snacks. All eyes are upon him. We just need to check him out, then things will go back to normal again. Just natural cautiousness, that's all.

He is walking directly towards me, and even though I'm looking at the sun I don't wish him to think that he is the object of my stare, so I go back to my magazine—except, of course, I don't. I pull some sunglasses out of my bag and put them on so that I can keep an eye on him in safety. Head lowered towards the page, but eyes raised behind the glasses, I watch him. Now that I'm wearing the glasses he doesn't know that he has a spectator.

He's reached the gravel path now, and I can see him quite clearly. Let me tell you. I'll have to be quick though, because the muscles of my eyes are beginning to ache with all this clandestine movement. He has straight brown hair, and it's quite long. It kinks against his collar at the back, but at the front it has receded badly. He has heavy dark brows and he has obviously shaved very inefficiently, so that his face is streaked with darker patches of missed bristles.

He's wearing a white tee-shirt beneath a dark jacket, and faded jeans with the hems rolled up. His clothes are crumpled. The jacket is of soft cotton, deeply creased as though it has been recently confined to the bottom of a pile of laundry. The tee-shirt is clean, but the neck welt is coming away from the main body of the material and a long thread hangs from it. The jeans have no doubt kept company with the jacket in the laundry pile. I can't see his socks, but his running shoes were pale blue once.

The running shoes have come to a halt upon reaching the gravel, and above them he is looking southward then northward along the path. I cannot follow these directions because that would give the game away. I don't know if he has seen what he expects to see, but he saunters over and sits down on the bench next along from mine. I turn a page. It's the first chapter of a holiday serial: *'Jennifer had always longed to go to the Greek islands. . . .'*

It hurts quite a lot—a sort of ribbon pain across the eyebrows—but I manage to take a sidelong glance at the man. He's looking up and down, and then at his watch. A clue! He must be waiting for someone. We shall have to find out who it is. Jennifer has only just boarded the charter jet, so there's plenty of time. She is settling into her place and fishing for the ends of her seat-belt.

Then wheels crunch along the path, coming from my right. (The man is seated on my left). I strain my eyes his way—he's standing up. My magazine nearly slides off my lap, but I grab it just in time. The wheels come nearer.

Of course, as you'd expect at this time of day, it's a child's buggy. It contains a small girl, two-ish I should guess, and it is pushed by a very pretty lady. Very pretty. She has short white-blonde hair and a white summer dress. The child's hair is the same color, but longer, falling over her shoulders onto a pair of highly colorful dungarees. Both have a milky pale skin which is almost translucent. They must, of course, be mother and daughter.

I'm afraid this man intends to bother them, and indeed, as they approach a shadow of apprehension crosses the woman's face. I prepare to speak up and defend her. But it seems that this won't be necessary, because as they pass in front of me I hear them both say hello. I still feel rather concerned however, because even though they've spoken in greeting their voices have no expression in them whatsoever.

Then—"Hello Annie!" I guess from his tone that he's addressing the child now. I'm still pretending to read so the only view I have is of the blue running shoes, ten pink toenails in white sandals, and four small rubberized wheels. The child's feet rest on the bar of the pushchair, but at the sound of his voice they scramble up and I guess that she is climbing out and up into her mother's arms.

I must see. I raise my head a fraction and meet two blue eyes staring over a delicate shoulder. Chocolate fingers smear the back of the white dress. The adults seem to be unaware of my presence, but the child is looking straight at me. I'm sure that she can see me through my dark glasses. Our eyes meet, so I smile hesitantly. No response.

The couple are talking now—I can't help but hear, they're so close to me. His words come high and fast, but her tone remains low and slow, as though she's speaking through a vacuum. Emotion has somehow been sucked out of her voice on its way through the larynx. I imagine that her diaphragm is tight with all those unspoken thoughts booming around in there.

They're using legal words now—access, injunction, care and control. Neutral ground. Maintenance.

With the rise of his voice the child's arms tighten, but the little blue eyes remain fixed on mine. The smile hasn't worked, so I try to pass comfort across the gap instead. I do it invisibly. I don't know if it has arrived, but her gaze still clings to mine while her arms and legs hang on to her mother, monkey-style.

Suddenly, she grips even tighter, and panic flies across to me like a stream of small shining daggers. He is saying "Are you going to come with Daddy for a little walk now?".

Her head is shaking "no;" her whole body is shaking "no," but her mother is saying "It's only for a little while. Just so that Daddy can see something of you."

The child's head is twisting about but her eyes remain anchored on mine even as she is untangled and passed across. He holds her in his arms, but she drops her hands to her side. She will not embrace him.

"Are you going to ride in your buggy?"

He murmurs in her ear and the little fists clench negatively, so he simply takes the handles of the chair and turns to leave. He will have to carry her. The blonde woman calls "See you soon, honey. See you at four o'clock."

Her voice is brittle, and I wonder at her facility for containment. She walks rapidly away across the grass.

All this time, the blue eyes have not left mine for a moment. She clings now to the other neck, the firm dark neck, but as they move away her gaze still holds on to mine. I wave bye-bye. It's all I can think of to do. But she doesn't wave back.

As I watch them walk away I hear another set of wheels on the gravel— this time, more familiar. Laurie is with them. He's scowling and I expect that as usual I am the source of his irritation. I guess right.

"You are so ridiculous you know," he complains. "I've had to sit for an hour watching you from the van. Anything could have happened—you could have had a fit—you could have been mugged—and then what would you have done? Eh?"

I shrug my one-sided shrug. I know it always drives him crazy. And it does.

"You just don't care do you? I should never have let you talk me into it. What did you expect to happen? That someone would come and sit next to you and start up a polite conversation? I was watching, so I'll tell you. People didn't even come within a mile of you. They walked the other way."

He thinks he can break through my obstinacy by hurting my feelings, but I've developed a thick skin against insults, and anyway, he's wrong this time.

"You're wrong" I retort, peering up at him from my bench. There was, after all, the little girl.

"Oh what's the use?" he sighs, bending over me. "Let's get you back into your chair."

He slides an arm underneath my legs, and another behind my back. He's wearing Old Spice today. As he lifts me up my weight falls onto him— I can't help it, I just flop. I can feel my breast pressing against his chest. No matter how many years I have endured this, I still cannot help but feel embarrassed. I suppose lots of women fantasize about being carried off by

all sorts of anonymous young men, but they should try it some time. The romance soon wears off.

My head drops heavily onto his shoulder, and as he steadies himself before placing me in the chair I stare past his broad back at the park beyond. Coincidentally, a woman is just passing by, and for a split-second I gaze straight at her from my lop-sided position across the back of Laurie's neck. But the moment our eyes meet she turns her head away and passes on. I get a good view of the gravel, then the grass, then the gravel again, as Laurie pivots me into my chair. He has forgotten to straighten my skirt, but I am too shy to mention it.

When I am all strapped in and under his control once more, he lightens up.

"Would you like an ice-cream, Wonder Woman?"

I wouldn't mind. He pushes me over to the van, and parks me to one side while he goes to buy two ninety-nines. My neck has started to ache, so I twist it from side to side to flex it, and that's when I see the little girl again. She too is parked in her chair, next to an old blue Cortina. Her father is in the ice-cream line just ahead of Laurie.

When we receive our treats we eat them simultaneously, and we never break eye contact once, even though we both have the same problems of co-ordination and aim resulting in two very messy faces. Her dad gets out his hanky, Laurie reaches inside the van for an enormous roll of all-purpose tissue, and we both receive a lick and a promise.

Then she and her dad continue their period of legal access, a stroll around the park. This time when she is pushed away she smiles goodbye to me, and I smile back. Then Laurie says

"I've just got to pay a visit to the gents'. Won't be long. Here, read your magazine till I get back."

I wonder how Jennifer's getting on in Greece? I return to the beginning of Page Two—

Jennifer, her pale hair glittering in the Mediterranean sunlight, stepped off the plane into the arms of her lover.'

The illustration shows a couple embracing. Her arms are tight about his waist and a ring sparkles on her finger, but instead of gazing into his handsome face she's staring over his shoulder and out of the page, straight at me. She has that look in her eyes, one I seem to recognize from somewhere, a prisoner's look, and you know it may be surprising but there are times when I really count my blessings.

Because no matter how tightly I'm strapped in, no matter how disabled and fettered I might seem, inside I am sovereign and light-house keeper of my own spirit. And my mind, and my dreams, fly as free as seagulls.

11 See J. E. Cirlot, *A Dictionary of Symbols*, London, Routledge & Kegan Paul, 1971, 13.
12 Sarah Lefanu, *In the Chinks of the World Machine: Feminism and Science Fiction*, London, Women's Press, 1988, 99.

Chapter 7

Between the boys and their toys: the science fiction film

Susan Thomas

Fritz Lang's *Metropolis*, premiered in Berlin in 1927, ends with these words: 'There can be no understanding between the hands and the brain unless the heart acts as mediator.'[1] The film was an attempt to examine some of the industrial and scientific themes troubling Europe in the 1920s, and was based on a novel by Thea von Harbou, Lang's wife and close collaborator, in which the central female character, Maria, symbolises the heart as mediator between the labouring classes and the ruling elite.

Deep in the bowels of the ultra-modern city of Metropolis, the workers labour in soulless conditions. Maria counsels them to endure in the knowledge that a saviour and intercessor will deliver them. However the boss, Joh Fredersen, aware that discontent is brewing, commissions an inventor to make a mechanical replica of Maria which is then programmed to incite revolt. This gives Fredersen an excuse both to suppress his workforce violently and to turn the people against 'Maria', because 'her' actions have put the lives of their children in danger. However, Fredersen's son, Freder, has fallen in love with the real Maria and discovers his father's plot. While the workers pursue the robot Maria and try to burn her as a witch – thus discovering her mechanical identity – Freder saves the children and reinstates the real Maria. At the end of the film Freder, his father, and Maria are reconciled, and a symbolic handshake reunites the boss and his workforce.

The whole plot rests on the potentially disruptive presence of Maria. Her good, pure femininity – she is both Virgin and mother – is an essential part of the organicist vision, for it enables her to be the 'heart' of the city. . . . Gender comes to play a complex role in the film. The real business of life, whether

it is labour or running Metropolis, is done by men, yet they lack some essential element to make them whole, and it is this ingredient which good femininity can contribute.[2]

Things haven't changed very much. Contemporary society has dealt with or learned to live with some of the socio-economic issues raised by *Metropolis*, but it still retains the concept of the feminine principle as the moral fulcrum of society. This device has been much used in contemporary science fiction films made for children, where the idea of the intelligent machine[3] provides a vehicle through which issues of power and sexuality may be examined and resolved for the young male audience.

This chapter examines some of the ways in which women are shown to intervene between boys and their intelligent machines in children's science fiction films. Techno-fiction films for children seem to be mainly directed at a male audience, with the intelligent machine central to the action providing a safe vehicle through which the young boy can explore his rite of passage into the adult world. Perhaps the major problematical areas for the pubescent boy are his relationships with power and with sexuality – both of which strongly reference his relationships with women and girls. The films under discussion here demonstrate some of the ways in which women are active as the 'heart' at the interface between the boy and his machine.

I have chosen to discuss two films which explore some of the ways in which the young boy perceives and deals with his transition into the adult world. In each of the narratives the point where woman and machine meet provides the catalyst for change, and the woman becomes an icon for emotional and sexual maturity. In *Short Circuit*[4] the outcome of this meeting is the boy's reconciliation and growth, whereas in *Tron*[5] the result is an endorsement of his desire for stasis – to put it simply, it approves the choice 'not to grow up'.

The first thing to be aware of upon encountering a fictional intelligent machine is that it has the property of taking *any* form. It is a constructed imaginary being, and as such may be female, male, animal, bird, fish, alien – benevolent, hostile, stupid . . . there are endless possibilities. Because it has such flexibility, the author's conceptualisation of it is an invaluable marker by which we can decode the narrative. But when the young female filmgoer sets out to find her own alter ego amongst

these fictional machines she is likely to be disappointed. Why? Because most science fiction films are made by men for a largely male audience, and there is no need to construct a synthetic woman deliberately – that is what actresses are used for.[6] The function of the androids, robots and computers is to act as a channel, or alter ego, through which the (male) audience can solve its emotional dilemmas.

In such films, the myth of the subversive female character makes her a willing accomplice to a male victim of corporate or technological strength. Operating outside the rules of masculine elitism, she provides the shelter of emotional sustenance. But the price she demands for that support is high. She requires him to confront issues of morality, sex and love – roughly in that order. Sometimes the male character finds that if he succumbs to the feminine principle he is thus empowered to defeat his enemies. On other occasions, as in *Tron*, he is able to take the help offered but to avoid giving the implicit return for it. In essence, control of an intelligent machine can allow its user to bypass his sexuality: if he has the ability to create his own electronic children then he has no need for the biological act of procreation. And however useful a woman may be in helping the male to achieve power for himself, once the balance of power is restored she is rediscovered as a threat. Conversely, the male who has an instinctive disregard for power, or who comes to recognise its fragility, is shown as willing to be taught and rehabilitated by the woman.

In the standard representation of the intelligent machine in children's science fiction films the primary relationship is between a machine and a single male or group of males. Their physical age can be variable, but their emotional age is generally about 13. Sometimes the machine has a childlike nature, taking the place of a real child in the action (*Short Circuit*) and sometimes it simulates an opponent locked in combat with the central character (*Tron*). Whereas in several films this combat is logistical rather than physical, *Tron* contains elements of both.

Character development common to both narratives strongly references Freud's theory of the Oedipal stage between primary narcissism (love for self) and attachment to loved objects (love for another). This becomes the central theme, activated by the presence of a single female character. Jordonova asserts that in *Metropolis* it is 'femininity, triggering sexual attraction, which is the dynamic for introducing change into the system'.[7] In the films

under discussion, the central characters are similarly offered an opportunity for change. But they must choose whether or not to accept it.

As the 'heart', the woman is seen in one of two roles. Either she is a touchstone for normality and security, or she acts as interpreter between a man and a machine which has gone out of control. It is important to recall that, unlike *Metropolis*, these films were not made to be watched by politically aware adults, but for a generally male audience aged between about 10 and 15. It is no accident that these films deal covertly with issues of sex, power, and identity, since these are precisely the issues with which their young audience is grappling.

Short Circuit demonstrates some of the ways in which power and sexuality may be perceived by the pubescent male. A mal-functioning weapons robot is nourished into synthetic human intelligence by a woman who also defends it against capitalist aggression and teaches it about sex, love and morality. Since the machine is invariably the child of the man in these films, the robot's designer learns the same lessons and the film ends with the three of them driving off into the sunset to a new life together. The robot is reconciled with its 'father' and becomes both son and lover of its 'mother'. The attitudes of the other male characters in the film reflect simplistic male codes relating to aggression and sexuality.

Here we have an example of an Oedipal structure in which the self undergoing change is split between the robot and its maker. This dualism allows the man to learn by proxy through his robot, who is a mirror into his other self, that it is safe to proceed to the third Freudian stage of development, namely a surrender to the laws of necessity, or reality.

The film opens with a battlefield scene – poppies are mown down by weapons robots as they trundle around a field blowing things up. This is a commercial armaments demonstration. Newton Crosby, the robots' designer (young and handsome but socially inept) privately expresses his reservations about the appli-cations of his research. Meanwhile the visitors are served drinks and canapés by robo-servitors with female voices and little met-allic breasts. Just then an electrical storm breaks and Robot No. 5 is hit by lightning, suffering a short circuit. It wanders aimlessly until it finds itself outside the perimeter fence, where it takes delight in the countryside, and trundles around requesting input

– in other words, the short circuit has created within it the capacity to learn. It now has artificial intelligence.

After a series of mishaps Stephanie finds the machine in her mobile snack truck – she is a professional caterer. She also collects animal waifs and strays, and easily appoints herself a surrogate mother to the robot. When she encounters No. 5 she assumes that it is an alien visitor, and she welcomes it into her home with excitement ('I just knew they'd choose me!') She complies with its requests for information by teaching it as much as she can until she goes to bed exhausted, leaving it to draw more input from all-night TV.

In the morning Stephanie is at first enchanted by No. 5's aesthetic appreciation of nature, but soon she discovers that it is in fact no alien, but a robot. She immediately turns against it and phones the company to collect it. She is negative and hostile to both the company director and to No. 5, but while she waits for it to be collected she observes that the machine has developed an understanding of the meaning of mortality. Delighted at copying its jumps, it accidentally steps on a grasshopper and calls to Stephanie to 'reassemble' it. She angrily explains that it cannot be reassembled – it is dead. The robot has behaved in the way she expects from a weapons machine, but she is concerned to find that No. 5 has been emotionally affected by its discovery of organic death. She begins to rethink her attitude towards it, so that when Newton Crosby arrives to take it away, explaining to her that it is a lethal weapon, she passionately defends it: 'But it's not that kind of robot.'

Later that night it returns to find her in the bath; this scene merits some examination because it is here that 'the look' as politicised gesture comes into play. Laura Mulvey has examined the importance of scopophilia in some detail,[8] and I refer the reader to her definitions of the two contradictory aspects of the pleasurable structures of looking in the conventional cinematic situation. They are as follows:

1 The pleasure in using another person as an object of sexual stimulation through sight. This implies a separation of the erotic identity of the subject from the object on the screen (active scopophilia).
2 The pleasure issuing from an identification with the image seen.

This is a function of the ego libido, involving the spectator's fascination with and recognition of his like.

The two aspects described above are both present in the bath scene in *Short Circuit*. First, in the simplest of devices, it allows the young male viewer to gaze at a woman in her bath. Second, it elicits a tension between the sexual inexperience of No. 5 and the spectator's libido. Both the machine and the boy-viewer stand on the threshold of discovery, and Stephanie's response confirms the erotic potential of the meeting.

The scene begins with Stephanie soaping herself in a luxurious bath when she hears noises outside. She becomes afraid. Here, the viewer is the subject, actively looking at the object (Stephanie) with erotic enjoyment heightened by suspense.

Then No. 5 enters the bathroom, and Stephanie expresses delight that it has escaped. No. 5, however, is surprised by the change in her physical appearance – we know that she is naked, although we can only see her head and shoulders above the bubbles.

No. 5: Stephanie! Change colour!
(Stephanie looks shocked and sinks lower into the bath, grab-bing a towel to cover herself with.)
No. 5: Attractive! Nice software! Mmm!
(Its large mechanical eyes look her up and down.)
Stephanie: (shyly) Boy, you sure don't talk like a machine.

Once No. 5 has entered the room the ego libido of the subject comes into play. The viewer identifies with the erotic pleasure articulated by the machine, and thus in Freudian terms the self is able to direct the libidinal drive towards an object external to it. No. 5 is a surrogate for the viewer's desires, and Stephanie takes this desire seriously, despite the fact that it comes from a machine (or, in the viewer's terms, despite the fact that it comes from a 12-year-old boy).

Any uncertainty about the nascent eroticism of their relation-ship is dispelled later that evening when the woman and the machine dance together. (It is worth noting here that No. 5 has the physical proportions of a large man, and that he frequently mimics the voice of John Wayne!) Stephanie is now in her night-dress. She is clearly bemused by the effect that No. 5 has on her – in many ways it's the man she's always dreamed of – but it's

a machine. No. 5 cannot accept this barrier however, and as she lies back in his 'arms' for the big finish to their dance it expresses a desire to stay with her permanently.

Stephanie: Oh No. 5 you don't know what you're saying.
(Cut to shot from No. 5's viewpoint of Stephanie stretched out before it)
No. 5: (gravely) No. 5 know.
(They continue to swing around the room together)
No. 5 (singing) More than a woman, More than a woman to me.
Stephanie: Oh No. 5.
(They pull closer together in the dance)

In the morning No. 5 cooks breakfast in a comical scene which nevertheless has overtones of a post-coital meal. What has hap-pened during the night?

As the narrative progresses, the audience shifts its immature sexual curiosity to an identification with No. 5's practical experi-ence. During the film various views of masculinity are demon-strated:

1 Rather than No. 5, it is the military and the corporation who behave like cold and calculating robots.
2 Stephanie thinks that men are all alike – callous and cruel. No. 5, although connoting masculinity in voice and attitude, is acceptable to her and can therefore elicit her tolerance.
3 Newton Crosby is gentle and likeable but lacking in self-confi-dence: 'Well, girls are not my best suit'.

Crosby and Stephanie have produced and nurtured the robot between them, and it therefore takes on their characteristics, as though they were 'real' parents. The machine is the child of the man, but No. 5 has grown up in Stephanie's company, so that even when the 'father' and 'son' are reconciled, No. 5 won't let Crosby examine his circuits: 'My switches are my own'. In this articulation of the Oedipal fear of castration it demands the right to a separate identity, thus moving towards an identification with the power of the father.

After the final battle in which No. 5 defeats the military by sacrificing a lookalike machine (an act of throwing away an incomplete consciousness which demonstrates No. 5's alignment with humanity against its own kind), Stephanie hugs it and

Newton Crosby shakes its 'hand'. As the three set off for a new life together in the wilderness No. 5 declares that he would prefer to be called Johnny. The all-American family is restored, and presumably at this point 'Johnny' sublimates his Oedipal claim on his 'mother' and returns her to his 'father'. Or does he?

Computers provide the individual with a respectable excuse for social isolation. The arcane art of hacking is one of the few hobbies which may begin in early adolescence and eventually lead to respected and often highly profitable employment. There is no requirement of emotional maturity in computer science, and, indeed, the more singleminded the programmer the more he can achieve. Hacking is concerned with winning and with testing oneself against the odds. Safe parameters are set, however, because one's opponent is only a machine, and hence totally predictable, but at the same time (and this is the great lure of the computer) it is reactive to its user and therefore provides a simulation of a real relationship with a real person. Its user-friendliness offers a seemingly legitimate escape from the complexities of interpersonal relationships. Many programmers speak of the 'Vulcan mind-meld' which can be experienced: a sense of telepathy with the computer which can be achieved by 'personalizing the interface'.[9]

Consequently the two major attractions of computers could be described as, first, the escape from the world of 'real' emotions and, second, the opportunity to win in a safe environment – whether it be through playing games or through programming. But where does this touch upon the issue of gender?

We have already seen that in some children's films the female principle is juxtaposed with an encounter with a cybernetic personality in order to ease the boy's rite of passage into maturity. Other films, however, propose a different scenario in which rejection of a woman in favour of a machine is used to endorse a stance of continued isolation and emotional arrest – in other words, a definite choice towards withdrawal from adulthood. This choice is made very clearly in the Walt Disney film *Tron*. The film is aimed at a specialist audience, and it has since become a cult film for hackers of all ages. However, despite the masculine nature of hacker culture, the character of the male lead role is defined by his relationship with the only female character in the story. This apparent anomaly has a purpose, however, because it allows for a reconciliation with the male reading of power, whilst

at the same time avoiding an entrance into the world of sexuality and ending with an endorsement of the impulse to remain the outsider.

It begins with a liturgical version of hacker mythology:

> This is the story of two worlds and the beings who inhabit them. One of these is our world, the one we can see and feel. The world of the 'users'. It lies on our side of the video screen.
>
> The other, an electronic micro civilization lives and breathes just beyond our grasp. This is the world of the 'programs'. Because we, the users, have created this new world, part of us lives there too. On the other side of the screen.

The film uses the computer screen as a mirror through which the self moves in order to operate in the rule-governed world of programming. It enters the version of reality inhabited by computer games-players in which battles are constantly won and lost, but at the same time control is maintained because the programmer is, after all, the original progenitor of this world. Jacques Lacan has suggested that this mirror stage, *le stade du miroir*, occurs before the establishment of a vision of the self as whole, followed by a move towards sexual identity. Significantly in *Tron*, the result is stasis and a refusal to proceed beyond the 'mirror world'. The story is as follows.

Millionaire Dillinger has become rich on the proceeds of video games, the programs for which he has stolen from a hacker named Flynn. Flynn is dedicated to retrieving the evidence of his authorship from the mainframe which runs the games. Meanwhile Alan, Flynn's rival in love and an employee of Dillinger, is engaged in devising a tron program which will trace misuse of the mainframe. (The word 'tron' is a Basic word meaning 'trace on', and functions as a search mechanism within a program, looking for errors and illegal entries.)

Unfortunately Dillinger has programmed the master control program (MCP) of his mainframe so effectively that it now controls him and is engaged in taking over all the other functions of the computer for its own dark purpose. The inside of the computer is shown to be functioning as a separate world in which each program has an identity similar to that of its user on the other side of the screen. The MCP has declared that belief in the user is an outmoded and illegal religion and is engaged in appropriating programs for its own use. In this world, the

enforcers are the space invader programs who police the other programs, and dissenters are disposed of in the arcade games, rather like the way that the Romans threw the Christians to the lions. Indeed, dissenting programs are given the chance to renounce their belief in the user before being condemned to death. The substitute for death is 'de-resolution', in which the programs disappear from the screen and cease to exist.

Imprisoned in the catacombs of the video-games sector we meet Ram. (This is another Basic word meaning 'random access memory' whose role is to enable users to load and retrieve data. Obviously this is another threat to master control.) In a high tower lives 'Input-Output' (IQ), an elderly sage and the counterpart of Walter, the system's original programmer in the human world. IO is aware that his role as contact for the users is under threat of elimination as the MCP proceeds with its plan to debar the users from the computer.

Returning to the user side of the screen, Flynn is engaged in the input of yet another search to find the file which will prove his authorship of the games programs. We then watch his program as it attempts to fulfil its mission and is de-ressed by the MCP's fighting force. Flynn sees his program 'crash' on his side of the screen but has no real conception of what it all means. He joins forces with Alan, the author of the tron program, who has also lost his program somewhere inside the system, thus demonstrating that their rivalry over the woman is not allowed to affect the male bond. Seeing Flynn as a major threat, the MCP absorbs the man and turns him into a program in order to eliminate him in a game. Once inside the machine Flynn encounters Tron, Alan's missing program, who of course looks just like his author, and together they defeat the MCP, enabling Flynn to return to his human state, obtain the copyright, and take Dillinger's place as millionaire proprietor. At the end of the film, when the MCP is defeated and communication with the users restored, the scene features the spreading light and awe-inspiring music which generally accompanies depictions of Christian resurrection. Referring back to the earlier pseudo-gladiator episodes, this scene addresses the mythology of church-based capitalism wherein property rights are restored to the virtuous, because although hackers are anarchists on a personal level, their isolated personalities generally deter them from organising against the *status quo*.[10]

But where are the women in this film? Laura is the token

female, a programmer working on the project which enabled the MCP to absorb Flynn into the machine. Her connection with the aggressive machine implies some degree of collusion with its attack on Flynn, but this is not explored in the film. However, her status as expert programmer is secondary to the fact that she was once Flynn's girlfriend, but now lives with Alan. Encountered within the machine her role is somewhat vague, but she acts as a guide to the adventurers and facilitates their victory. It would seem that as a woman she can work both with and against the organisation. Her creative involvement with the system becomes secondary to her emotional involvement with the men. But perhaps this analysis works better the other way. It is more likely that the plot demands a character who is willing to subvert the system, and that this flexibility of commitment can only be provided by a woman, who provides the traditional bridge between the hero and the world of power. The part Laura plays, although minimal, merits some close examination because it is through her that we understand the relationship of the hacker, Flynn, to the 'real world'.

Although Flynn, Alan and Laura are all computer experts, only the latter two are trusted employees. Flynn is the enemy of the company. He is an individualist who has been dismissed by Dillinger and now owns a video games palace, of which he is undisputed king. In the games world he is a hero because of his talent at the keyboard. His mastery can be explained by the fact that his relationship with the machine is extremely intimate. The games are his children, his family, the blood of his blood. He is that arch-American stereotype – the lone cowboy riding along on the edge of society, but Flynn has replaced the horse with his keyboard.

When the three meet each other inside the machine, their stereotyped natures are heightened by the danger they encounter. Flynn is the hero who apparently dies but then returns, whilst Tron (Alan) honourably perishes in the execution of his duty, leaving Flynn with Laura. But this fantasy world is becoming too accurate a mirror of real life for Flynn. 'Many fantasies of dualism are dramatisations of the conflict of the self torn between an original primary narcissism and an ideal ego. They depict a desire to return to a condition *preceding* the mirror stage.'[11] In the real world Flynn must be on his own: it is necessary for him to give up the comforts of home and hearth in order to devote himself

to his computers, and so at the end of the film Flynn is once more alone as he descends in his helicopter to take control of Dillinger's empire. Laura has served to illustrate an option which the hero *could* take, but will not, because he is essentially independent and unneedful of the trappings of socialised society. She represents the commitment to emotion and sexuality which is so feared by hackers.

The twin mythology described above – the escape from the world of emotions and the opportunity to win in a safe environment – has been realised in a way which is most satisfying to the computer freak. His fear of emotional rejection has been neatly allayed: inside the machine Laura has demonstrated that Flynn *is* physically desirable, but in real life he chooses to reject her, thereby releasing himself from any real and possibly painful commitment. At the same time the game-players' fantasy of the screen as a truly dangerous world has been realised and their private mythology of games-playing as the exercise of power has been endorsed.

An essential feature of the plot dictates that any program contains so much of its author's character that it becomes an extension of him or her. Thus the 'baddies' are Dillinger and his alter-ego the MCP. Tron has a high level of integrity equal to that of its author. Flynn is brave and dynamic. Laura is – well, on either side of the screen, she's just the woman. As a character she has little depth, because her significance lies in her role of the mother/sister/lover who works with Walter (father/teacher/establishment morality) to devise the transference machine which allows the MCP to attack Flynn. Once again, the Oedipal structure is in operation. But whereas in *Short Circuit* dualism occurs in the Oedipal self, here it can be found in the father figure. Both Dillinger and Walter symbolise the father at different stages of the development of the ego. Dillinger threatens Flynn with symbolic castration by the theft of the programs through which Flynn constructs his identity, and Walter holds the power to design Dillinger's weapon, the transference process. Indeed, both conspire to produce the means by which Flynn is thrust unwillingly into the mirror world and the Oedipal dilemma, but here he is able to reconcile his libidinal drive and emerges unscathed, and unchanged.

The essential components of the narrative are that the immature male (early in the story Laura, exasperated by Flynn's attitude,

complains: 'You can see why all of his friends are 14 years old') is given a clear choice between the socialised world of sex (Laura) and responsibility (corporate employment), and the world of machines. The machines offer him power and control – albeit within a very restricted field. He takes the latter, and is vindicated in his choice.

The hacker mentality is a common strand in both films. Sherry Turkle has extensively studied the hacker, and it is useful to refer to her evidence.[12] One of the hackers she interviewed, Burt, had this to say:

> I think of the world as divided between flesh things and machine things. The flesh things have feelings, need you to know how to love them, to take risks, to let yourself go. You never know what to expect of them. . . . I stay away from the flesh things. I think this makes me sort of a non-person. I often don't feel like a flesh thing myself. I hang around machines, but I hate myself a lot of the time. In a way it's like masturbating. You can always satisfy yourself to perfection. With another person, who knows what might happen? You might get rejected. You might do it wrong. Too much risk.[13]

Turkle found many computer enthusiasts who would agree with Burt's lonely testimony. They were all male. But the hero of *Short Circuit* is willing to engage with the subversive other, as the workers of Metropolis followed Maria over sixty years before. The reward for their passage through the sexual barrier, however, is contact with the usual chivalric feminine ideal, and as such does not serve to further the liberation of women from the entrapments of male ideology.

And lest we forget, the ruling capitalists in *Metropolis* created an almost fatal combination in order to control the working classes – a cybernetic woman.

NOTES

1 *Metropolis*, dir. Fritz Lang, 1927.
2 L. J. Jordonova, 'Fritz Lang's *Metropolis*: science, machines and gender', *Issues in Radical Science* 17.
3 There is much dispute about the nature of intelligence as applied to either humans or machines, but the central feature seems to be an ability to learn from experience. In other words, we know that computers are able to absorb enormous quantities of data, but in

order for them to be deemed 'intelligent' they must be able to formulate their own questions and revise their existing store of information accordingly.

4 *Short Circuit*, dir. John Badham, 1986.
5 *Tron*, dir. Steven Lisberger, 1983.
6 However, life is sometimes stranger than science fiction. The philosopher Descartes was reputed to own an automaton named Francine who bore a strong resemblance to his well-documented estranged daughter, also called Francine (N. Frude, *The Intimate Machine*, London, Century, 1983).
7 Jordonova, op. cit., 18.
8 Laura Mulvey, 'Visual Pleasure and Narrative Cinema', *Screen* 16, 3 (Autumn 1975).
9 Jargon for specifying the way in which a system operates to suit one's particular preferences.
10 Groups like CHAOS, the notorious West German hackers club, hack into world-wide weaponry systems for the excitement of the challenge rather than for political ends.
11 R. Jackson, *Fantasy: The Literature of Subversion*, London, Methuen, 1981.
12 Sherry Turkle, *The Second Self: Computers and the Human Spirit*, London, Granada, 1984.
13 ibid., 203.

Chapter 8

Your word is my command: the structures of language and power in women's science fiction

Lucie Armitt

One of the frustrations felt by some readers and critics of science fiction stems from the fact that, despite the potential for innovation inherent in the apparently limitless narrative possibilities of the genre, in actuality such innovation is rarely fully realised within either content or form.

My first serious encounter with science fiction was through an interest in the political implications of language and its structures for women. Language is of paramount importance with regard to how we structure reality (providing a cognitive framework for compartmentalising objects and sensations into linguistic units of meaning). Indeed it has been argued that: 'reality construction is probably to be regarded as the primary function of human language',[1] a claim which emphasises the need for women to challenge the patriarchal bases of language if we are also to challenge the patriarchal bases of society. However, trapped as we are within a patriarchal linguistic and social framework, it is very difficult for any writer to distance herself from that framework and write through and about alternative structures whilst still aiming to depict reality as it is lived and experienced. As this essay sets out to demonstrate, it is not enough merely to challenge surface manifestations (with revisions of words such as 'chairman', 'mastery', 'authoress' and so on, important though such revisions are), but we must also analyse and subvert the deep structural principles of language. Because of its ability to provide the writer with this much-needed distancing from lived reality, science fiction is an obvious choice for the writer intent on such exploration. The two novels upon which this essay focuses (Doris Lessing's *The Marriages Between Zones Three, Four and Five*, and Suzette Elgin's *Native Tongue*) succeed in illustrating two important issues: first, that the power structures upon which societies