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MONSTERS IN CYBERSPACE

Cyberphobia and cultural panic in the information age

This paper explores popular attitudes toward the Internet (and computer-mediated communication more generally) by mapping some of the more threatening, transgressive and 'monstrous' images associated with cyberspace. An account of risk consciousness is developed in three parts: (1) comparisons with earlier information technologies reveals similarities and differences with regard to public attitudes toward cyberspace and its risks; (2) the development of a model of contemporary teratological space derived from images of boundary-dissolving threats, intrusive alterities and existential ambivalences created by the erosion of binary distinctions and hierarchies; and (3) possible historical and sociological explanations of cyberpanic drawing on recent theorizations of globalization (capitalism/information society theory, risk society theory, reflexive modernization theory, and alterity theory).

Keywords cyberspace; cyberphobia; cybercrime; cyberterrorism; teratological space; moral panics; digital capitalism; globalization; risk society; alterity theory; critical Net research

Introduction

The last decades of the twentieth century spawned many life-threatening monsters, among the most publicized of these being: depletion of the ozone layer, hyper-pollution, apocalyptic anxieties about the Millennium Bug, AIDS/HIV, the foot and mouth epidemic, SARS, bio-industrialization (GM crops), the extension of animal cloning to human cloning (the Human Genome Project, xenotransplantation, cloning of new life forms), the erosion of public space and the decline of civility, weapons of mass destruction and the threat of global terrorism. Public concern about the viral spread of cyberspace and the subversive implications of computer-mediated communication (CMC) has been added to the inventory of risk consciousness.

The paper argues that comparisons with the history of previous periods of rapid technological change reveal a general pattern of popular responses to digital culture. As with earlier information revolutions, the most extreme manifestations of cyberfear are articulated around metaphors of boundary-dissolving threats, intrusive alterities, and existential ambivalences created by the erosion of binary distinctions and hierarchies that are assumed to be constitutive principles of everyday life. The paper is divided into three parts: the first describes some of the more pervasive images of the information revolution and suggests comparisons with earlier communication technologies; the second introduces the concept of *cyberphobia* and charts the contemporary morphology of cyberfear associated with a 'world without boundaries'; while the final part addresses the question of how we might explain the new panic *Zeitgeist* in historical and sociocultural terms.

Popular images of technological change: 'il n'y a pas de hors-cyberspace'

A recurrent response to the impact of the Internet and World Wide Web on everyday life is to see digitization in invasive and monstrous terms. We first need to consider whether this new culture of fear is unique to the new information media.

We can begin by comparing popular responses to the invention and dissemination of print technology (Anderson 1992), the electrical telegraph (Kern 1983; Standage 1998), railways and electrification (Hughes 1983; Schivelbusch 1986, 1988), the telephone and television (Williams 1981). Each of these 'communication revolutions' was linked to the destruction of normative boundaries as everyday life was invaded by an expansive money economy, capitalist values and mass culture. Both print and the telegraph have been viewed as the essential media of universalist and democratic forms of life in the construction of nation-states (Anderson 1992). However, where print was physically tied to the materiality of book production, distribution and consumption, the coming of electricity and the telegraph in the nineteenth century created the possibility of transcending space and time with networks of 'instantaneous' communication. One author aptly describes the telegraph as the story of 'the Victorian Internet' (Standage 1998). As border-dissolving media, information technologies are not simply technical machines but communication forms that actively reconfigure social relations and public consciousness. In their work of national *coordination* every previous information technology has produced both enthusiasts and deprecators. Comparative investigations of these responses reveal a bipolarized field of reactions: on the one side we have supportive responses by those who viewed the new technologies as instruments of liberation and progress (technologies of freedom

that ‘change life’); on the other side we find discourses predicated upon fear and distrust (the new technologies undermine traditional institutions, reinforce existing inequalities, and so on). Currently there are four main theoretical frameworks that provide insights into this binary reception history:

1. global capitalism/information society theory;
2. risk society theory;
3. reflexive modernization theory;
4. alterity and heterology theory.

Global capitalism/information society

In the popular media, the Net is perceived as both an instrument and an icon of globalization as microelectronics discloses the fifth dimension of virtuality. Not surprisingly, the most pervasive image of the Web is that of a network of information highways transcending national boundaries as telecommunications restructure the practices of everyday life in the interests of capital accumulation. As the mother of all networks, the Web realizes the ‘death of distance’ implicit in such earlier space-defying technologies as telegraphy, the telephone, radio and television. On one side, the Net is seen as a universalizing infrastructure for a new Information society; on the other, as a ‘rhizomatic’ threat to every substantial, ‘thing-based’, ‘Newtonian’ social ontology.

Historical and comparative research in the cultural history of technological change suggests that these perceived threats to established boundaries are not unique to electronic media. Even such apparently innocent ‘knowledge machines’ as the typewriter and digital calculator have been subject to similar antithetical reactions (Kittler 1990). While stressing similarities of response we also need to focus upon differences. As an empirical hypothesis we suggest that the range of responses become more polarized and extreme as the technologies in question are explicitly concerned with the production, reproduction, coordination, and dissemination of *information*. The imminent prospect of ‘the industrialization of consciousness’, the ‘iron cage’ of *Technik* and the ‘death of the spirit’ on the one hand, and the utopian promise of an electronic cornucopia on the other, seems to have caught the public imagination at crucial stages in the history of information media. We hypothesize that where earlier singular and relatively discrete information innovations generated isolated cultural panics, the media-convergent, multi-dimensional, information-communication technologies of the digital age (ICTs) create compound or *convergent panics* that come to define the *viral risk consciousness* of the postmodern age. The material basis of these cultural responses lies, of course, in the vast investment of capital and the

coordinated mobilization of telecommunication systems when compared with the relatively modest resources involved in earlier phases of information industrialization. Not surprisingly, when tracing the development of the new mode of information we immediately confront a series of powerful metaphors expressed in such hyperbolic phrases as 'the Information Age', 'the Electronic Era' and 'the Telecommunication Revolution', each dramatizing the seismic changes that media-convergent technologies such as email, the Internet, digital television, multi-media messaging and electronic conferencing are thought to be making to ordinary life.

Where evangelists anticipate an information *revolution* on a planetary scale, deflationary voices claim that digital culture is simply an addition and extension to existing forms of information exchange in capitalist society: the coming of the Net simply extends the reach of multinational corporations and the state. If capitalism has taken three to four hundred years to conquer physical space, its final frontier now lies in the wired geography of cyberspace, through the corporate colonization and commodification of the virtual and the imaginary. While enthusiasts celebrate the global village of cyberspace, dystopian commentators speak menacingly of the 'colonization', 'penetration' and 'hegemonic' control of the new media and culture industries. For the dystopians the key difference between earlier knowledge machines and the Net is that the latter threatens to disengage individuals from personalized social orders on a hitherto unrealizable scale. Where telegraph, cinema, radio and television were largely confined to national space, global communications facilitates *extraterritorial* connectivity where the normative boundaries of body, self and society can be morphed to create new hybridized forms of post-human experience.

Risk society theory

The Net plays a significant material and technical role in the development of a 'global risk society' (Beck *et al.* 1993). Indeed where people hear the term 'cyberspace' they think 'viruses' (Lupton 1994; Dibbell 1995). As a medium of global connectivity, the Internet has colonized every major system of the advanced economies dominated by the military-industrial complex. Correspondingly, risk is 'democratized' as everyday life is wired up to phone-computer networks created by the new electronic media (for example through online banking, automatic commercial services, global finance markets, and the like). Each of these incursions brings with it its own forms and modalities of risk as every digitized zone is open to abuse and 'infection'.

The growth of the Internet is undoubtedly extraordinary: from 213 computers registered on the Internet in 1981 to around 300 million users worldwide in 2001 and perhaps over 1 billion people on line by 2005.¹ What began

life in the 1970s as a localized research instrument connecting a handful of universities and a communication infrastructure devised by the American military establishment to withstand a nuclear holocaust (the Defense Department's Advanced Research Projects Agency or ARPAnet) has not only proven to be a perfect medium of commercial expansion but has come to symbolize capitalist technoculture as an endless rhizomatic web of globalized communication networks. It is claimed that the Internet is 'the largest artefact in the known universe': there are more than 100 million network hosts, some 200 million PCs connected online and almost 30 million websites on the worldwide web. The pace of growth in global connectivity and Internet usage and the phenomenal proliferation of innovations in applications software elicit almost universal applause. These are marvels that distinguish the Internet's performance as a communications medium from its predecessors, such as the telegraph and telephone networks (David 2002, p. 20). We are informed that the PC industry is worth £120 billion, 'the fourth biggest business in the world after energy, cars and illegal drugs' (Arlidge 2001, p. 16) and that, according to the banking conglomerate Goldman Sachs, more than 70 per cent of homes in Western Europe will be online by 2007. By around 2005 more than 300 million people will have access to the virtual realms of the Net (*Observer* 4 April 1999). By the end of the present decade a conservative estimate is that more than 20 per cent of all goods and services in the world will be transacted through the Internet and controlled by conglomerates of computation, media and telecom companies.

Alongside the triumphalist rhetorics of electronic globalism we also find a growing awareness of the dark side of Net culture, transnational consumerism and digital capitalism. Faced with the terrors of the new world order and 'runaway' social change, dystopians claim that there is little evidence that existing social and political systems have been democratized through information technologies; indeed existing inequalities of wealth are reinforced by new inequalities of information; and the promises of the electronic cottage-office have failed to make significant inroads into the work practices of capitalism. Risk society has evolved into global risk society with its corresponding constellation of ontological insecurities and contradictions. For example, life in digital capitalism is increasingly governed by a 24-hour seven-day work culture with its proliferating domains of advertising hype, surf-mentality, convenience living, privatized home entertainment, and aggressive, instrumental orientations to the world and others. The electronic environment of the new economy has universalized the experience of uncertainty and stress as work and occupational structures are reorganized by the logics of global markets. To road rage and air rage we now add cyber rage stemming from the frustration of electronic delays, computerized voice machines, congested websites and the generalized stress of work relations engendered by the high-tech economy. The result is a networked society

characterized by surveillance and control, fragmented identity, and deterritorialized techno-anxieties ranging across personal and collective life.

Reflexive modernization theory

One immediate effect of dot.com capitalism is the universally noted compression of time–space structures and the ‘depthless’ selves and identities that inhabit these spaces. From the perspective of reflexive modernization theory, the information revolution is simply one phase of the ‘modernization of modern society’ (Beck *et al.* 1995; Beck *et al.* 2003). The digital era facilitates new types of meta-morphing of the core structures and institutions of late industrial society. Evidence of these higher-level reflexive processes can be seen in the institutional spheres of politics (the digital modernization of democracy), welfare institutions (the impact of information media within the welfare state), the restructuring of industry, insurance industries, and e-commerce, the digitization of knowledge, art and culture, and the digital militarization of society. Where first-phase modernity was nation-centred, reflexive modernization or *re-modernization* is global in its reach and consequences.

The metamorphic processes of the electronic era force us to adopt the language of complexity, images of multiple ‘spaces’ (‘scapes’), ‘processes’, and networks of fluid events and agencies. The uncertainties of first-phase modernity are correspondingly morphed into the manufactured risks of reflexively modernized global processes. ‘Reflexive’ here does not mean an increasing self-consciousness based on mastery, but rather the awareness that control is no longer possible (Beck *et al.* 2003, pp. 3–4). While modernity represented an interdependent dynamic of rationalization, differentiation and disenchantment, reflexive modernity turns these processes upon its own assumptions and institutional forms. Thus localized conflicts confined to bounded times and places give way to global threats that are spatiotemporally volatile and resistant to traditional conflict resolution strategies. ‘Normal’ social practices and structures no longer function or at least function only on the basis of abstract systems: ‘The normal family, the normal career and the normal life history are all suddenly called into question and have to be re-negotiated’ (Beck *et al.* 2003, p. 4). Traditional lifeworlds are displaced by networked banks of information and restructured as hybrid communities of interest. Nation-bounded ‘containers’ of action are morphed into transnational networks of political agencies, international non-governmental organizations (INGOs), and transnational social movements. Real-time activity is displaced by virtual conferencing as we enter the social multiverse of ‘disembodied cyber co-presence’ (Coates 2001). In sum, the ‘warm’ institutions of analogue communications are transmuted into the ‘cold’ systems of disembodied organizations, data-based bureaucracies and commercialized service providers.

Where first-wave modernity celebrated individualism, cyberspace inaugurates the age of virtual tribalism with disorganized worlds of *cyber-personae* as evanescent as the duration of online exchanges. Identities and everyday relations are increasingly detached from patterns of collective life and viewed as constructed artefacts invoked and manipulated for specific networking purposes. Even the integrity of the body and personal experience disappear as the empire of informationalization spreads into all areas of life. In a pessimistic vein both cultural critics and anxious publics diagnose a society of meaningless 'fluid' relations (Bauman 1998), the erosion of substantial relationships (Beck *et al.* 1995), and the 'globalization of nothing' (Ritzer 2003). Given this imagery it certainly looks as though there is nothing now outside cyberspace.²

Alterity and heterology theory

Alterity theory claims that we can best understand individuals, groups and whole societies by locating the recurrent anxieties and images of perceived threats to their existence and identity (Sandywell 2002, 2004). Cultural orderings are viewed as socially constructed systems that project their antinomian 'others' to create a coherent grammar of identity and difference for social actors. Postcolonial theorizing is currently the best known example of alterity theory. Systems of difference routinely construct 'others' as an integral reflexive moment of their own governance strategies. The more complex the society the more heterogeneous or heterological are the mechanisms of alterity. Such alterities are frequently mapped into binarized stereotypical and monstrous life-threatening terms, institutionalized in popular mythologies and ideological discourses (consider, for example, the modern conception of 'nature' as a threatening, external order of forces that needs to be shaped and mastered by human agency). Images of subversive alterity typically crystallize to form image constellations that define the imaginary *teratological* space of a culture (the construction of 'racial discourse' is a case in point). It is no accident that a culture's anxieties and reflexive self-understandings surface most vividly where categorical distinctions and differences are blurred and boundaries crossed by ambivalent objects and events. Figure 1 provides a simplified conceptual map of such a space, defined by two intersecting polarities: *collective/personal* culture and *public/private* life. Using this device as a heuristic framework we can map some of the more prominent teratological rhetorics of popular anxieties and fears. The resulting vector space generates the teratological heterotopias of cyberspace: (1) intrusion, penetration, siege, attack, (2) alienation, separation, loss, abandonment; (3) surveillance, manipulation and control; (4) body transgression/morphing; (5) boundary dissolution; and (6) social destabilization and disorder.

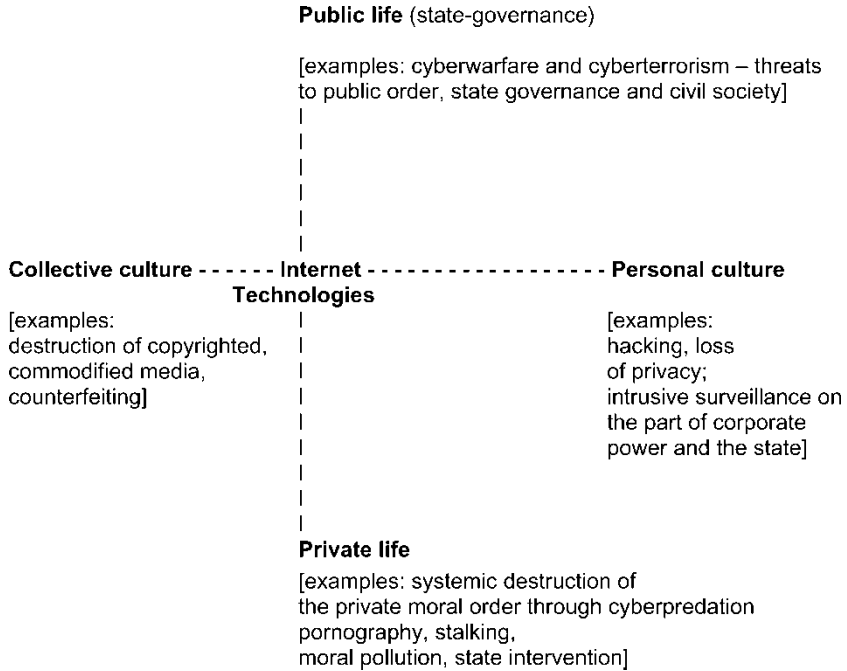


FIGURE 1 Mapping cyberphobia.

Cyberphobia and the morphology of cyberfear

Like moral panics more generally, cyberpanics are imaginary in their origins but very real in their consequences. Cyberphobia embraces a broad spectrum of responses to digitization ranging from the more passive forms of technophobia of those who are reticent or indifferent toward cyberspace (or who will not or cannot adjust to the new order) to the responses of those who indict digital technology as a medium of intrusive surveillance and on to extreme forms of anti-technological paranoia expressed by social movements that radically oppose ‘technological society’ and ‘the New World Order’.³ In the wake of the suicide-bombing of the New York World Trade Center on 11 September 2001 these emotions have been fixated on the real and imagined threats of global terrorism, Islamic fundamentalism, ‘worldwide Jihad’ and ‘the al-Qaeda terror network’.⁴ A current inventory would include: invasive internauts and cyberspace hacktivism (the modern-day counterpart of pirates and hijackers), ‘flaming’ and cyberlibel, cyberexploitation, cybersquatting (using a celebrity’s name or celebrated logo to create a website and then selling it on to the celebrity, company or interest group), cybercrime (money laundering, drug trafficking, credit card fraud), cybersex (ranging from the consensual simulation of sexual relations to digital pornography

and extreme forms of sexual harassment, paedophilia and sexual exploitation), e-espionage (the cyber form of industrial espionage), and at the level of geopolitics, cyberterrorism and cyberwarfare.

Public expressions of cyberphobia surfaced symbolically in the media-sustained panic over the Millennium or Y2K bug, the terminal warnings of the collapse of computing software predicted for Saturday, 1 January 2000. Here technophobia, fear of the 'other' and moral panics were fused into popular fantasies of global chaos and civilizational collapse – the 'time bomb 2000' diagnosed by Edward Yourdon (Yourdon & Yourdon 1998). With hindsight the meteoric bang turned out to be a whimper while the more insistent dot.com bubble of the 1990s continues to threaten the commercial, service and financial services of global capitalism. However, the unintentional effect of these panics was to sensitize the general public to the fact that while computer systems and CMC bring remarkable benefits, they are also enveloped in ignorance and can lead to qualitatively new forms of risk and societal disruption.

Threats to the public sphere

In the light of the Y2K scare we can begin our analysis with media rhetorics of *anarchy* and *chaos*. As tele-technologies are literally *an-archic* – without centre or foundation – they lend themselves to subversive fantasies of moral and political chaos. Dystopian descriptions of the Web in the popular press frequently appear prefixed by the adjectives 'ungoverned' and 'unregulated'. Promiscuous information flows in cyberspace create an anarchical theatre for antinomian agents with subversive intentions: cyberspace is imagined as a site of dangers perpetrated by disembodied intruders and anonymous agencies. A predominant image of computerized social systems is one of fragile configurations prone to systems failure and periodic 'crashes'. In extreme forms modern technophobia involves a haemorrhaging of trust that results in *cyberparanoia* (for example, the post-human anxiety that the planetary matrix of interconnected computers and allied digital technology are 'thinking for us', 'taking over' our lives, and that 'virtual co-presence' replacing 'real community' is a prelude to totalitarian futures). The aetiology of this complex can be traced to some of the major structural changes in modern society. Among these are the spread of bureaucracy and militarization during and after the Second World War, the ever-present threat of class conflict and internal 'civil war' in the major industrialized societies, the attribution of ecological degradation to the impact of modern science and technology, and, of course, the CIA-sponsored dissemination of cold war paranoia that helped foment popular apocalyptic anxieties over weapons proliferation and imminent nuclear holocaust.⁵

The outcome of these representations is a series of fantasies about faceless Power ('Big Brother') controlling our lives. The wider context of these 'Matrix anxieties' is the media-reinforced image of a society polluted by international drug marketeering, money laundering and the corruption of everyday life by criminal groups and rogue states. This discourse reinforces the popular image of a surveillance society dominated by generalized CCTV surveillance, centrally monitored databases, centralized police computers, and the use of email servers as efficient spy networks (Lyon 1994). The anxiety culminates in the language of 'silent takeover' where the combined forces of the strong state and global capitalism have irreversibly undermined the institutions of democracy and private life (Hertz 2001).

Another source of insecurity is the blurring of the boundaries between physical and virtual assault. Like cybercrime more generally, cyberphobia projects a pandemic society chronically prone to proliferating forms of surveillance, new kinds of technoscientific manipulation, and global forms of violence against person, polity and ecosystem. Its implicit model of social order is one of risk-prone structures subject to endogenous and exogenous disruption. In this scenario we are moving into a post 9/11 world where temporary states of emergency settle into a condition of permanent societal instability. It is no accident that information security experts resort to the apocalyptic language of alien intrusions and terrorist attacks as a way of responding to the new situation. Schneier observes that the US government and particularly the FBI fear terrorists, drug dealers, money launderers and child pornographers as 'the Four Horsemen of the Information Apocalypse'.⁶

The Net is also frequently represented as a lawless *zone* undermining the solidities and solidarities of civil order. These images are reinforced by media campaigns that dramatize the moral chaos stemming from an increasingly globalized economy. Here deregulation brings with it subversive viral threats of epidemic diseases, unwanted migrants and unpoliceable forms of transnational criminality. On the frontiers of the information Wild West where 'anything goes', regulation is seen as impossible. This is the popular watchdog image of cyberspace as an unregulated realm of subversive forces requiring centralized censorship and control. Anxieties about identity morphing, gender bending and the 'release' of e-sex into the public domain are perhaps the most emphatic manifestations of the new libidinal anarchy. It is already part of the demonology of the Net that the most popular word searches are 'sex' and 'porn'. Recent media depictions of the figures of the child pornographer and child-molesting paedophile 'grooming' children through chat-room exchanges are particularly potent symbols of this kind of invasive criminality-at-a-distance (the cooperation between the US FBI and British law-enforcement agencies in tracking, arresting and prosecuting users of child pornography is a recent case in point – exemplified by the very public arrest of ex-Who guitarist Pete Townsend).

The anonymous and unregulated character of the Net encourages the online ego to abandon the norms dictated by the superego and enter a virtual world of dematerialized libidinal freedom. Cyberspace releases the Id of libidinal impulses, destabilizing what the ordered realms of civil interaction have carefully constructed. Cyberspace allows anonymous others to literally say anything to anyone, anywhere, anytime with minimum psychic investment or cost to those involved (in a digitized morphing culture 'aberrant coding' becomes the norm). The fear of excessive and authorless free speech is not unconnected with the popular fear of the Net as a sexualized vehicle of virtual seduction and eroticism, a phantasmagoric medium where desire is given free rein beyond the monitoring gaze of guardian others. Cyberspace accelerates the growing trend toward anonymity and amorality in everyday life and incivility in public discourse (Lakoff 2003).

A closely related panic rhetoric is the fear of the emerging electronic panopticon spreading its surveillance operations throughout the fabric of private and public life. Where users of e-sexuality and pornography stare at images of transgressive sex, with electronic surveillance the screen stares back and monitors the viewer. From this perspective, public life is seen as increasingly regulated by the new apparatuses of cyber-surveillance (message tracing, e-tapping, illicit reading of email, web censorship, and so on). Fears of omniscient surveillance appear at many levels, from local anxieties about CCTV policies with regard to street crime to global worries about the excessive control that big business exerts over personal information and the growth of state surveillance through centralized databases (anxieties about the state's digital control of citizens has been ratcheted up with the emergence of bioengineering science and the possibility of using genetic information for actuarial monitoring, insurance planning and governmental surveillance). As the faceless System has neither centre nor location it lends itself to conspiracy theories of dark forces working behind the scenes to dominate individuals and whole societies.

The most high-profile media example of the subversive Other is the *cyber-terrorist* – the anonymous infowarrior as the (post)modern equivalent of the nineteenth-century bomb-throwing anarchist. It is not accidental that the term 'bombing' has been used for techniques that undermine computer systems through intentional overloading of information (so-called logic bombs). The popular press supplies a steady stream of headlines that run along the lines: 'A bomb that destroys civilization but leaves everyone standing. Private companies moving into military bunkers to protect themselves', 'War planners warn of digital Armageddon' (*The Times* 20 November 1999), 'Pentagon gets ready to wage a cyber war' (*The Times* 9 November 1999), 'Insect-size camera will be spy in sky' (*The Times* 8 November 1999).

Cold-war fears about global annihilation and environmental destruction have been supplemented by anxieties about future forms of infoterrorism

and cyberwarfare – the military use of new technologies designed to secure the older objectives of the domination of an enemy population through digital-electronic means (the development of the so-called Star Wars anti-nuclear shield by the United States is one of the more publicized examples of this type of state policy). The ‘hot’ and episodic form of industrialized warfare between nation-states is being replaced by ‘cool’ decentred forms of warfare targeted at the proliferating enemies on the margins of the global order (who are by definition ‘terrorists’ and ‘rogue states’). The most widely reported forms of public intrusion involve infoattackers breaking into state defence computers or cracking the encryption codes that unlock these systems.

Threats to private life

Cyberphobia is replete with toxic images of alien intrusion and infiltration into private life as the Net facilitates invasions by unnamed pornographers, vandals and subverters. Face-to-face interaction, physical proximity and social presence are no longer obstacles to social exchange. Images of anarchical blurring are a recurrent theme in popular representations of cyberspace. The blurring of ‘prescribed’ and ‘transgressive’ sexuality associated with cybersex is one example of this cultural phenomenon. In public consciousness the Internet encourages illicit sexuality without shame or retribution. Chat-room grooming, ‘whispering’, child pornography and Net paedophilia are the most publicized forms of deviant sexuality. Another example is the highly lucrative world of digital ‘adult services’ as e-sexuality dissolves the boundaries of personal and public service industries (correspondingly, the redefinition of ‘entertainment’ in hypersexual terms becomes one of the most profitable consequences of cyberspace).

As cybercrime involves transgression uncoupled from the pre-digital obstacles of time and space it has been aptly described as criminal *action-at-a-distance* (Schneier 2000, p. 20). Audio piracy relying on Napster software and e-commerce crime have been widely publicized; piracy and fraud seem to appear from nowhere, know no fixed spatiotemporal boundaries and impact on agents and communities that are unknown to and frequently tens of thousands of miles away from the activities of the perpetrators. One well-known problem is that many forms of cybercrime are not regarded as criminal by online users. Downloading texts for research or entertainment is not seen as theft (just as ‘borrowing’ software rather than buying it is seen as normal behaviour). How many users regard home-taping from CDs or copying programmes and films using audio-recording equipment as criminal activities? The anxiety on the part of the media industry is that audio and multimedia piracy will be normalized with a consequent massive reduction to corporate profits. A related issue is the difficulty in tracing

digitized copying and replication practices, a difficulty that makes enforcing copyright laws very costly and almost impossible to regulate. Another problem is that victims of cybercrime often do not report it or under-report security breaches (a prestigious corporation has much to lose from reporting the fact that its databases and security fences have been infiltrated by hackers). The collapse of confidence in the company can be financially more damaging than the original loss through cybercrime. It seems likely that the extent of music piracy is systematically underplayed in this way. For example, MP3 sites that deliver 'free' music to anyone who has the software to download and disseminate audio-texts are either normalized as manageable problems or treated as incitements for one-off exemplary legal actions. The four or five giant multinational corporations that dominate the multimedia and corporate finance sector have a vested interest in not going public about the weaknesses of their computer infrastructures (not wanting to fuel the media hysteria about the porousness and vulnerability of cyberspace). In effect we have a situation where victims have to assess the consequent risks of either admitting to cybercrime or, in the vast majority of cases, keeping it under wraps. This in turn plays into the hands of cybercriminality and lends credence to their rationalizations ('Music belongs to everyone', 'They can afford it', 'It keeps them on their toes', and so on).

Another form of criminal intrusion is *identity theft*. Where hacking targets the *identity-credentials* of electronic dataspace and information infrastructures (government services, air-traffic control systems, the major public utilities, telecommunications systems, hospitals, civil administration, banks and the international financial system, the digital hardware of the Internet and World Wide Web), infocrime steals the *identity* of on-line individuals through so-called password sniffers. Intrusion into the private data-spheres of individuals, whether by design (hackers) or by accident (security glitches) is a recurrent source of cyberphobia. One widespread instance is illicit consumer *profiling* or *data mining* where companies 'mine' customers' spending habits through credit card databases and sell these data on to other companies and businesses. Information merchandising is probably the most striking instance of quasi-criminality that has been normalized over the past decade. Legislation on data collection and access (the Data Protection Act in the UK) may be seen as a governmental response to public database anxiety.

Where fraudsters and pirates are motivated by profit, vandals act to infect or destroy digital space. Some commentators distinguish between benign and malign hackers (or *hackers* and *crackers*). The facelessness of the Net provides a perfect habitat for fraudulent behaviour and cybercrime. Credit card fraud in particular has escalated as goods are increasingly bought and sold through Internet transactions. In 2000 this type of fraud was estimated at £190 million (Ryle & Paton Walsh 2000). From January to September 2001 this had soared to £400 million (Ryle 2001, p. 8). When extrapolated into the

future these levels of loss threaten both national and international economies. The rapid rise of Internet fraud has led to the emergence of a lucrative commercial security industry and increasing consumer scepticism about Internet transactions. Journalists reporting the rise of credit card fraud readily attribute this to an international network of organized gangs and agencies. Fraudsters acquire many of the characteristics ascribed to the Internet itself: they are anonymous ('Chinese Triads'), transnational ('international gangs'), mobile and all-pervasive (moving 'across borders'), and anarchical (moving 'between jurisdictions' beyond the reach of state regulation).

Threats to personal culture and private life

Images of alien invasion seem *de rigueur* in accounts of malicious software. Cyberpanic rhetorics frequently assume a functional parallel between HIV/AIDS, sexually transmitted disease, computer viruses and global mass migration as postmodern pathologies that escape the regulatory frameworks of national governments. The destructive power of viruses might be called replication damage. Just as we 'catch' viral illnesses in real-world time, so we can, *per analogiam*, catch viruses through our digital involvements in democratized information systems. Like the AIDs 'plague', digital viruses threaten the 'health of society'.⁷

Cyberphobics imagine digital viruses maliciously destroying programmes and reproducing themselves instantaneously through electronic networks. It is no accident that cyber attacks based on malicious virus infection are one of the most powerful manifestations of the new risk society (the threat of 'e-contamination' from worms and viruses providing a mirror image of the biopolitical threat of genetic contamination). Like the HIV/AIDS parallel, viruses can be 'contracted' unintentionally from friends and acquaintances. These are different from the intentional and malicious seeding of viruses – like the Melissa Microsoft Word macro virus and Bubbleboy viruses – in computer networks. The latter presents cyberterrorists with the means of mass disruption. We might also note the category of fears relating to 'hoax viruses' (for example, 'the typical virus hoax that attempts to frighten people who have already installed popular programs, like AOL' (Aftab 2000, p. 69). As we have noted, hoaxes – like 'real panics' – can have massive personal and societal consequences (the cost of the 'Love letter' virus of May 2000 has been estimated at US\$2.6 billion).

The anxiety about malicious and destructive viruses and worms is part of a more general fear of creeping contamination 'infesting' and undermining the fabric of social, economic and cultural life once the sanitized boundaries between self and other have been breached. As Lupton observes, viral metaphors function to connect previously unassociated domains and make abstract and intelligible processes real and concrete (1994, p. 557). Viral talk, also,

however, draws attention to frightening *differences*: unlike material sources of industrial pollution the agents of cybercrime are unknown and invisible; the cybercriminal appears not like a thief in the night but in the silent tracery of viral contamination, an anonymous infector of databases and electronic security systems. The cybercriminal does not carry skeleton keys but the encryption devices that unlock the codes of e-commerce, e-politics, and e-culture. Where localized systems and organizations were finitely risky, the Net turns out to be infinitely vulnerable. A further unintended consequence is that 'normal' categories of criminality proliferate to create an expanding galaxy of cybercrimes.

The electronic rhizomes of cyberspace threaten to disengage whole populations from the realities of everyday life as they spend more time in cyberspace. Where intrusive and piratical metaphors suggest motives of theft and desecration, the metaphors of loss promote images of cultural deracination, homogenization and abjection. Used derogatively, *drifting* designates the pathological side of disembodied surfing culture, the aimless wandering of online users in cyberspace. The televisual parallel to cyberdrifting is 'zapping' (rapid intercutting into television channels) as a metaphor for a postmodern derealization of narrative linearity and coherent discourse. A related anxiety is that *derealization* will blur the border between self/other and dissolve the unitary self in a sea of inchoate information – an 'anything goes' 'Johnny Mnemonic' scenario that leads not merely to a decline of critical taste, discriminative choice and judgement, but to technological schizophrenia and a nihilistic withdrawal from real relationships and communities. Traditionalists suggest that the spread of the Net will lead if not to the Deleuzian scenario of schizoid 'decentred subjects', then certainly to a weakening of critical reason and a dumbing down that will fuel the spread of junk-culture. The disinterested and deracinated figure of the 'browser' (the mindless surfer of electronic simulacra) will replace the strongly embedded identities of the traditional reader, critic and thinker. In future we will all be 'surfing alone' (cf. Putnam 2000).

Threats to collective culture

The Net adds a further turn to the rationalization screw by fragmenting society into wealthy enclaves of the information rich and ghettos of the information excluded. *Cyberexclusion* refers to the systematic inequalities that are reproduced by the information society itself, the reinforcement of existing social divisions through new stratifications of the information rich and poor. In the new digital divide, the most powerful interest groups ensure that the cybercapital of the information rich remains in private, corporate hands. The recognition of the class, age and gender bias of digital communications and the exclusion of women, subordinate ethnic groups and marginal

strata have become major themes in recent research. It is well known that access to cyberspace software is dominated by one or two multinational companies (the best known being the Microsoft world monopoly over personal computing and increasingly over access to the Net through Navigator software).

Layered upon this process of ghettoization are more widespread fears about the collapse of public authority, normative regulation and accountability. If markets presuppose stable copyright and property laws, the Net threatens the contractual presuppositions of capitalism. Internet technologies like Napster and mp3.com are seen as undermining the commodifying mechanisms of the culture industry. As anti-capitalist protesters have realized, 'free' access to the cyber-commons undermines the sovereignty of private property. Hence the numerous legal suits through which the giant multimedia corporations have tried to assert their legal rights of ownership over virtual Net commodities. From the mindset of copyrighted culture the interactive, many-to-many communicative systems inevitably appear as a realm premised upon a principled destruction of ownership and intellectual property.

But perhaps the greatest threat to public culture is cyberterrorism. Where global cybercrime prefigures a world of untraceable conspiracies and fraud, cyberterrorism appears as the supreme form of invasive attack that undermines the informational structures of civil society. The arsenal of cyber espionage and disruption is impressive: 'gremlins, worms, Trojan horses, logic bombs, trap doors, "chipping", nano machines, microbes, Herf guns and EMP bombs' (Evans 1999a, p. 11), techniques to project images onto enemy television screens, logic bombs to scramble computer networks, fast-breeding computer 'worm viruses', the electronic spreading or combating of propaganda and false information (Macintyre 1999). We can add to this the development of microscopic, electronically controlled espionage planes designed to spy on enemy positions in the cyber-wars of the future (Evans 1999a). Research on micro air vehicles (MAVs) runs into tens of millions of dollars and they are seen as playing a strategic role in future information warfare.

Conclusion

How should we account for the public distrust of science and technology displayed by cyberphobia? What form of life sustains the apocalyptic scenario of an EMP (Electro-Magnetic Pulse) gun paralyzing the civil fabric of industrial civilization? From a historical perspective undoubtedly a large part of the explanation resides in the persistence of older, entrenched cultural antipathies toward science and technology. These mindsets have been overlaid by totalitarian images of control implicit in the very growth

of large-scale social organizations and the immense power now concentrated in states and multinational corporations. The result is a generalized distrust of 'expert systems' based on science. Elsewhere we have noted the influence of powerful rhetorics that depict the new technoculture in one-dimensional, manipulative and determinist terms (Hand & Sandywell 2002). However, the most immediate causal nexus motivating cyberphobia lies in the rapid global deregulation of the market economy itself and, more specifically, the expansion of global capitalism and its military support systems in the last two decades.

As an integral medium of reflexive re-modernization, the transgressive dynamics of cyberspace are seen as both blurring borders and transforming established institutions and organizations. The real and/or imagined consequences of deregulation and global restructuring – hypercasualization, global unemployment patterns, environmental degradation, the collapse of traditional industrial sectors and occupational dislocation, the decline of the traditional patriarchal household, mass migration, international crime and global terrorism, and so on – lead to experiences of personal anxiety, dislocation and uncertainty. The popularity of conspiracy theories may reflect the sense of normlessness and powerlessness experienced by vulnerable groups and societies in this process of global dislocation. Weak, extended, impersonal social ties replace the robust and direct face-to-face relations of traditional society. Thus digital culture has been appropriated as an alternative means of exchange and consumption. Even such everyday transactions as shopping, travel arrangements, hotel bookings, medical consultation and information searching are increasingly mediated by e-commerce (the transformation of the 'auction' website *eBay* into a multinational business is one of the best known examples). Another factor is the growing involvement of government agencies with Internet regulation and security (the emergence of Nominet in Britain and Icanm in the US for example) and the associated rise of an Internet resistance culture of activists against media control and surveillance (Sprengrer 2001, pp. 11–16). Finally, we should note the transnational contexts of new electronic warfare technologies, the bio-engineering revolution, and the planetary reach of risk consciousness.

Another unintended consequence of Internet criminality is the transformation of pre-digital practices of governance and legal regulation. Here such commonsense oppositions as private/public, familial/civil, state/regional have been suspended when crafting new legislation on such phenomena as electronic libel, digital harassment and online rape.⁸ In the advanced economies of the West the global impact of the Internet has dissolved the boundaries between 'commercial' law, 'civil' law and 'international' law. In countries such as Saudi Arabia and China the impact of the Internet has led to new forms of state censorship (the expression 'the Great Firewall of China'

becoming a cliché of cyber journalism). Calls for regulation are often political rhetoric for reasserting corporate property rights over mass-produced cultural objects or for authoritarian strategies of mind control. Bewailing the disappearance of liberties and human rights then becomes a strategy for implementing even more draconian forms of control. The bureaucratic mechanisms invented to cure the problem of Net deregulation turn out to be more threatening than the problem itself – extending the role of policing agencies monitoring cyberspace with a corresponding erosion of freedoms and civil liberties.

The landscape of anxieties we have sketched suggests that we need a more concrete, historically embedded phenomenology of the Internet (and other forms of computer-mediated technology) as contested cultural formation(s) restructuring the practices of everyday life. Dystopian and utopian visions of Web technology prove to be insensitive to important interactional phenomena in the study of digitization. Because technological determinism ignores the creative, interpretive and reflexive activities of those who use and appropriate the new technologies, one major task of alterity theory is to restore agency and reflexivity to the study of technoscience (Hand & Sandywell 2002). We urgently require forms of ethnographic analysis and empirical programmes of research that are sensitive to the diverse context-embedded ways in which the new multimedia are changing the ways we experience the world. For example, recent research into the actual uses of online technologies by different groups and communities and the diverse ways in which risk consciousness is constructed and managed by important social agencies suggests that both apocalyptic and triumphalist scenarios invariably simplify the complex forces unleashed by digitization. Online users are not cultural dopes but creative appropriators of technology. Empirical research on chat-room interaction suggests that chat-rooms may function ‘as a domain where all forms of subjective experience are offered the possibility of re-enchantment as the individual customizes their own relation to a new community’ (Coates 2001, p. 225). The issue here is not solely one of the causal impact of digital media on society but rather the situated forms of societal appropriation as these technologies are adapted and applied in particular locations and contexts by specific agents, agencies and organizations.⁹

While the analysis of risk consciousness is only one aspect of these new forms of technically mediated experience, the investigation of cyberphobia is a fruitful way of exploring how a society constructs teratological maps of the forces that are inimical to its order and existence. On a more theoretical plane it underlines the role of agency within the cultural politics of the globalized information age and foregrounds the task of rethinking the significance of information within the heterologies of everyday life (Sandywell 2004).

Notes

- 1 Dorner (2000, pp. 154–155); also Abbate (1999); Loader (1998); Porter (1996); Shields (1996).
- 2 Representative pronouncements of cybervangelists can be found in the early editions of the futuristic magazine *Wired* (see *Wired UK* March 1995). Howard Rheingold's *Virtual Reality* (1992), Michael Benedikt's *Cyberspace* (1991), and Scott Bukatman's *Terminal Identity* (1993) may be read as classical statements of digital utopianism where cyberidentities acquire a fluidity and protean transformability that undermines the fixed roles and statuses of pre-digital society.
- 3 Such paranoid responses when fused with the fear of the totalitarian rule of 'experts/scientists/bureaucrats' and the 'loss of community' may well be viewed as one of the most widespread neuroses of the late twentieth century, reflected, for example, in Max Weber's dark foreboding about the irreversible spread of bureaucracy in modern society, the hegemony of instrumental rationality in the work of Adorno, Horkheimer and Marcuse, the dystopian future in Aldous Huxley's *Brave New World*, E.M. Forster's 'The Machine Stops', George Orwell's 'Big Brother', Jacques Ellul's *The Technological Society*, Lewis Mumford's *The Pentagon of Power*, and the Frankenstein image of science and technoculture as the modern Golem.
- 4 On the functions of apocalyptic rhetoric and its links with *fin-de-siècle* anxieties see Jay (1993) and more recently Aitchison (2003); for anti-capitalist movements see Hertz (2001).
- 5 For the role of 'big government' and the CIA in Cold War cultural politics see Stonor Saunders (1999).
- 6 Schneier (2000, p. 67).
- 7 For viral metaphors see Lupton (1994). Also see the counter-intuitive argument of Dibbell (1995).
- 8 For cybercrime see Sterling (1994) and Thomas & Loader (2000). For cyber-rape see Dibbell (1999). On cyberlawyers see Aftab, 2000 (for 'laws that protect your child from sexual predators in cyberspace' see chapter 5, pp. 127–142; also the UK Home Office pamphlet, 'Keep Your Child Safe on the Internet'). On the persistence of gendered identities and patriarchal norms in cyberspace see Balsamo (1994, 1996).
- 9 In particular we need empirical investigations of the local modes of individual and communal appropriation of the new digital technologies (Shields 1996; Terry & Calvert 1997; Miller & Slater 2000; Bingham *et al.* 2001; Coates 2001). For the beginnings of first-person ethnographies of life in cyberspace see Seabrook (1997) and Sudnow's ethnomethodological exploration of the world of video games (1983). To these pioneering studies we can add empirical investigations of recent forms of legislation, censorship, regulation, and policing (Aftab 2000), studies of the public understanding of the new technologies (Poster 1995), research on the

gender bias of the new technologies (Spender 1995; Hopkins 1998), and explorations of new occupations and disciplines associated with cyberspace security and counterintelligence (Schneier 2000; Sprenger 2001).

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