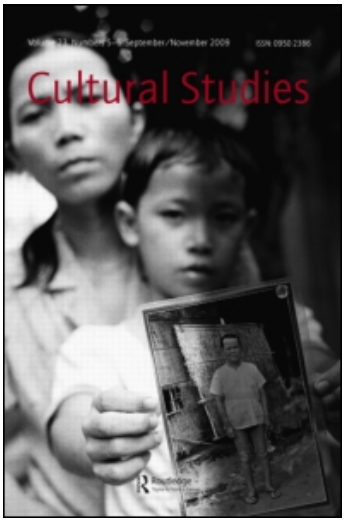

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PANIC COMPUTING: THE VIRAL METAPHOR AND COMPUTER TECHNOLOGY[1]

The scare

It was prophesied that 6 March 1992 would be a day of destruction. It was the day when the Michelangelo virus was expected to destroy the hard disks of thousands of computers around the world. The rumour circulated that on that day, the date of the Renaissance painter's birth, the hitherto dormant virus would activate when a program was activated. News reports of the day used vivid tropes to depict the devastation that was expected:

> MICHELANGELO VIRUS: TODAY IS THE DAY
> Like a mugger hiding in an alley, the Michelangelo virus is lurking in personal computers around the world awaiting today's trigger date. The virus has infected an estimated five million IBM-compatible personal computers world-wide and is poised to erase hard disks . . . Once the PC is turned on that day, the virus can destroy programs and the data on the computer's hard disk. (*Canberra Times*, 6 March 1992)

A lengthy feature article published in the *Sydney Morning Herald* (26 October 1991) some months before had presaged these dire warnings. The article, headlined 'TRACKING DOWN THE COMPUTER TERRORISTS', was accompanied by a graphic depicting a shadowy, menacing, humanoid figure, with bared teeth and slitted eyes, clutching a floppy disk in one hand. The figure was shown emerging from one personal computer, its screen shattered and rendered useless, stretching an elongated leg into another PC. Other graphics used to illustrate newspaper articles about computer viruses showed similar malevolent spectres hovering over personal computers, or depicted humanoid computer screens, grimacing with fear, sweating and sucking on thermometers.

As it happened, despite the dire warnings largely fuelled by press releases from companies specializing in anti-virus software, few computers were affected by the Michelangelo virus on 6 March. A pervading sense of

anticlimax was evident by the next day. As the writer of the computer page in the *Sydney Morning Herald* (9 March 1992) put it:

> Does the Michelangelo virus exist? Yes. Most certainly. But its appearance appears to have, in the main, not lived up to its billing. Did the millions and millions of dollars damage that was forecast eventuate? No. Was Michelangelo blown out of all proportion? It would seem so.

However, the press in general was reluctant to relinquish the apocalyptic visions which could so colourfully be applied to the threat of computer-virus invasion. Three days later, the *Australian Financial Review* (9 March 1992) noted that even though businesses may consider themselves fortunate not to have been affected by the Michelangelo virus, there were other threats on the horizon:

> But for those breathing a sigh of relief at having escaped Michelangelo, which was scheduled to detonate last Friday, beware the Ides of March. For on March 15 a similarly nasty virus called the Maltese Amoeba is expected to activate. Before then the Jerusalem virus, which detonates each Friday, might rear its head – although this is a well-known virus and today rarely seen. . . . The fact is that it is insufficient to be vigilant on one day of the year. There are even suspicions that a corrupted version of Michelangelo exists which will activate tomorrow. Such is the concern about the havoc viruses might wreak that both the FBI and Scotland Yard last week issued warnings that companies should protect themselves against viral infections on the Pcs.

These news reports on the devastation threatened by contagious computer malfunction, the unproblematic use of the term 'virus' applied to technological artefacts, inspire ponderings on the wider implications of the viral metaphor. The choice of phraseology in textual accounts and talk, the discursive devices used, recurrent lexical patterns in describing things, events, groups or people is revealing of the latent ideological layer of meaning of such communications (van Dijk, 1990; Fowler, 1991). In particular, the intertextuality, or the ways in which texts selectively draw upon other texts, other cultural forms and discourses to create meaning, indicates the political and ideological functions of texts and delimits the boundaries within which topics may be discussed (Fairclough, 1992; Astroff and Nyberg, 1992). The nomination of a type of computer technology malfunction as a 'virus' is a highly significant and symbolic linguistic choice of metaphor, used to make certain connections between otherwise unassociated subjects and objects, to give meaning to unfamiliar events, to render abstract feelings and intangible processes concrete. In doing so, the metaphor shapes perception, identity and experience, going beyond the original association by evoking a host of multiple meanings (Clatts and Mutchler, 1989: 106–7). As Geertz has argued, '[i]n metaphor one has . . . a stratification of meaning, in which an incongruity of sense on one level produces an influx of significance on another' (1973: 210).

The present analysis examines in detail the stratification of meaning

evident in the widespread and largely unquestioned adoption of the viral metaphor to describe computer technology malfunction in popular texts. It is argued that the viral metaphor used in the context of computer technology draws upon a constellation of discourses concerning body boundaries, erotic pleasure, morality, invasion, disease and destruction. In what follows, the meanings of the term 'virus' in the medical context, the symbiotic relationship between body and computer metaphorical systems, the symbolic danger of viruses, the seductiveness of the human/computer, Self/Other relationship and the cultural crisis around issues of bodies, technologies and sexualities at the *fin de millénnium* are discussed to illuminate the ambivalent relationship of humans with computer technology in late capitalist societies.

Viruses and the computer corpus

The word 'virus' has a particular cultural resonance in an epoch obsessed with health, cleanliness and bodily integrity, in which the entry of viruses into the body is viewed as invasion by microscopic alien and contaminating beings intent on causing mayhem. We commonly assign personalities to viruses. In lay discourses on illness, people tend to confuse viruses and bacteria, lumping them together as 'germs', which are viewed as 'living, invisible, malevolent entities . . . amoral in their selection of victims, but once they attack they can only cause harm. There are no "good" Germs or 'normal Germs; all Germs are bad' (Helman, 1978: 118–19). To counter this attack, as Cindy Patton points out, bodies are visualized as being 'filled with tiny defending armies whose mission [is] to return the "self" to the precarious balance of health' (Patton, 1990: 60). The immune system is commonly described in popular and medical texts as mounting a 'defence' or 'siege' against 'murderous' viruses or bacteria which are 'fought', 'attacked' or 'killed' by white blood cells, drugs or surgical procedures (Martin, 1990; Montgomery, 1991). This military discourse, redolent with images of physical aggression, has become routine and standardized to the point where its metaphorical origins are erased: it is now a 'dead' metaphor (Montgomery, 1991: 350).

Yet biological viruses are primitive, insensate entities which do not have so much as a nervous system in the way of intelligence, and certainly do not possess motivation, the desire for retribution, cunning, evil, skills in strategic planning or even a survival instinct. The medical/scientific definition of a biological virus describes it as a minute particle, invisible to the human eye, which has a liminal status in terms of its classification as a living object because it is unviable unless attached to the living cell of an organism. Biological viruses are invisibly transmissible between individuals via contact with body fluids or tiny air droplets. Viruses are parasitic; a viral particle cannot produce its own energy and contains only nucleic acid. Yet once the virus enters a living cell, the cell becomes devoted to supporting the growth, development and reproduction of its unwelcome guest.

On the prosaic level of meaning, it is clear that a biological virus, in its

need for living cells, cannot have any effect upon computer technology. The viral metaphor has been adopted in computing terminology to express the meanings of rapid spread and invisible invasion of an entity that is able to reproduce itself and causes malfunctioning on the systemic level. It is telling that this alternative use has been so readily accepted that at least one Australian medical journal has featured articles on computer viruses devoted to making explicit the similarities between biological viruses and computer viruses (Dawes, 1992a, 1992b). Just as the immune system is described in terms of military imagery, popular accounts of computer viruses commonly employ the terminology of war to conceptualize the struggle between technological order and chaos. In Australian press reports the computer virus was described as an 'invader', which 'attacks' and 'destroys' (*Canberra Times*, 6 March 1992), to which companies must develop 'anti-viral strategies to counteract the threat of infection' (*Australian Financial Review*, 9 March 1992). In concert with this imagery, in several reports the viruses were assigned human qualities. They were personified as 'like a mugger hiding in an alley' (*Canberra Times*, 6 March 1992), as 'advertising themselves' (*Sydney Morning Herald*, 26 October 1991), as 'giving no warning when [they] struck' and being 'frighteningly efficient' and being able to 'change [their] form to evade searchers' (*Sun Telegraph*, 21 February 1993). In the *Sydney Morning Herald* article, some viruses were said to be 'smarter than others', and at least once in the text there was a slippage between the virus progenitors and the computer viruses themselves: 'Viruses are getting more devious and could be used for all sorts of criminal activity, including spying and fraud.'

Such linguistic choices conform to the discourse in which computers are viewed as humanoid creatures. Another example is a recent advertisement for IBM computers appearing in Sydney newspapers that showed the new 'ThinkPad' model and used the headline, 'ITS MOTHER WAS A MAINFRAME. ITS FATHER WAS A MASERATI.' The blurb went on to assert that 'It's all in the genes, as they say. The ThinkPad range has all the power you'll need . . . in one of the sleekest bodies around'. The language in these popular representations of computers underline the taken-for-granted acceptance of viewing computers as 'just like you and me'; friendly, helpful and human, even possessing parentage and heredity. Without the initial conceptualization of computers as living, humanoid beings, the computer virus would be a nonsensical conceit. Why do we find it appropriate to represent computers as if they were animate organisms, susceptible to illness and death?

Like technologies, human bodies may themselves be viewed as socially inscribed, as the site at which competing discourses struggle for meaning, shaped by and constituting social relationships within a historical, cultural and political context (Turner, 1984). The adoption of viral discourse in the context of computer technology is only the latest in a series of metaphorical systems using human biology to conceptualize the workings of computers and vice versa. This metaphorical circle demonstrates the cultural resonance of the mechanical discourse which has been dominant in biomedicine since

the industrial revolution. The mechanical discourse adopts the language of technology in conceiving of the internal workings of the body as a combustion engine, or as a battery-driven machine. It includes the idea that individual parts of the body, like parts of a car, may 'fail' or stop working, and can sometimes be replaced (Turner, 1984; Martin, 1987; Stein, 1990). Hence the dominance of the technological imperative in biomedicine: the dependence upon the use of machinery to fix machinery. The routine employment of organ transplants and artificial organs or parts such as pacemakers, plastic joints and hearing aids in high technology medicine is both supported by and reinforces this discourse.

Ways of describing computer technology have both created new terminology which has entered the language and have drawn upon elements of older, more established lexical systems. In particular, drawing upon the centuries-old body/machine discourse, there has developed a symbiotic metaphorical relationship between computers and humans, in which computers have been anthropomorphized while humans have been portrayed as 'organic computers' (Berman, 1989: 7). While the computer is said to have a 'memory', the human brain is commonly described as a computerized system working on a logic similar to the binary system used in computer technology, with the biological matter of the brain described as the 'hardware' and the brain's mental activity the 'software' (Nelkin and Tancredi, 1989: 16). The immune system is also commonly described as an information-processing system, communicating by means of hormones. By this imagery, there occurs 'the transformation of the human subject into an object, a repository, or else a collision site, for various types of detectable and useable information' (Montgomery, 1991: 383). Indeed, according to Haraway, bodies have conceptually become cyborgs (cybernetic organisms), that is, 'techno-organic, humanoid hybrids' (Haraway, 1990: 21), or compounds of machine and body theorized in terms of communications, for which disease may be conceptualized as 'a subspecies of information malfunction or communications pathology' (Haraway, 1989: 15). Haraway (1988, 1990) argues that the cyborg undermines and destabilises traditional binary oppositions between nature/culture, masculinity/femininity and Self/Other, exposing their artificiality, rendering them blurred and indeterminate and offering the potential for escape from the oppressive confines of ascribed roles with the promise of multiple and mutable subjectivities: 'We need a concept of agency that opens up possibilities for figuring relationality within social worlds where actors fit oddly, at best, into previous *taxa* of the human, the natural, or the constructed' (Haraway, 1990: 21).

Morality and viral politics

Viewing computer malfunction as a viral illness unavoidably invokes a moral framework. Quite apart from the seriousness of their biological manifestation, there is also a hierarchy of symbolic dangerousness among viruses. Every virus has a moral meaning, and as Williamson (1989) has noted, every virus tells a story. The linking of issues of morality and control

when explaining illness and disease is a cultural tendency which can be traced back to ancient times: there is an ancient and powerful 'desire to explain sickness and death in terms of volition – of acts done or left undone' (Rosenberg, 1986: 50). In the case of certain illnesses or diseases, concerns of morality emerge, and blame and guilt are assigned to individuals for their condition (Sontag, 1989). Public health discourse now emphasizes the responsibility of the individual to stay healthy, avoid risk and resist indulgence in certain behaviours defined as 'dangerous'. It is believed that one does not become ill merely out of bad luck; one becomes ill because one has courted illness in some way, whether it be going out in the rain without an umbrella, eating too few vegetables and too much fat, suppressing anger in an inappropriate manner, or engaging in socially proscribed sexual acts (Lupton, 1993a).

Historically, the plague has invoked a high degree of fear and warnings of divine retribution for sins committed (Brandt, 1988). Since the early 1980s, the virus which has captured the most public attention, anxiety, fear and stigmatizing representations is, of course, the Human Immunodeficiency Virus (HIV), the virus associated with AIDS; indeed, Simon Watney (cited by Treichler, 1989: 39) has called the magnified visual representation of the HIV produced by the electron microscope 'the spectre of the decade'. As well as invoking a rich constellation of metaphorical discourses centring on plagues, war, death and social disorder, AIDS itself has become a potent metaphor, used to denote silent latency, conspiracy, the insidious invasion of both the body politic and the body corporeal (Sontag, 1989; Clatts and Mutchler, 1989). Given the cultural impact of AIDS and HIV in the past decade, it is not surprising that in the popular and medical media discussing computer viruses there have commonly been both overt and covert references to the AIDS epidemic and HIV.

Computer virus discourses echo the pattern of coverage given to the threat of AIDS to the general population in the late 1980s. Media accounts of AIDS were redolent with imagery associated with the end of the world, with retribution for sexual sins, with society running out of control, with the need for a new order and new code of sexual morality to beat the scourge. Discourses on AIDS drew upon the need to define boundaries between Self and Other, to construct a *cordon sanitaire* between the contaminated and those at risk of contamination (Watney, 1987; Treichler, 1989; Sontag, 1989; Patton, 1990; Lupton, 1993b). Like HIV, computer viruses are described using metaphors of insidious and hidden danger: they are like a 'time bomb' and 'lie dormant' and 'hide' until 'triggered', and as 'the electronic equivalent of the bubonic plague' (*Sydney Morning Herald*, 26 October 1991). Their existence goes unnoticed until it is too late to remedy. Both are deemed to spread rapidly, exponentially and uncontrollably. As viruses multiply unchecked, apocalyptic visions of the future are anticipated.

The emergence of the computer virus trope and its strong links to the AIDS epidemic has implications for the ways in which computers and those who rely upon them are culturally constructed. Like the body as machine/computer and computer-as-human metaphorical circle, the discursive use of

AIDS in relation to computers is reflexive. The viral metaphor when referring specifically to HIV or AIDS works in two ways: when used in the context of computer malfunction it denotes the threat and sense of personal and collective powerlessness which accompanies AIDS, and it also serves to reinforce this fear by employing the comparison in the context of a scenario of large-scale disaster, suggesting the 'omnipresence of AIDS' (Sontag, 1989: 158).

The seduction and terror of cyberspace

The comparison of computer viruses with the AIDS virus also highlights the intimate nature of people's relationship with computer technology. The pleasures of cyberspace centre on the loss of the boundaries of the body, of a merging of computer and physicality to the extent that individuality, and all the constraints that go with it, are subsumed under interaction with cyberspace. Several cultural commentators have noted the erotic nature of humans' interaction with computers. Springer (1991: 303) suggests that computer technologies 'occupy a contradictory discursive position where they represent both escape from the physical body and fulfilment of erotic desire'. Heim has written of '[o]ur love affair with computers, computer graphics, and computer networks' and suggests that '[t]he computer's allure is more than utilitarian or aesthetic; it is erotic. Instead of a refreshing play with surfaces, as with toys or amusements, our affair with information machines announces a symbiotic relationship and ultimately a mental marriage to technology' (1992: 61). The desire to enter cyberspace, to cross the human/machine boundary, to 'penetrate the smooth and relatively affectless surface of the electronic screen' (Stone, 1992: 108–9) has been viewed as a phallic, quasi-sexual experience involving a change in embodiment and loss of self similar to orgasmic ecstasy (Springer, 1991: 307; Heim, 1992: 62; Stone, 1992: 108–9).

The ideal cyborg body enjoys erotic pleasure, but is clean, seamless, impermeable, invulnerable and, above all, hygienic.[2] As noted previously, for Haraway (1990), the cyborg, as an essentially asexual construction that calls into question the standard inscribing of gender, ethnicity and age on bodies, is a symbol of freedom from the confines of body. Yet the ascription of gender to technology is frequently implicated in discourses on the cyborg and cyberspace. Other cultural theorists have problematized Haraway's notion of the asexual cyborg, pointing out that in popular sci-fi texts '[c]yberbodies, in fact, tend to appear masculine or feminine to an exaggerated degree' (Springer, 1991: 309), frequently appearing either as 'an object of sexual desire' (read feminine) or 'a thinking or killing machine' (masculine) (King, 1989: 125). While the inventors and users of technology are often represented as masculine, the technology itself is often eroticized as feminine, with a woman as the model of the perfect machine (Doane, 1990; Springer, 1991; Wajcman, 1991). The Fritz Lang film *Metropolis*, made in 1926, used this imagery to depict the danger as well as the seductiveness of technology. Some writers have also highlighted the maternal function of

technology directed at reproduction, and see cyberspace as representing the safe, comforting and enclosing womb (Doane, 1990; Springer, 1991). Cyberspace becomes the alluring feminized hollow, warmly enfolding the entrant: 'To become the cyborg, to put on the seductive and dangerous cybernetic space like a garment, is to put on the female' (Stone, 1992: 109).

The engendering and sexualization of the human/computer interface evokes a host of paradoxical discourses in the late twentieth century. For Springer (1991: 304), discourses on the cyborg 'reveals a new manifestation of the simultaneous revulsion and fascination with the human body that has existed throughout the western cultural tradition'. Just as fleshly bodies in the age of AIDS are the sites of both pleasure and terror, computers entice at the same time as they pose a threat to bodily integrity. The 'loss of the prison of the body' is seductive, but also implies disappearance, invisibility, the relinquishing of control. Post-AIDS, the need for caution when indulging in interactive erotic pleasure is ever-present; while computer technology seems to offer the safest possible sex through electronic flirtations or experiences which never involve actual physical contact or the mingling of body fluids, the deeper threat is at the symbolic level of virtual reality, where the boundaries between body and technology are challenged.

The late 1800s in Europe were characterized by a number of socio-medical debates contributing to a *fin-de-siècle* complex, in which there were several crises and moral panics centring around nervous illnesses, the family, decadence, sexuality (particularly female sexuality and homosexuality) and nihilism (Showalter, 1990). It would appear, a century later, that Western societies in the late 1900s are experiencing a similar cultural crisis around issues of bodies, technologies and sexualities. The *fin de siècle* has become the *fin de millénnium* as the year 2000 draws near. It is within the context of these current debates and anxieties that the concept of the cyborg, itself a centre of competing meanings around sexuality and gender, has arisen (Springer, 1991: 323). At the *fin de millénnium*, the body is a site of toxicity, contamination and catastrophe, subject to and needful of a high degree of surveillance and control. Kroker and Kroker (1988: 10 ff.) term the contemporary obsession with clean bodily fluids as 'Body McCarthyism', an hysterical new temperance movement.

As suggested by these writers, the greatest fear at the *fin de millénnium* is the silence and invisibility of the destructive forces lurking within the body. Kroker and Kroker (1988: 14) refer to 'panic sex', 'panic God', 'panic politics', 'panic TV' and 'panic fashion', as responses to the modern hysteria over the body and its potentially contaminating fluids. 'Panic computing' invokes '[t]he underlying moral imperative . . . You can't trust your best friend's software any more than you can trust his or her bodily fluids – safe software or no software at all!' (Ross, 1991: 108). The insertion of an 'infected' disk, that is a 'carrier' of corruption, spells disaster for the integrity of the computer corpus. Just as people are exhorted to grill their sexual partners for details of their past intimate lives, so as to be 'sure and safe' before proceeding to exchange bodily fluids, so they are warned to verify the source and safety of the computer disks they insert into their PCs (Sontag,

1989: 167). As one Australian newspaper article counselled; 'Do not accept disks from a stranger' (*Sydney Morning Herald*, 8 March 1993). Panic computing extends the boundaries of the erotic Self, requiring even greater vigilance, surveillance and personal control to protect against invasion from both biological and computer viruses. Furthermore, panic computing problematizes the capacity of cyberspace to offer liberating, guiltless, safe and infection-free erotic pleasure, for it must be acknowledged that '[n]o refigured virtual body, no matter how beautiful, will slow the death of a cyberpunk with AIDS' (Stone, 1992: 113).

The viral metaphor and technophobia

As computerization spreads into different spheres, as computers become central to work and leisure, everyday life becomes more and more dependent upon their unproblematic functioning. The threatening persona of the all-controlling and dehumanizing computer, common in popular culture in the 1960s and 1970s (for example, the computer HAL in the film and novel *2001: A Space Odyssey*), has been superseded by the friendly personal computer, an extension of oneself, helpmeet in the home and office and companion in leisure activities such as video games (Haddon, 1988; Fitting, 1991: 302). Developments in computer technology have allowed us to set up global information networks, in which we can communicate instantaneously and interactively with network users all over the world. Computers, interlinked as they are with creative processes and play, have taken on likeable personalities; in fact, the Apple Macintosh microcomputer, first launched in 1977, was deliberately designed to look friendly and non-threatening to encourage sales to computerphobes (Haddon, 1988: 23). Stone, for example, comments that:

> I, for one, spend more time interacting with Saint-John Perse, my affectionate name for my Macintosh computer, than I do with my friends. I appreciate its foibles, and it gripes to me about mine. That someone comes into the room and reminds me that Perse is merely a 'passage point' for the work practices of a circle of my friends over in Silicon Valley changes my sense of facing a vague but palpable sentience squatting on my desk not one whit. (1992: 81)

Meanwhile, a counter discourse problematizes contemporary reliance upon computer technology, including a growing genre in popular film which represents humanity's association with technology as ultimately destructive. In the dystopia portrayed in such high-grossing films as *Blade Runner* and the *Terminator*, *Alien* and *Robocop* series, technology becomes the master rather than the servant, taking control over the everyday lives and futures of humans. Government and corporations who produce technologies are shown to lack morality, be corrupt in their visions of power and heedless of the societal upheaval they have caused (Robins and Webster, 1988; Glass, 1989; Berman, 1989; Penley, 1989; Goldman, 1989; Springer, 1991; Ross, 1991). These visions of Tech Noir depict a society that fears domination and

unrelenting surveillance by computer technology at the same time as its members crave the 'pleasures of the interface'.

One of the greatest anxieties invoked in the late capitalist age is the breaking down of the boundaries between human and non-human, as represented by the cyborgs in Tech Noir films (Glass, 1989: 10) which draw upon the Frankenstein metaphor to invoke images of monstrous creations taking control over their creators (Barns, 1990). Viral discourse applied to computer malfunction suggests a number of dreaded outcomes: the insidious self-reproduction of the virus within and between computer systems, and the industrial chaos caused by computer breakdown in an economy increasingly dependent upon computer technology to communicate and function. If this were to be developed to its ultimate conclusion, the metaphor suggests the potential of computer technology to take over, where computers themselves become malign invaders, out of human control, wreaking destruction and havoc, causing malaise or even the annihilation of human societies. Here computer technology turns into the AIDS-like toxic avenger, punishing humanity for its sins in consenting to the unholy alliance of human body with computer corpus, for not adequately policing bodily boundaries.

The apocalyptic visions surrounding the viral metaphor used in the context of computer technology echo the pessimism of the Tech Noir genre. They reproduce its anxiety about untrammelled production, destruction and the transgression of boundaries between Self and Other. The difference is, of course, that the reporting of the mayhem caused by computer viruses in the news brings the threat of technology much closer to home than does cinematic futuristic fantasy. As represented in the popular media, computer viruses are not visions of the future, but villains with the potential to disrupt the conduct of everyday lives. They threaten the integrity of one's relationship with the home or office computer, an instrument of technology which most people would like to think is tamed, and under their control. We have all experienced feelings of powerlessness and frustration when confronted with new computer technology; strong enough for some to avoid using computers at all. Those of us who have embraced computer technology as part of our everyday working lives, forsaking the pen and paper for the word-processing package, have felt hurt, betrayal and panic when our personal computer fails us; when vital work is lost because of power failure or our own mistake. In a society in which computer technology is becoming inextricably interlinked with the identities and destinies of humans, the virus, in attacking the computer, also attacks the Self. Viral discourse expresses the fear that nothing, not even our most advanced technology, and especially our own bodies, is immune from disaster.

To conclude, the viral metaphor is indicative of an ambivalence about computer technology which dominates the *fin-de-millénnium* era. Computer technology offers an escape from the realities and the anxieties of the flesh, but also, in its very seductiveness and potential for sensuous pleasure, harbours the threat of invasion, infection, contamination and, even more

frightening, the loss of identity. In the age of AIDS, viral infection positions the subject as the site of contamination, the subject needful of surveillance. The infected computer, like the person infected with HIV, becomes the locus of horror. But on a deeper level of meaning, the threat posed by computer viruses is secondary to the threat posed by computers themselves, without which there would be no computer virus. Computers themselves, invested with human motivation and cunning, may be regarded as viruses in the body politic, insidiously and silently spreading into all reaches of human society, seeking domination at the cellular level, reproducing uncontrollably. The computer virus trope thus becomes a metonym for computer technology's parasitical potential to invade and take control from within.

Notes

1 Earlier versions of this article were presented at a staff seminar, Faculty of Humanities & Social Sciences, University of Western Sydney, Nepean, April 1993 and to the Popular Culture Division, 43rd Annual International Communication Association Conference, Washington DC, 1993.

2 Ironically, however, the current experience of cyberspace using fledgling virtual reality equipment such as helmets and gloves that are shared by others, can be all *too* grounded in physical reality, including the smell of the previous wearers' sweat and the cumbersome nature of the equipment (I am indebted to Anna Gibbs for this observation).

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