by Paul Saffo

viewpoint

Consensual Realities in Cyberspace

More often than we realize, reality conspires to imitate art. In the case of the computer virus reality, the art is "cyberpunk," a strangely compelling genre of science fiction that has gained a cult following among hackers operating on both sides of the law. Books with titles like *True Names, Shockwave Rider, Neuromancer, Hard-wired, Wetware,* and *Mona Lisa Overdrive* are shaping the realities of many would-be viral adepts. Anyone trying to make sense of the social culture surrounding viruses should add the books to their reading list as well.

Cyberpunk got its name only a few years ago, but the genre can be traced back to publication of John Brunner's *Shockwave Rider* in 1975. Inspired by Alvin Toffler's 1970 best-seller *Future Shock*, Brunner paints a distopian world of the early 21st Century in which Toffler's most pessimistic visions have come to pass. Crime, pollution and poverty are rampant in overpopulated urban arcologies. An inconclusive nuclear exchange at the turn of the century has turned the arms race into a brain race. The novel's hero, Nickie Haflinger, is rescued from a poor and parentless childhood and enrolled in a top secret government think tank charged with training geniuses to work for a military-industrial Big Brother locked in a struggle for global political dominance.

It is also a world certain to fulfill the wildest fantasies of a 1970s phone "phreak." A massive computerized data-net blankets North America, an electronic super highway leading to every computer and every last bit of data on every citizen and corporation in the country. Privacy is a thing of the past, and one's power and status is determined by his or her level of identity code. Haflinger turns out to be the ultimate phone phreak: he discovers the immorality of his governmental employers and escapes into society, relying on virtuoso computer skills (and a stolen transcendental access code) to rewrite his identity at will. After six years on the run and on the verge of a breakdown from input overload, he discovers a lost band of academic techno-libertarians who shelter him in their ecologically sound California commune and . . . well, you can guess the rest.

Brunner's book became a best-seller and remains in print. It inspired a whole generation of hackers including, apparently, Robert Morris, Jr. of Cornell virus fame. The *Los Angeles Times* reported that Morris' mother identified *Shockwave Rider* as "her teen-age son's primer on computer viruses and one of the most tattered books in young Morris' room." Though *Shockwave Rider* does not use the term "virus," Haflinger's key skill was the ability to write "tapeworms"—autonomous programs capable of infiltrating systems and surviving eradication attempts by reassembling themselves from viral bits of code hidden about in larger programs. Parallels between Morris' reality and Brunner's art is not lost on fans of cyberpunk: one junior high student I spoke with has both a dog-eared copy of the book, and a picture of Morris taped next to his computer. For him, Morris is at once something of a folk hero and a role model.

In *Shockwave Rider*, computer/human interactions occurred much as they do today: one logged in and relied on some combination of keyboard and screen to interact with the machines. In contrast, second generation cyberpunk offers more exotic and direct forms of interaction. Vernor Vinge's *True Names* was the first novel to hint at something deeper. In his story, a small band of hackers manage to transcend the limitations of keyboard and screen, and actually meet as presences in the network system. Vinge's work found an enthusiastic audience (including Marvin Minsky who wrote the afterword), but never achieved the sort of circulation enjoyed by Brunner. It would be another author, a virtual computer illiterate, who would put cyberpunk on the map.

The author was William Gibson, who wrote *Neuromancer* in 1984 on a 1937 Hermes portable typewriter. Gone are keyboards; Gibson's characters jack directly into Cyberspace, "a consensual hallucination experienced daily by billions of legitimate operators . . . a graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data . . ."

Just as Brunner offered us a future of the 1970s run riot, Gibson's *Neuromancer* serves up the 1980s taken to their cultural and technological extreme. World power is in the hands of multinational *zaibatsu*, battling for power much as mafia and yakuza gangs struggle for turf today. It is a world of organ transplants, biological computers and artificial intelligences. Like Brunner, it is a

distopian vision of the future, but while Brunner evoked the hardness of technology, Gibson calls up the gritty decadence evoked in the movie *Bladerunner*, or of the William Burroughs novel, *Naked Lunch* (alleged similarities between that novel and *Neuromancer* have triggered rumors that Gibson plagiarized Burroughs).

Gibson's hero, Case, is a "deck cowboy," a freelance corporate thief-for-hire who projects his disembodied consciousness into the cyberspace matrix, penetrating corporate systems to steal data for his employers. It is a world that Ivan Boesky would understand: corporate espionage and double-dealing has become so much the norm that Cases's acts seem less illegal than profoundly ambiguous.

This ambiguity offers an interesting counterpoint to current events. Much of the controversy over the Cornell virus swirls around the legal and ethical ambiguity of Morris' act. For every computer professional calling for Morris' head, another can be found praising him. It is an ambiguity that makes the very meaning of the word "hacker" a subject of frequent debate.

Morris' apparently innocent error in no way matches the actions of Gibson's characters, but a whole new generation of aspiring hackers may be learning their code of ethics from Gibson's novels. *Neuromancer* won three of science fiction's most prestigious awards—the Hugo, the Nebula and the Philip K. Dick Memorial Award—and continues to be a best-seller today. Unambiguously illegal and harmful acts of computer piracy such as those alleged against David Mitnick (arrested after a long and aggressive penetration of DEC's computers) would fit right into the *Neuromancer* story line.

Neuromancer is the first book in a trilogy. In the second volume, *Count Zero*—so-called after the code name of a character—the cyberspace matrix becomes sentient. Typical of Gibson's literary elegance, this becomes apparent through an artist's version of the Turing test. Instead of holding an intelligent conversation with a human, a node of the matrix on an abandoned orbital factory begins making achingly beautiful and mysterious boxes—a 21st Century version of the work of the late artist, Joseph Cornell. These works of art begin appearing in the terrestrial marketplace, and a young woman art dealer is hired by an unknown patron to track down the source. Her search intertwines with the fates of other characters, building to a conclusion equal to the vividness and suspense of *Neuromancer*. The third book, *Mona Lisa Overdrive* answers many of the questions left hanging in the first book and further completes the details of the world created by Gibson including an adoption by the network of the personae of the pantheon of voodoo gods and goddesses, worshipped by 21st Century Rastafarian hackers.

Hard core science fiction fans are notorious for identifying with the worlds portrayed in their favorite books. Visit any science fiction convention and you can encounter amidst the majority of quite normal participants, small minority of individuals who seem just a bit, well, strange. The stereotypes of individuals living out science fiction fantasies in introverted solitude has more than a slight basis in fact. Closet Dr. Whos or Warrior Monks from *Star Wars* are not uncommon in Silicon Valley; I was once startled to discover over lunch that a programmer holding a significant position in a prominent company considered herself to be a Wizardess in the literal sense of the term.

Identification with cyberpunk at this sort of level seems to be becoming more and more common. Warrior Monks may have trouble conjuring up Imperial Stormtroopers to do battle with, but aspiring deck jockeys can log into a variety of computer systems as invited or (if they are good enough) uninvited guests. One individual I spoke with explained that viruses held a special appeal to him because it offered a means of "leaving an active alter ego presence on the system even when I wasn't logged in." In short, it was the first step toward experiencing cyberspace.

Gibson apparently is leaving cyberpunk behind, but the number of books in the genre continues to grow. Not mentioned here are a number of other authors such as Rudy Rucker (considered by many to be the father of cyberpunk) and Walter John Williams who offer similar visions of a future networked world inhabited by human/computer symbionts. In addition, at least one magazine, *Reality Hackers* (formerly *High Frontiers Magazine* of drug fame) is exploring the same general territory with a Chinese menu offering of tongue-in-cheek paranoia, ambient music reviews, cyberdelia (contributor Timothy Leary's term) and new age philosophy.

The growing body of material is by no means inspiration for every aspiring digital alchemist. I am particularly struck by the "generation gap" in the computer community when it comes to *Neuromancer*: virtually every teenage hacker I spoke with has the book, but almost none of my friends over 30 have picked it up.

Similarly, not every cyberpunk fan is a potential network criminal; plenty of people read detective thrillers without indulging in the desire to rob banks. But there is little doubt that a small minority of computer artists are finding cyberpunk an important inspiration in their efforts to create an exceedingly strange computer reality. Anyone seeking to understand how that reality is likely to come to pass would do well to pick up a cyberpunk novel or two.

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