

Situating Cyberspace

Philip Hayward, Tana Wollen
1993

Diffusion and Resonance

Cyberspace is currently a "hot" topic. The mainstream press, TV News and current affairs programming have all approached it as a newsworthy phenomenon. Recent innovations in interactive computer technologies have therefore seemed to burst onto the scene, to have moved from prototype to primetime in one easy leap. The spread of news about the phenomenon has, however, been less explosive than this model suggests. Analysis reveals a more gradual pattern of diffusion through a range of (sub)cultural channels whose character and concerns have moulded the public image and perception of the phenomenon itself.

The first publication to break the news of the developments in computer interfacing which precipitated virtual reality was the monthly popular science magazine *Scientific American*. The cover of their October 1987 issue carried the following proclamation :

The next revolution in computers, the subject of this issue, will see power increase tenfold in 10 years while networks and advanced interfaces transform computing into a universal intellectual utility.

The image chosen to accompany this bold prophecy was seemingly modest - a picture of a data glove and its computer graphic double but as James Foley's article "Interfaces for Advanced Computing" emphasised, the technology offered a profound breakthrough in interacting with the "artificial reality" of computer graphic programmes [1]. The implications of this "next revolution" stimulated interest in a variety of circles.

Detailed technical description and information soon began to appear in specialist computer magazines and speculation about the technology's potential also began to feature in more general publications. This, in turn, led to the establishment of magazines such as the American *Mondo 2000* and the Australian *Index*, which combined coverage of the new computer media with rock and other "counter-cultural" topics. By 1990 this diffusion had reached the mainstream media with publications such as the *Wall Street Journal* (US) and the *Guardian* (UK) running major features on cyberspace and virtual reality. Mainstream radio and television subsequently followed suit. In Winter 1990 ABC TV News (US) ran their first item on it and the Virgin/MTV youth magazine programme *Buzz* produced a report which included an interview with virtual reality pioneer Jaron Lanier. By 1991, coverage of the phenomenon had become widespread as information and speculation diffused further and as cyberspace systems and their advocates became more readily available to journalists.

Enthusiasm for the phenomenon has, in part, arisen from the substantial technological innovations in computer technology that have been achieved over the past five years. However, this steady rise in interest more accurately reflects the manner in which the medium's developers and advocates have successfully publicised their radical claims for it. The credence and enthusiasm accorded to Lanier and his fellow pioneers by their adjacent subculture have, in publicity terms, created a major "buzz" about their activities. Cyberspace - as a

promised phenomenon - has caught the imagination first of a subculture and now of a wider public. The medium's heightened rise in profile can be seen to have resulted from a mutually supportive convergence of interests and affinities between practitioners, aficionados and writers.

Unsurprisingly perhaps, given the continuing male dominance of high-tech research and development, the key players in the promotion of cyberspace have principally been white middle-class American males in their thirties and forties. Its main advocates belong to a specific social group comprising individuals who have clung to residual "counter-cultural" notions, most often articulated within terms of a loose Green-Libertarian rhetoric, while being assimilated into certain sectors of the American professional classes. This group is most notably represented by the computer industries, the culture of Silicon Valley itself and key generational figures such as Apple founder Steve Job. Lanier's interests, rhetoric and background appeal strongly to this group. His impeccably "counter-cultural" appearance distinguishes him, and other key figures of the "new wave", from the preceding generation of cyberspace pioneers whose interests and profile were representative of their positions within the American military-industrial combine.

By 1991, cyberspace and "virtual reality" existed as much as figments of a (sub)cultural imagination as they did as "real" phenomena. A group of (often overlapping) popular cultural discourses has preceded the medium's introduction by framing, contextualising and predicting the development of cyberspace systems and their virtual experiences. These have served to fix cyberspace in the popular imagination in particular configurations. As this chapter will go on to argue, along with the Techno-Futurist aesthetic discussed in this book's introduction, the most influential of these have been science fiction, rock culture, psychedelia and "New Age" mysticism.

These discourses are significant because they have shaped both consumer desire and the perceptions and agenda of the medium's developers. In a particularly ironic twist of what must now perhaps be considered "Late Postmodernism" they have created a simulacrum of the medium in advance (against which its products will be compared). As Kevin Robins has emphasised :

As the idea of virtual reality entertainment comes to public awareness, what is clear is that the imaginative mould has already been set : there is already a wholehearted agreement about its "revolutionary" significance and a deafening consensus about its "challenging" potential. [2]

Derived from a set of existing cultural discourses, the "imaginative mould" of cyberspace substantially replicates a number of their characteristics and ideologies. Analysis of these provides us with a base from which to assess the nature of those radical claims made for the new medium. In particular, an understanding of contexts enables us to analyse the central role played by figures such as Lanier and William Gibson, who, repeatedly interviewed about similar issues, have produced a sizeable, if repetitive, body of argument, characterization and prophecy. As Robins has also pointed out, frequent reference to Lanier and Gibson is almost *de rigueur* for any study of cyberspace; as is a checklist of other references for discussion [3]. In this manner, this analysis of paradigms of critical and descriptive discourse mirrors its object of analysis but, in doing so, aims to establish the highly tendentious nature of the discourse's key themes and motifs.

Gibson - Science Fiction and Prophecy

At the time he wrote *Neuromancer*, Gibson had no idea that NASA was working on real artificial

reality, or that artificial intelligence researchers were trying to make thinking machines, or even that some physicists were theorising that the universe could be a computer and God a hacker... But these themes were all "adrift" in the zeitgeist of science fiction which was Gibson's guilty literary pleasure. [4]

Discussions of cyberspace have principally addressed its potential in terms of a set of applications which appear to be just beyond the technological horizon. In this sense, even when most sober and technically informed, discussions of likely social and cultural developments premised on the delivery of new technologies have followed the classic mode of (predictive) science *fiction*. And just as science fiction in general has tended to inform - or even determine - the nature, character and perceptions of subsequent science fact; so writing on cyberspace has created the conditions for a form which still principally exists in prototype. Writing ahead of actual technologies and accomplishment, virtual reality practitioners have fired the imagination of writers and the public about cyberspace much as early science fiction magazines stimulated interest in the potential of space travel (that voyage into outer space whose representation in many ways prefigured today's voyages into the virtual space of the computer programmed).

Whereas the well-established tradition of science fiction can be seen to have produced a group of predictive "fathers" for such sciencefact developments as space travel (Jules Verne, Arthur C. Clarke etc.), the emergent cyberspace scene has one principal literary progenitor, William Gibson. Almost all sustained pieces of journalism on the topic have acknowledged his influence. Gibson and subsequent writers are seen to have modernised and reinflected the technological aspect of science fiction. The "Cyberpunk" genre initiated by Gibson has been credited with shifting the advanced hardware preoccupation of the mainstream science fiction genre towards the world of computer software and its interaction with human wetware (the brain).

Although Gibson's work has provided a significant reinflection of the genre, such themes were present in earlier science fiction. As Robin Baker emphasises in Chapter 2 of this anthology, mainstream cinema, for instance, produced some of the earliest preconfigurations of cyberspace in films such as *Tron* (1982) and *The Last Starfighter* (1985). These, and other films, attempted to take the interactive computer games that were coming into vogue in the early 80s and posit alternative "realities" constituted by (and *within*) these. *Tron* is particularly significant in this regard for its attempt to show the human literally inserted into the 3-D computer world - a harsh electronic reality every bit as complex as the first generation of virtual "worlds" currently being designed. Although its population of sentient gamers is unlikely to be matched by any cyberspace programme until both memory capacity and super-intelligent (SI) computer systems are considerably more developed, its computer game antecedence renders it a convincing model of what the first fully interactive cyberspace games may be like.

The science fiction connection is not just a convenient basis for comparative discussion but has been a major influence on the development of the medium. Key cyberspace pioneer, publicist and director of leading company VPL, Jaron Lanier, for instance, comes from a background infused with such ideas. His father was a science fiction author and acquaintance of fellow writer L. Ron Hubbard (who went on to found the science-fiction-inspired Church of Scientology). Prominent critics such as Paul Brown have declared themselves "avid fans" of the genre [5]. More significantly, though, rather than a computer hacker, Silicon Valley whiz-kid or games company executive, it is Gibson who is almost universally cited as "father" of the concepts and imagination which have shaped the cultural perceptions and directions of new computer media.

Gibson's novel *Neuromancer*, tapped out on a manual typewriter and published in the auspicious year of 1984, was the first of his now famous "Cyberpunk" trilogy. Its successors *Count Zero* and *Mona Lisa Overdrive* appeared in 1986 and 1988 respectively. Gibson's significance and predictive acuity have been acclaimed by a range of critics and practitioners. Timothy Leary, the Sixties drug guru, now a passionate advocate of "revolutionary" electronic technologies, has described Gibson's novels as presenting "an epic-encyclopedic

guide book to the cybernetic world that is already emerging" [6]. Critic Paul Brown has also described Gibson's work as "canonical texts" which have been a "main source of inspiration" [7]. Fredric Jameson has singled out Gibson, and the Cyberpunk genre, as "the supreme literary expression... of late capitalism" [8]. And, at its most inflated, Gibson has even been characterised by Leary as the "writer who was to define the politics, culture and philosophy of the Information Age of the Nineties" [9] and provider of "the underlying myth of the next stage of human evolution" [10].

Yet, as some observers have noted, the promotion of Gibson as herald of a new age of computer media is a somewhat curious enterprise. Firstly, it requires the relegation of the development of cyberspace technology to a secondary role. Gibson, after all, neither initiated the development of the technologies which combined to produce cyberspace systems, nor exerted any influence on their early application. Its origins can instead be traced back to Ivan Sutherland's and Myron Krueger's initial experiments and to NASA's early experimental programme - all initiatives of which Gibson was unaware when writing the early novels [11]. Secondly, the adoption of Gibson as prophet to a generation of hackers, scientists etc. requires a highly selective reading of the fictional trilogy; one which extricates the conceptual system of cyberspace (and its applications) from the overall context his books establish.

The perception of the trilogy as a blueprint for a technologically utopian society involves a particular process of reinterpretation or, perhaps more accurately, "skewing". Despite the bleak, violent, polluted and amoral world Gibson sketched in his novels, many readers and, significantly, many computer aficionados - have interpreted the domain of cyberspace as an imminent technological utopia. Much to his surprise, the dystopian elements of his best-known novels have been largely ignored. As he has repeatedly emphasised :

I was delighted when scientists and corporate technicians started to read me, but I soon realised that all the critical pessimistic left-wing stuff just goes over their heads. The social and political naiveté of modern corporate boffins is frightening, they read me and just take bits, all the cute technology, and miss about fifteen levels of irony. [12]

Although overstated, Gibson's characterisation is broadly correct. There have been few engagements with the more cautionary or critical aspects of his work in the public for the emerging cyber-culture. In one sense, responses to his novels can be seen to reinforce perceptions of the general apoliticism of science, scientists and the technology industries. More broadly, they could be seen as further evidence of the much-vaunted "retreat from politics" in Western culture. But there is also another reading of this position, one which addresses Gibson's assumptions about the nature (and efficacy) of the science fiction genre itself. Science fiction has been seen to operate as a *cautionary* genre. By situating social problems (current or imagined) in an imminent future, it functions, in a manner akin to Victor Hugo's fiction, as a "laboratory experiment" where the consequence of circumstances can be examined through the development of a fictional world. Gibson's concern is that the cautionary aspects of his work have been overlooked. Yet there is little evidence to prove that science fiction has *ever* been significantly effective as a cautionary genre - least of all where technology has been concerned. Perhaps only the series of nuclear horror films such as *The War Game* (1965), *The Day After* (1983) and *Threads* (1984) can, in association with major anti-nuclear campaigns, be seen to have had any profound cautionary effect on public and professional perceptions. Their "target" issue, however, is notably starker and less equivocal than the subtler predictions of Gibson's fiction.

Gibson's work, and the Cyberpunk genre in general, have principally served to excite interest in newly developing interactive computer systems. In a social order whose economic and technological rationale still seems centred on a Marinettian notion of progress - where "progress is right, even when it's wrong" - the lack of address to the cautionary aspects of the genre is perhaps understandable. It is not surprising that a society preoccupied with technology and consumerism can more readily grasp the potential pleasures of new media

rather than predictions of the social decay they might cause. Whatever Gibson's (best) intentions, his work has created a desire for cyberspace technologies in advance of their production. Their current unavailability thereby renders them objects of desire *par excellence* for a high-tech consumer culture untroubled by vague speculations as to their dystopian potential.

In one sense, Brett Leonard's 1992 film *The Lawnmower Man* proves an exception to this tendency. Its plot involves a scientist who uses virtual reality programmes to boost the intelligence of Jobe, an intellectually disadvantaged male, to genius levels. In the process, however, Jobe develops pronounced telekinetic and psychic abilities and a messiah complex. After a confrontation in cyberspace between the subject and his scientific mentor Dr Angelo, Jobe evades a fatal datatrap and escapes, as "pure intelligence", into the global datagrid. The film ends with the outcome Jobe prophesies, his birth as a new superintelligence is proclaimed in the sound of every telephone in the world ringing simultaneously.

As this brief synopsis might suggest, the film combines a number of classic horror and science fiction themes and gives these contemporary colour through its representation of VR environments and the quasi-Gibsonian twist of its conclusion. The representation of sophisticated virtual reality systems within such a scenario, let alone the story of their development by sinister militaristic agencies, makes it distinctly darker in tone than even the bleakest aspects of Gibson's fiction. In Leonard's film, even the possibilities of virtual sex are represented in the bleakest of imaginable scenarios - a (literally) monstrous virtual rape which leaves its female victim permanently deranged. In this manner, the film is a classic exploitation picture which uses its virtual reality theme as a science-horror motif in a similar way to 1950s and 60s B-Movies such as *The Fly* (1958), *The Crack in the World* (1964) or *Attack of the Fifty Foot Woman* (1958).

As director Brett Leonard has emphasised, he became interested in virtual reality while living in "northern California where a lot of the virtual reality technology was spawned" [13]. Together with co-writer Gimel Everett, he "had been wanting to do a cyber film for quite a while" before embarking upon the *Lawnmower Man* project [14]. Like Stanley Jordan's *What's Goin' On* video (discussed further in the next section) one of the functions *The Lawnmower Man* fulfils is the simple *representation* of 3-D VR systems in a 2-D medium. The sequences which show the principal protagonists transformed, computer-graphic bodies interacting in cyberspace are significantly successful in this regard. Indeed, these sequences, designed and animated by Angel Studios, who have also worked for agencies involved in actual 3-D VR development (such as NASA, the American Federal Aeronautics Administration and Nintendo), are perhaps the most impressive aspects of the film.

The director's stated intent in *The Lawnmower Man* was, however, not just to represent VR but to consciously produce "a cautionary tale" [15] about it. Using Stephen King's eponymous short story as starting point, the director saw himself as developing a scenario which showed "a man being transformed by this new technology in a kind of classic way like Mary Shelley's *Frankenstein* or *The Fly*" [16]. Leonard has gone on to emphasise how he drew upon this tradition to allow his film to address the "big questions" raised by virtual reality, namely, what's going to happen to the human-machine interface and what does that mean for culture and communications in the 21st century [17]. Yet these questions are barely touched on by the film. The blend of generic themes and traditions, and the influence of horror writers such as King himself and author-director Clive Barker produce a thematic momentum for the narrative which mediates and transforms any conscious representative intentions the director might have had. Indeed, perhaps the aspect most singularly lacking in interviews with the writers and director and in promotional material surrounding the film is the extent to which the film's scenario and narrative rely on the administration of mood and consciousness-altering drugs to its protagonists. Jobe's eventual psychosis is, after all, drug-induced and caused by an intentional overdose rather than by the interactive potential of VR systems. In this manner, the film resembles Ken Russell's odyssey of drug-induced reversion *Altered States* (1980) more than any of the central works of the Cyberpunk genre.

The dystopian and apparently cautionary aspects of the film's treatment of virtual reality are, in this way, less a product of intention than their generic context. Despite its clear rejection of any Marinettian notion of progress and its apparent affinity to the dystopian characterisations of Gibson's writing, the film is ultimately less a representation or prediction of VR than a curdled cocktail of generic traditions and aggregated themes which refer back to their own traditions rather than foregrounding the commentaries on VR the film's auteurs have emphasised.

Rock Culture - Sound and Vision

William Gibson writes while watching MTV. He's a recent addition to the canon of writers whose work rock'n'roll people read... But Gibson uses very little music in his work... (it's) a kind of offstage influence. [18]

Rock music, or perhaps more precisely, the cultural forms, lifestyles and preoccupations associated with it, have had a significant influence upon the cultural context, development and popularisation of cyberspace. Indeed, as numerous accounts have cited, the key DataGlove system designed for VPL by Tom Zimmerman was inspired by a popular mime practice. Zimmerman set out to create an "air guitar" the imaginary instrument rock fans "play" whilst miming to the sound of their favourite rock performers - which was *actually playable* [19]. Even independent of this specific connection, music-associated youth cultural magazines such as the American *Rolling Stone* and *Mondo 2000* and the British *The Face* have, in particular, played a central role in publicising and popularising the cyberspace phenomenon. This in turn reflects the manner in which rock culture foreshadowed aspects of virtual reality experience through its own forms and traditions.

The *immersion* in sound and light offered to the user who dons glove and goggles and thereby enters another "world" has parallels with a variety of popular music practices. One significant precursor of the audiovisual environments of cyberspace has been the integration of sound and vision in rock performance. Acts as diverse as the Grateful Dead (in the late 60s), Hawkwind (in the 70s) or Laurie Anderson (in the 80s) attempted to create integrated audiovisual performance experiences which can be seen to have anticipated aspects of current virtual reality programmes. Similarly, the integration of complex light shows with pre-recorded sounds at various dance events, including those momentous Acid House "raves" of the late 80s, provided another precedent.

These cultural forms and their conventions fed into another form, music video, which - though a passive rather than interactive medium - has also prefigured aspects of cyberspace. Whatever the degree of specific influence of MTV and music video on Gibson's writing, a number of music videos (particularly those which feature human figures interacting with computer graphic sequences) can be seen to both prefigure, and of late *represent*, the visual environment and user experience of cyberspace programmes. As I have argued elsewhere, a preoccupation with novel technical effects has dominated a significant strand of music video production over the last two decades [20]. This has led to the production of a series of videos which insert the performer(s) into the (virtual) electronic spaces generated by the effects equipment used. David Mallett's video for David Bowie's 1980 single *Ashes to Ashes* is a significant early example, placing Bowie and his retinue in a garish fantasy chromakey world. But more significantly, The Cars' *You Might Think*, a major "hit" on MTV in early 1984, directly prefigures a number of cyberspace's current preoccupations. Through computer graphics and advanced matting, the video features scenes where the Cars' lead singer Ric Ocasek turns into creatures such as a human-headed fly and a giant ape. In the video's narrative he performs as if in possession of the scale and mobility of

these creatures - the visual images alternating between his point of view and that of the video's other character, the attractive young female he persists in annoying.

The potential to experience mobility and perception from the point of view of another creature, a key conceptual motif in *You Might Think*, is precisely one of those uses of cyberspace singled out by early experimenters with the form. As Lanier has been proud to observe, "around here at VPL you have people become different animals all the time" [21]. Similarly, Stephen Levy noted that one VPL researcher had "logged considerable time as a lobster" [22]. For all the presumably profound implications of such a perceptual and experiential shift, it is significant to note that one early user of VPL's equipment - an unidentified Hollywood director- used the system to indulge in a *You Might Think* style fantasy. After requesting the creation of an (effectively) hundred-foot-tall Amazon goddess for his personalised programme, he then used the transformative facility to explore her physique from a fly's-eye view, repeatedly circling her nipples...

While videos such as *You Might Think* can be seen to have prefigured aspects of cyberspace, others have sought to *represent* the experiences it offers. The earliest and most significant of these representations occurs in the video for Max Q's 1989 single *Monday Night By Satellite*. The video, made for Australian group Max Q (a collaborative venture between INXS singer Michael Hutchence and musician Ollie Olsen) was directed by Jeff Jaffers with special effects co-ordination by Karen Ansell. It presents a computer-generated world where the musicians float through spaces which constantly transform through fractal progressions. In one way the video simply conforms to a particular tradition of competitive high-tech imagery in the form but there is an additional significance to its style and representative address. Both Olsen and Jaffers are members of the Australian cyberspace and hackers group "Melbourne Cybergate" founded by Paul Brown in early 1990. The video can thereby be read as a significant representation of the perceptions of those involved in the early phases of cyberspace's development and promotion, a localised cultural vanguard.

Considered in this context, the most notable aspect of the video is its banality. *Monday Night By Satellite* is escapist in the most literal sense of that term. Its scenario is one of entry into an hallucinatory space produced by computer electronics where the video's protagonists float, dazzled by evanescent illusions. The escapism of the video is compounded by composer Olsen's statements on his interest in virtual reality (and that other currently fashionable popular science topic, Chaos Theory) at the time of making the tape. His views conflate a traditional mystical desire for transcendence of the material with unreconstructed rock culture hedonism. As he stated in an interview :

I want to become comfortable in the fact that there is ultimately no knowledge at all... That's where I really attach myself to chaos theory. I'm interested in infinity, and I want to feel comfortable in it and not to have silly notions of gods and bombs and ozone layers and things like that. [23]

Leaving aside his rather confused characterization of Chaos Theory, the statement is one of hopeless futility, of escape into illusion. In the video, cyberspace becomes a bolt-hole from material, political and ecological reality, those tiresome inhibitors of the mental voyager. At a time when various other rock musicians such as Sting, Chrissie Hynde, Peter Gabriel and Peter Garrett are becoming noted for their support of ecopolitical issues, cyberspace and "Chaos" look a good way out.

Nevertheless, cyberspace has also attracted considerable attention from what might be seen as the more astute and politically informed rock faction too. Laurie Anderson, for instance, whose multimedia shows throughout the 80s demonstrated both a use and an intelligent engagement with complex technologies [24], has expressed an interest. Intrigued by the technology, its possible cultural applications and the high-tech mystique surrounding the form, she has suggested a number of possible applications. One of these, mooted as a collaboration between herself, Peter Gabriel and Brian Eno, is "to have each of the three artists do a song,

performed in a world he or she would design" and have the other artists join them, with the audience looking "at three large TV screens, each of which would show what each artist is seeing" [25] - a project which extends collaboration and improvisation into an interactive visual medium.

Despite the potential of such a project, Anderson has, however, been cautious about the current state of the form and its technology. In particular, she remains unsatisfied both by the visual resolution of current systems and by the manner in which the goggles' screens still function as viewing surfaces. As she said of her first encounter with the medium, "I felt I was trapped in the surface of a TV screen" [26]. In contrast, John Barlow, of The Grateful Dead, has waxed enthusiastic about more traditionally "psychedelic" uses of the technology. He has proposed that it would be exciting to put the band "inside Virtual Reality during a show and then rear-project the scene inside Virtual Reality on a screen behind the band so the audience can watch them become creatures and stuff, playing their instruments" [27] - a scenario which presumably does not involve the more complex meditations on technology present in Anderson's work.

The first music video to use sequences actually generated by cyberspace systems was produced in 1990 for Stanley Jordan's single *What's Goin' On*. Made (inevitably) in collaboration with Lanier, the video performs a dual promotional function. It promotes the single (and Jordan himself) by associating them with the new "hot" medium of cyberspace; and promotes cyberspace itself within the youth cultural context of music television. This latter aspect is emphasised by the manner in which the video represents its technology. In many ways it is almost a demonstration tape for cyberspace in which Jordan incidentally appears. Jordan has confirmed this aspect in interviews, describing how he wanted to publicise what he sees as "the future of entertainment" [28]. The video consists of three principal sequences edited together and synched with the prerecorded soundtrack. These comprise standard music performance footage, sequences of Jordan in the VPL labs donning visor and data glove and sequences of the video graphic environment experienced by Jordan whilst "in" the cyberspace programme.

Despite the radical potential claimed for cyberspace systems, the graphics sequences represented in the (two-dimensional) video appear relatively orthodox. Matching Jordan's somewhat predictable request for a cyberspace programme of "a space I could fly around in with lots of music toys" [29], the cyberspace sequences feature a vividly coloured room full of floating guitars and other instruments together with a graphic representation of Jordan himself. Although ingenious, they illustrate the limited capacity for an individual's experience of cyberspace to be represented on a one-dimensional screen - a problem which would presumably afflict Barlow's idea for cyberspace programmes for live Grateful Dead performances.

Although the potential to represent cyberspace experiences in music video appears limited, cyberspace technologies themselves suggest more ambitious forms of cultural production. Given the interest shown by musicians such as Anderson, Gabriel or Jerry Garcia, a scenario might be envisaged whereby audio releases were accompanied by promotional cyberspace software in much the same way as they are today by music videos. These programmes would allow the system-user to enter the particular "world" designed for the audio track and to explore and interact with its virtual environment (within the limits of the programme). From a sales point of view, such programmes would, unlike music video, offer the user a multiplicity of interactive "routes" and options. The market appeal of such programmes would presumably be further enhanced if the performers could be represented in cyberspace with a greater degree of fidelity than today's limited systems allow. The market appeal of any form which would allow its user to enter cyberspace and interact with stars like Madonna is obvious. We might even postulate another option, the availability of a multiplicity of versions of individual programmed much as multiple versions (mixes, remixes, etc.) of individual music tracks are available today. These, selectively priced, could offer "greater", or simply "different", options for interaction. For the fan, the opportunity to enter a cyber-karaoke system where you could jam with the band of your dreams, would presumably be an irresistible prospect.

On a more radical level, Lanier has also hypothesised how cyberspace systems could profoundly extend the boundaries of musical creativity. Going beyond such developments as the "air guitar" simulator or the "virtual drum kit" system designed by NASA engineers, Lanier's vision is far more ambitious. In his imagination, future cyberspace systems would enable the user to improvise "real things" such as cityscapes or whole "virtual worlds". Still at the hypothetical stage, Lanier has suggested these as cyberspace applications which can be activated, played and controlled through "virtual objects" resembling musical instruments. As he explained to Stephen Levy :

Okay, you're in virtual reality, right ? And there's this virtual instrument on this virtual table. It's a funny instrument, maybe a bagpipe. You've never played it before. You pick it up and toot out a few notes. What happens initially is, there's one crooked, funny skyscraper, and a slum. But as you play it, all of a sudden a city spins out. [\[30\]](#)

Such a system would obviously constitute a new cultural form with rich possibilities, a whole new medium. As yet, it is unattainable, beyond the capacity of existing technologies. But before writing it off as wild fantasy, the product of an over-fertile imagination, it is worth noting Lanier's track record at turning the wildest dreams into (virtual) reality...

Psychedelia

The closest analog to Virtual Reality in my experience is psychedelic, and, in fact cyberspace is already crawling with delighted acid heads. [\[31\]](#)

Well they outlawed LSD. It'll be interesting to see what they do with this. [\[32\]](#)

The characterization of cyberspace as "psychedelic" derives from a number of factors. The first of these concerns the cyberspace user's immersion in an interactive environment. Transcending traditional spectatorship or the limited interaction possible with computer games, the closest analogy to the cyberspace user's interaction with an (illusory) cybernetic "world" has been seen as the hallucinatory experience of drug use. While this analogy does not stand up to sustained scrutiny, other aspects, such as the suspension of "the real" in favour of disorientating fantasy worlds, and different perceptions of bodily capacity and control, have contributed to the comparison. The analogy has been strengthened by its discussion in popular cultural circles where its most significant uses have been perceived as either recreational escapism, or else as some more supposedly profound "consciousness-expanding" experience.

The association of cyberspace with psychedelia and psychedelic counter-culture has strong parallels with the manner in which these have been associated with popular music culture. Closely related and mutually supportive in the 60s, they have converged at various other points since - most notably the late 80s with the popularity of both the drug Ecstasy and Acid House music. As writers such as Harry Shapiro have chronicled, popular music and drug culture have been closely associated since at least the turn of the century [\[33\]](#). The 60s, however saw a particularly concentrated - even "programmatic" - liaison between the two. At centres such as Andy Warhol's Factory in New York City, Leary's Millbrook mansion in upstate New York, Ken Kesey's La Honda retreat in southern California and Leary disciple Michael Hollingshead's World Psychedelic Centre in

London, key musicians became acquainted with LSD and other drugs and subsequently produced music (and lyrics) which reflected this encounter. Bands such as the Beatles, Grateful Dead, Rolling Stones and Velvet Underground and musicians such as Eric Clapton and Donovan all became inducted into "Psychedelic Culture" at these centres. Following the opening up, or "democratisation" of LSD access via the series of "Acid Test" happenings in California (where unlimited Kool Aid fruit juice spiked with LSD was available for a flat \$1 fee), drug use also spread widely throughout youth culture as a recreational pursuit.

Various style magazines and cultural commentators noted a return to a hallucinogenic drug culture in the late 80s and attributed this to a pattern of cultural cyclicity. While it is probably inaccurate to characterise the late 80s as primarily a "revival" or "replay" of the late 60s, there was a degree of observable cyclicity of interests and preoccupations which led to a revival in the fortunes of *some* key 60s figures. In musical terms, The Grateful Dead are perhaps the most significant example. In their earlier incarnation as The Warlocks, the group had virtually been the "house-band" of the mid-60s "Acid Tests". By the late 60s and early 70s, they had built a reputation for themselves with their extended "psychedelic" and often drug-induced "jams". Generally adjudged to be at an artistic nadir in the early 70s, the group managed to sustain themselves until the late 80s when they became a major hit with a new generation. Their success may, at least in part, be attributed to the manner in which they have not simply pursued a nostalgia trip but also engaged with distinctly contemporary cultural preoccupations. Since the late 80s, they have been notable for their enthusiasm for cyberspace technologies and the allegedly "consciousness altering" potential of their use. Lead vocalist and guitarist Jerry Garcia is often cited as a new convert to the form and lyricist John Barlow has also championed it in a number of articles [34].

This revival in fortunes and interest has not only affected rock performers. Timothy Leary, advocate of LSD as a universal panacea and author of *The Politics of Ecstasy*, has also resurfaced, this time as an advocate of cyberspace. Indeed, he was a notably early convert, linking the "ecstatic politics" of the 60s with the new technology by starring in a video promo made for the Autodesk company's Cyberia project in winter 1988. This time around he is back not just as a (sub)cultural guru but also as a businessman. Founder of Futique Inc., in his polemical articles he now also publicises his company's product [35]. Although not the first to advocate the exploration of LSD as a means of prompting the human creative and perceptual responses (this "honour" falling to Oscar Janiger in the 50s [36]), Leary was perhaps the drug's most successful publicist. Beginning his campaign to publicise the mind-expanding potential of the drug in 1962 (when it was still legal in the United States), he developed a serious and studious approach to the drug's use for "inner voyages" and enhanced meditation. Although he developed this in his much publicised *The Politics of Ecstasy*, his influence waned after the dissolution of the Millbrook centre, his drugbust in 1965 and the massive popularity of LSD as a recreational drug rather than "psychic aid".

The explosion of interest in virtual reality has contributed to a revival of interest in such psychedelic pursuits. Companies are predicting that cyberspace systems will not only appeal to the youth market but also to the generation who grew up with 60s' psychedelic culture. As a spokesman for the British company Division emphasised, "members of the old drug culture are now a bit older. They've got money to spend, and they want to spend it on virtual reality" [37]. Consumer interest has been stimulated by assertions about the positive social and consciousness-expanding effects of cyberspace. Many of these parallel those initially made for LSD as a utopian or "civilising" drug. Paul Brown's assertion that a proto-cyberspace system he observed in operation in 1985 "acted as a catalyst for close spontaneous human interaction" in a manner which "encounter-group therapists have been trying to create... for decades" [38], for example, recalls much of the revolutionary rhetoric of Leary and his followers. In particular, it recalls 60s poet Allen Ginsberg's (psilocybin-inspired) notion that world peace would be possible if all world leaders would share the drug experience and change their perceptions and behaviour accordingly (or, as the slogan later had it, "Turn On, Tune In, Drop Out").

Despite the consumption habits of many of Gibson's characters in the Cyberpunk novels, cyberspace has displaced drugs as a preoccupation for the majority of its advocates. Indeed, for many writers and early

explorers, cyberspace is, at this stage at least, a "safe" alternative to chemical use. As Lanier has observed, "the idea of a technology coming along which has the fun of the Sixties' idea of what drugs were, along with the safety and insulation you have with computers, is a very seductive combination" [39].

The pristine safety of this scenario is, however, unlikely to last. Whatever *actual* effect prolonged exposure to cyberspace systems may have, it is not too fanciful to assume that a generation of neurologists and psychologists will soon log and publicise the various states, conditions, syndromes and disorders likely to be diagnosed amongst early users. If established patterns are followed, this in turn will lead to moral panics, press campaigns and lobby groups against the medium. Indeed, there is an aspect to cyberspace which might yet provide moral panic groups with something approaching the ultimate horror scenario. The "plug-in drug" of television which so preoccupied Marie Winn and other American behaviourists [40] is likely to fade as a social horror in favour of the more engrossing realms of virtual reality. Much of the rhetoric which was figurative about television is likely to be literally true of cyberspace. If there is any truth in the recurring claim that it is actually in the interests of the dominant power group to let disadvantaged youth groups preoccupy and disable themselves with drug culture, a scenario might be conceived where the establishment's desire for social control will encourage cyberspace use to proliferate.

New Age Mysticism

The first interview was in Boston during the (1989) SIGGRAPH Conference. Virtual Reality was the hot topic... and by the time I caught him... Jaron had been lionized into demi-divinity. [41]

Are you ready to make a world ? I call this course God 101. [42]

Euphoria over the revolutionary nature of cyberspace technology has often been expressed in decidedly "mystical" tones echoing the "spiritual" concerns of 60s hippie psychedelia and converging with aspects of those beliefs and practices which have come to be known as "New Age". This convergence is of course a somewhat awkward one. Cyberspace is premised on aspects which seem initially antithetical to the New Age sensibility. Instead of making individuals more in touch with their "inner harmonies" and the "resonance" of the universe, cyberspace users are instead inserted into a cybernetic virtual reality within which our bodies have only a virtual existence. The pertinence of cyberspace to the New Age sensibility lies in its perceived capacity to complement and extend the spiritual aspects of meditation and "spiritual development". In one fell swoop, cyberspace systems are seen to reconcile what Lewis Mumford described as that divide between "Utilitarian" (mechanistic) and "Romantic" (humanist) sensibilities which has typified Western culture since - at least the Industrial Revolution [43]. The reified domain of cyberspace is posed as an electronic realm where both designers and users can combine rational, imaginative and creative impulses in a sphere untrammelled by the commodification, market economy and general responsibilities of day-to-day living.

This perception reflects the millenarian aspects of the term "New Age" itself. Its world order is posed as fundamentally post-materialist and it promises to fill the perceived spiritual void of Western society. New Age is, however, nothing if not contradictory. In particular, New Age is big business. In both the US and the West in general, books, paraphernalia (crystals, jewellery etc.), services (such as flotation tanks) and devices (such as synchro-energisers) are all highly lucrative products. The New Age market encompasses both the middle-aged established-income generation who grew up in the 60s and younger people meeting it for the first time.

As a movement and as a marketing phenomenon, New Age relies heavily on the promotion of particular

individuals as product champions, fashion initiators, pace-setters, rhetoricians and, perhaps most crucially, gurus. So pronounced is the guru-orientation of the movement that some of the key individuals involved in its popularisation, most notably actress Shirley MacLaine, have had "gurudom" thrust upon them. MacLaine's ideas about the "inner technology" of the body have even informed some academic discussions of human-computer interfacing [44].

Jaron Lanier, most often cast as the "inventor" of cyberspace technology, has also emerged as its guru. Unlike those theoreticians who have achieved celebrity status by pronouncing on the revolutionary implications of new technologies (MacLuhan, Toffler, Virilio etc.), Lanier is distinctive by virtue of his practical involvement with the medium he theorises about. He also inhabits a different historical moment and has benefited from a different process of image-making and promotion. To use a term appropriated by 60s rock culture, one consciously acted out by Jim Morrison, Lanier appears and behaves as a "shaman" - a man of magic and mystery. Lanier's public persona also resembles that of Leary in his early career when, as Harry Shapiro emphasised :

A religious fervour had gripped him; religious imagery informed all he felt about LSD. He was a priest of the God Acid; there was a message to preach, souls to be saved, bibles and tracts to be written. [45]

The religious aspects of Lanier's image go beyond his conviction and fervour. His public persona draws on one of the most powerful strands of American imagery, Christian religion. With a biography stressing how he emerged "out of the desert", and with his unkempt Marleyesque dreadlocks, he evokes an image of the ascetic prophet - a latter-day John the Baptist striding out of the deserts of New Mexico, mumbling cryptic truths and possessed by apocalyptic visions. This image has been significant in his promotion. The *Wall Street Journal's* major feature on Lanier [46] was accompanied, not by "state of the art" computer graphics but by a black and white portrait done in medieval woodcut-style, suggesting Lanier as an old-style charismatic prophet or heretic. The "cool" world of science and cybernetics is presented as infused with a quasi-religious fervour without the revised theism which has also infused the world of "New Physics". Virtual reality itself is the "transcendent beyond" in Lanier's vision.

Playing with such imagery is of course playing with fire. Whatever Lanier's status as a youth cultural "guru", his pronouncements are manifestly heretical. They lay him open to religious characterisation not only as a "false prophet" but, presumably, as a servant of Satan (a classic case of karmic return...). Chief among his sins is his attempting to "play God". Describing his work at VPL he has said, "we put together worlds real fast here. We put together worlds in an hour or two. And it has to become a few seconds" [47]. In this light, the anecdote with which John Barlow prefaces his extended interview with Lanier, in what is perhaps the key New (Cyber) Age publication *Mondo 2000*, has a deeper resonance :

I remember it very clearly. It looked like this. Jaron Lanier, whom I had never seen before, was walking across the central lawn of the Hebrew girls' camp in the Santa Cruz Mountains where the Hackers Conference is held. He was a diverting sight in the rays of the late afternoon sun... The only trouble with this pellucid memory is that Jaron was not at Hackers... This phantom remembrance is an example of something which comes up a lot these days. I call it *jamais vu*, the vivid memory of an event that never happened. And, given what Jaron's work is doing, irregularities will soon afflict more than the admittedly brain-damaged like myself. [48]

Barlow creates a superhuman status for Lanier, as a sage or guru capable of manifesting himself in various places and times, resembling the shadowy figures of cyberspace who pop in and out of various realities - virtual

or otherwise - in the fictional Cyberpunk genre. Whatever the precise characterisation, Barlow's description goes beyond the complimentary prose of a captivated critic and instead reflects a sense of awe at a figure whose work and prophecies are perceived to herald a "new age" of culture and consciousness.

The millenarian sensibility evident here is obviously of a different order from the pessimistic Armageddonism of the Christian New Right. Its optimism fits far more clearly with New Age utopianism which, amongst other things, predicts that the next generation will be born with strong psychic powers, able to conceive, communicate and commune with nature and mankind in new "deeper" ways. Marrying psychedelic rhetoric with New Age thought, Barlow's prose proposes Lanier and cyberspace as revolutionising consciousness by breaking open the everyday "collective hallucination we call reality" - a spiritual "making strange", the ultimate deep *verfremdungseffekt*. Barlow's phraseology is playfully ironic here, making Gibson's characterisation of cyberspace as a "consensual hallucination" reflect back on everyday reality as just another consensual order. It is this which is the cornerstone of the New Age euphoria over cyberspace, a move beyond the automaton aspects which mystics such as Gurdjieff and Ouspensky perceived to dominate existence, towards a "purer" thought realm where the materiality of the body can be left behind. In this manner, however dressed up, we have the reductum of the enthusiasm for cyberspace which musician Ollie Olsen summarised earlier : its potential to be a bolt-hole from reality.

New Orders

This chapter has aimed to demonstrate how cyberspace technologies and virtual reality have been promoted, popularised, and to a large extent constituted within a number of popular cultural discourses. These have provided the form with both a profile and consumer demand in advance of its availability. As previous sections detail, Lanier has been a pivotal figure in this. His pronouncements and persona have provided valuable publicity for the companies involved in developing and marketing the technology. Lest it be forgotten in the hyperbole, however, all the agencies currently involved in producing and promoting cyberspace, including Lanier's own VPL, are either commercial, governmental-military or otherwise academic institutions funded by industry or government bodies. As a medium which appeals to various markets (consumer electronic, rock culture, New Age etc.), the commercial outlook for cyberspace looks rosy. Ironically, while much cyberspace rhetoric has been premised on the New Age aspects of its techno-futurist aesthetic, the major investment and development of the medium look likely to emanate from existing companies like Nintendo, chiefly known for marketing games based on violent, and often military, themes. The visual style and scenarios of these games closely resemble those of the computer-assisted military sensing and simulation systems which came to public attention during the 1991 Gulf War. Indeed such is their convergence with existing military technologies that a number of observers referred to the Gulf conflict (and the manner in which it was represented via the world media) as a "Nintendo War" [\[49\]](#).

While cyberspace may be significantly different from previous cultural media, its programmes, virtual realities and user experiences are just as firmly rooted in contemporary capitalism as any other form of contemporary culture. Those who have promoted it as "revolutionary" have neglected to consider the possibilities of transcending established cultural forms and conventions with technologies and cultural practices originated from within that selfsame culture. Nowhere is this avoidance clearer than in the manner in which Lanier has advocated cyberspace as an innately peaceful medium whilst lamenting the violent nature of currently available glove technology games. Lanier's sadness is blatantly "unworldly", since this development was patently obvious to anyone aware of the history and economic basis of the computer games industry. Indeed, given the likely industrial contexts of cyberspace's future development, there may well be other potentially alarming uses of cyberspace systems. Consider, for instance, the manner in which cyberspace users might encounter

advertisements. Gibson has suggested that the "commercial breaks" in cyberspace might be akin to "freebasing TV ads", might be "like having pure, uncut advertising injected directly into the brain" [50] - a scenario presumably more attractive to the radical capitalist than to the New Age guru.

Instead of emerging from a somehow "innocent" cybernetic realm cyberspace systems and their virtual experiences have been produced by contemporary capitalism and reflect its cultural forms and paradigms. This is not to underestimate the potential of the form, however; it undoubtedly constitutes an exciting advance in audiovisually interactive and "environmental" systems. The medium of cyberspace and the virtual realities which will come to be constituted within it, have much to offer artists and cultural practitioners. There may yet even be profound communicative and philosophic engagements with the form in ways which we can now only begin to grasp. Whatever these might be, however, cyberspace will clearly not inaugurate a New Age of consciousness through its technology alone nor through the capacity of its programmers to conjure fantasy worlds - interactive or otherwise.

References

1. James Foley, "Interfaces for Advanced Computing", *Scientific American*, October 1987, p.86.
2. Kevin Robins, *Into the Image - Visual Technologies and Vision Cultures*, mimeo, Centre for Urban and Regional Development Studies, Newcastle University, Newcastle upon Tyne, 1991, p.12.
3. Ibid. pp. 12-13.
4. Richard Guilliat "SF and the tales of a new romancer", *The Sunday Herald* (Australia, 17 December 1989, p.37.
5. Paul Brown, "Metamedia and Cyberspace: Advanced Computers and the Future of Art", in Philip Hayward (ed.), *Culture, Technology and Creativity* (London : John Libbey/Arts Council, 1990), p.227.
6. Timothy Leary, "The Communication Revolutions of the Twentieth Century", *Tension* no. 23, October-November 1990, p.19.
7. Paul Brown, "Metamedia and Cyberspace", p. 238.
8. Fredric Jameson, "Introduction", in his *Postmodernism or the Cultural Logic of Late Capitalism* (Durham : Duke University Press, 1991), p. ix, footnote 1.
9. Leary, "The Communications Revolution", p. 19.
10. Leary, cited in Guilliat, "SF and the tales of a new romancer".
11. Leary, cited in Guilliat, "SF and the tales of a new romancer".
12. William Gibson, in Jim McClellan, "From Here to Reality", *The Face* vol. 2 no. 15, December 1989, p.70.
13. Brett Leonard in (unattributed) interview transcript in August Entertainment's "Production Notes" for *The Lawnmower Man*

(1992).

14. Ibid.

15. Ibid.

16. Ibid.

17. Ibid.

18. John Williams, "Musical Notes", *The Face* vol. 2 no. 27, p.117.

19. Successful in this initial endeavour, one of the first projects Lanier and Zimmerman developed was a Jimi Hendrix "simulator" !

20. See Philip Hayward, "Industrial Light and Magic - Style, Technology and Special Effects in the Music Video and Music Television", in Philip Hayward (ed.), *Culture, Technology and Creativity*, pp. 124-48.

21. Jaron Lanier, in Stephen Levy, "Brave New World", *Rolling Stone* (Australian edition), no. 448, October 1990, p.92.

22. Levy, Ibid.

23. Ollie Olsen, in Ute Junker, "Ollie Olsen", *Ots*, 18 April 1990, p.31.

24. For a discussion of this aspect of her work see Andrew Murphie, "Negotiating Presence Performance and New Technologies" in Philip Hayward (ed.), *Culture, Technology and Creativity*, pp. 209-26.

25. According to Peter Schwartz, technical advisor to Peter Gabriel, in Stephen Levy, "Brave New World", p. 95.

26. Laurie Anderson, cited by Stephen Levy, Ibid.

27. John Barlow, "Life in the Data Cloud", *Mondo 2000* no. 2, Summer 1990, p.50.

28. Stanley Jordan, cited in Melinda Newman, "Stanley Jordan Embraces Virtual Reality", *Billboard* vol. 102 no. 27, 7 July 1990, p.53.

29. Ibid.

30. Jaron Lanier, in Stephen Levy, "Brave New World", p. 95.

31. John Barlow, "Being In Nothingness - Virtual Reality and the Pioneers of Cyberspace", *Mondo 2000* no. 2, Summer 1990, p.41.

32. Jerry Garcia (The Grateful Dead), in John Barlow, Ibid. p. 41.

33. Harry Shapiro, *Waiting for the Man - The Story of Drugs and Popular Music* (London : Quartet, 1988).

34. See, for instance, his perceptive survey "Being In Nothingness - Virtual Reality and the Pioneers of Cyberspace" and his somewhat less critical interview with Lanier "Life in the Datacloud" - both in *Mondo* 2000 no. 2, summer 1990.
35. In the penultimate section of his article "The Communications Revolutions of the Twentieth Century", in the Australian magazine *Tension* no. 23, October-November 1990, pp. 16-19, Leary states "My own group, Futique Inc., is developing educational courseware (DisKourses) and Mind Movies. These are multi-lingual, multi-media interactive programs in which users 'jack into cyberspace and perform books and direct film scripts'. Gibson's incredible fantasy future is already 'up and running' and soon to be outdated".
36. Amongst his volunteer guinea-pigs were "jazz eccentric" Lord Buckley, conductor Andre Previn and actor Jack Nicholson (who later wrote the screenplay for the film *The Trip* (1966), based on his experiences with Janiger).
37. Division spokesman, in Dorian Silver, "Reality is Getting More *Unreal* Daily -- Cyberspace", *The Face* vol. 2 no. 27, December 1990, p.96.
38. Paul Brown, "Metamedia and Cyberspace" p. 236.
39. Jaron Lanier, in Stephen Levy, "Brave New World", p. 95.
40. See, for instance, Marie Winn, *The Plug-in Drug* (New York : Viking Press, 1977).
41. John Barlow, "Life in the Datacloud", p. 44.
42. Jaron Lanier, in Stephen Levy, "Brave New World", p. 95.
43. Lewis Mumford, *The Future of Technics and Civilization* (London : Freedom Press, 1986), pp. 346.
44. Indeed, so seriously is MacLaine taken in some (American) circles that scientific and technical papers cite the influence of her work. In her 1990 paper presented at the Australian Computer Graphics Association's "Ausgraph 90" event, Paras Kaul of California State University proceeded to argue the case for "a greater sophistication" in sound/image relations in computer graphics, "based on the research of Shirley MacLaine, expressed in her book, *Going Within* [where] each of the seven nerve centers of the body has its own vibratory level of energy which resonates to a corresponding note on the musical scale" *Ausgraph 90 Proceedings*, p. 25.
45. Harry Shapiro, "Waiting for the Man", pp. 131-2.
46. Entitled "A Kind of Electronic LSD ?" referred to by Stephen Levy, "Brave New World" p. 95.
47. Jaron Lanier in John Barlow, "Life in the Datacloud", p. 50.
48. John Barlow, "Being in Nothingness", p. 44.
49. See, for instance, Christopher Dickey, "Eyeballing the Nintendo Apocalypse", *Rolling Stone* (Australian edition), no. 456, April 1991, pp. 52-3.

50. William Gibson in Jim McClellan, "From Here to Reality", p. 73.