CHAPTER FIVE
THE BODY ELECTR(ON)IC CATCHES COLD: VIRUSES AND COMPUTERS

"This Snow Crash thing–is it a virus, a drug, or a religion?"
–Neal Stephenson, Snow Crash

"It's a program. It's a virus. It's an AI. It's a breath mint. It's a dessert topping. It's the greatest thing since sliced toothpaste."
–Pat Cadigan, Synners

While including a chapter on computer viruses in a study dealing with biological viruses and their metaphorical attachments may seem only natural, it is often the case that what appears to be a "natural" association is anything but. This is particularly so in the case of the computer virus, which, for all its affinities with its biological counterpart, is a strictly artificial construct that has no discernible effect on the human body. And yet the discourse of the computer virus is inextricable from that of the biological virus, utilizing terminology that suggests the computer virus poses as serious a risk to public health as does a biological virus. Or perhaps even more so–proximity is not a requirement for the transmission of a computer virus. A serious outbreak that causes widespread damage to computer systems can usually guarantee far more media attention than the latest Ebola outbreak, despite the fact that this virus does not directly threaten individual lives.[1] Information, it seems, is a more precious commodity than human life.

Like the common cold, there are less serious computer viruses that may quickly be dispatched by a virus "doctor" installed on a user's hard drive. My own virus program helpfully offers to "quarantine" a virus if it cannot provide me with a "vaccination." With terms like these, accompanied by icons that pop up in the form of hypodermic needles or red crosses, it is little wonder that computer users are subject to a kind of viral hysteria; although they might admit that the worst that could happen after a

viral attack is the destruction of an expensive piece of equipment and the data stored on it, there is the suggestion that being susceptible to a computer virus differs little from being susceptible to its biological counterpart. Adopting "emerging virus" rhetoric, some computer virus experts refer to the creator and disseminator of a particular virus as "Patient Zero," a term now intimately associated with both fast-moving viruses and HIV. And yet these same experts continually emphasize that while the computer virus is derived from and intimately associated with the biological virus, that association is primarily metaphorical. A computer virus is simply a segment of machine language code that, when activated, copies its code into "host" programs that spread the virus when they are executed. The virus alters other programs to include a copy of itself, and, like its biological namesake, it can remain dormant until activated by a specific signal. As it is technically defined, there are no positive or negative connotations associated with the term "computer virus." The malice that we attribute to both viruses is, in the computer variety, programmed by virus writers. And although, as previous chapters have illustrated, we are more than willing to ascribe intentionality to the biological virus, the computer virus represents an actual intentionality–on the part of its author.

It is the inextricability of the computer virus from the biological virus that leads me to write this chapter, in which I explore the origins of the computer virus in an attempt to ascertain why and how it was perceived, in the early days of its emergence, as nearly indistinguishable from its biological counterpart. Then I will show how some science fiction, the genre in which the concept of the computer "virus" originated, takes this distinction between the two viruses as its central focus and blurs it even further.

Two works in particular, Pat Cadigan's <u>Synners</u> (1991) and Neal Stephenson's <u>Snow Crash</u> (1992), feature computer viruses that infect users as well as their machines. As if confirming suspicions that computer and biological viruses share an uncomfortably close, and not simply metaphorical, connection, these texts erase the boundaries between the two, suggesting that the figure of the virus is the means by which such a breakdown between the organic and the artificial is possible. And while I argue that it is the liminal status of the virus as a mutable and permeable body that allows for such possibilities, I also emphasize that the collapse between the organic and the artificial is only possible because an intimate connection already exists between the human subject and its most precious extension: the computer. In fact, as I will illustrate, there is the sense in these texts that the humans *are* computers. The binary of self (human) and non-self (machine), then, is compromised even further through the agency of the virus. The viruses in Stephenson and Cadigan serve as the lenses by which we interrogate this binary.

Although self-replicating computer programs date back to the 1960s, the term computer "virus" owes its origin to science fiction. Gregory Benford's story "The Scarred Man" (1970) features a malicious program that is actually more akin to the modern "worm" than it is to a virus. Unlike a virus, a worm does not require a host, nor does it alter other programs in its bid for replication. A worm is rather an independent program that searches for ways to infect other networked computer systems. In Benford's story, the program, called VIRUS, is employed by a couple of early "hacker" prototypes who engineer a drop in computer productivity through the agency of the worm. They then offer their services as computer experts to the companies whose

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machines are afflicted, marketing their "cure" as VACCINE. The virus program is hidden within another program, similar to the modern "Trojan Horse" program, which makes it even more difficult for the computer users to detect, and easier for the hackers to escape suspicion.[2] Benford's virus program predates what most consider to be the first fictional instance of the term, which appears in David Gerrold's When Harlie Was One (1972). Gerrold's virus is very similar to Benford's–both more closely resemble the modern worm than the virus, and both feature a description of a malicious program that uses auto-dialer modems to establish links from its host system to remote systems. These fictional programs are similar to those that were being developed in the early and mid-1970s by researchers experimenting with self-replicating programs. The term "worm," however, also finds its genesis in science fiction with John Brunner's The Shockwave Rider (1975), which featured a malicious program similar to those described by Benford and Gerrold. And while Brunner's "tapeworm" had certain parallels with worm programs already in development in various research labs, it was 1980 before the first incident of a computer virus was reported. More than simply prescient, science fiction seems to have both mirrored and extrapolated from developments that were already circulating in the computer science community. It is little wonder, then, that later cyberpunk science fiction, the fictional descendant of these works, served as an inspiration for would-be hackers.

The bridge between Brunner's The Shockwave Rider and contemporary cyberpunk works like Snow Crash and Synners is William Gibson's Neuromancer (1984). Gibson, generally regarded as the progenitor of cyberpunk, coined the term

"cyberspace," a computer-generated alternative reality, and presented a fictional

universe of the very near future in which the (almost always male) hacker–or "console

cowboy"–is the ultimate arbiter of hip, an individual who makes a living by lifting

information from the vast, multinational corporations that populate the three-

dimensional virtual world of cyberspace. It is a testament both to Gibson's influence

and to technological advancements in computer systems that this vision sounds rather

quaint now, in an age when Internet hacking is run-of-the-mill. We may consider the

Internet to be a rather primitive version of cyberspace, which is the "consensual

hallucination" (51) that Gibson's hacker accesses by way of a computer interface that

suggests the merging of human and machine. In Gibson's second novel, Count Zero, that

merging is far more than a suggestion: the character Angela Mitchell has devices

implanted in her brain that allow her to access cyberspace without having to "jack" in

with the aid of a computer. The medium of the computer is no longer necessary because

in a real sense Angela *becomes* the computer. Thus Gibson's universe is one of blurred

boundaries between the organic and the artificial–even the average denizen appears to

have access to a whole array of enhancements. It is also one in which Artificial

Intelligences (AIs) exhibit qualities supposedly exclusive to humans and where human

personalities may be preserved after death in the form of data constructs. As Veronica

Hollinger notes, "We can read cyberpunk as an analysis of the postmodern *identification*

of human and machine" (Storming 205). Tooth-bud transplants, microsoft chips that

interface directly with the user's brain, microelectric circuitry, weapons, and any

number of bodily modifications seem to be available to a wide population. Cyborgs are

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common, and bodies are mutable templates that may be altered at will. In other words, this not-so-distant future is in many ways an extrapolation of our own present.

At the same time, however, this future also exerted a powerful influence on our present, or the present of the 1980s. We may remember the 1980s as the first decade of virus hysteria; both computer viruses and HIV made their infamous debuts. "Cyberpunk," however, became more than a genre–it became a movement, a subculture and an ethic that hackers and would-be hackers embraced.[3] Critics have been quick to point out the role of Gibson's texts in the increase of malicious computer activity. Robert T. Morris, who in 1988 released the infamous Internet Worm that caused millions of dollars in damage and paralyzed computers across the United States, owned a copy of Neuromancer, which his mother described as "her teenage son's primer on computer viruses and one of the most tattered books in young Morris' room" (Ferbranche10). In fact, there is very little technical information about viruses in the novel, but they are portrayed as powerful, beautifully designed programs.

Home to multinational corporations and military systems protected by Artificial Intelligence-generated "ice" (Intrusion Countermeasures Electronics), or killer security systems that can cause a console cowboy to "flatline" in a matter of seconds, cyberspace is an unfriendly place in Neuromancer, hostile to the machinations of the hackers who "punch deck" in order to steal information. To penetrate these defenses, the hackers use viruses, or "icebreakers," that disrupt the codes governing these programs. Case, the novel's anti-hero, uses a virus to infiltrate the archives of the "industrial clan" Tessier-Ashpool, S.A., guiding the "Kuang Grade Mark Eleven" through a difficult–and overtly

sexual–operation: "In the instant before he drove Kuang's sting through the base of the first tower, he attained a level of proficiency exceeding anything he'd ever known or imagined. Beyond ego, beyond personality, beyond awareness, he moved, Kuang moving with him, evading his attackers with an ancient dance" (262). This viral phallic symbol is the key to unlocking the barriers that protect information, the hacker's stock-in-trade. No wonder isolated teenage boys embraced Gibson's universe; the "dance" of the virus is a mating ritual, but it also the virtual, and far more sophisticated, substitute for a gun/bomb/sword. Recognizing its importance, Weinstock argues that "The virus in cyberpunk fiction becomes a salient trope, a powerful weapon for espionage and terrorism" (9). In "Virus Culture," Weinstock examines different manifestations of viral anxiety in popular culture, of which the computer virus is one; he suggests that "Cyberpunk is to computer viruses what recent vampire representations are to biological viruses: a popular culture instance of infection paranoia contributing to the omnipresence of the virus as invasive and threatening entity" (8). And yet, while the virus is of central importance to the figure of the hacker in Gibson's texts, proving itself expert at penetrating barriers when manipulated by talented hackers, it is little more than a sophisticated extension of the programs described by Benford, Gerrold, and Brunner. It is only with the next generation of cyberpunk fiction that the virus itself becomes intimately involved with the dissolution of boundaries between the organic and the artificial that is everywhere in cyberpunk. The human in <u>Neuromancer</u> is safe from infection, but its counterpart, the AI, is not. In <u>Synners</u>, the AI *is* a virus, and both humans and AIs are victims to computer viruses that defy the boundaries of human and

machine. While the inextricability of the computer virus from the biological virus may be traced back to its very inception, the increasingly mainstream acceptance of this association–in the years since Neuromancer made its debut–is manifest only in these later works of cyberpunk fiction.

Emblazoned across the cover of The Computer Virus Crisis (1992), a virus handbook of sorts, are dozens of tiny biohazard symbols, and at the heart of each of these symbols is a small skull that looks for all the world like a character in the popular Pac-Man game. The authors Philip Fites, Peter Johnston, and Martin Katz tell us that the symbol, which appears regularly throughout the book, is used to represent malicious software. At the beginning of every chapter, it appears next to what can only be described as a speculative entry about what a virus is "thinking" at a certain point in time. Far from simply describing the function of a computer virus, the authors endow it with agency and personality. This viral persona comments on its own movements, but also on its potential victims: "Some things sure do make my life easy. Everyone passes around games. If I can infect a game-passer, he or she probably copies other programs too and I can get at those programs as well" (95). Although the persona, the intentionality, and the symbol are all typical descriptions used to characterize a biological virus, the authors take pains to assure of us of the difference: "A computer virus does *not* spread through the air. You can't get it by shaking hands, or touching a doorknob, or by having someone next to you sneeze. A computer virus must be *put* into your computer by you or someone else" (Fites et al 8). Similarly, Peter Denning opens his book Computers Under Attack (1990) with an account of his encounter with a taxi

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driver who asks, "But how can a computer catch a virus? Does somebody sneeze on it? . . . You mean those things aren't germs?" (xi). It is clearly the conflation of the biological and the computational that leads Fites and his colleagues to make such a definitive statement and Denning to address the misconception up-front. Why else would anyone assume that a piece of software that runs on a machine might possibly be harmful to a human being? For the answer to that question, we must turn again to the contemplation of the body as "coded text" explored in the introduction of this study.

Work in modern genetics suggests that the body and the biological virus are reducible to only so much code, a perception that arises out of the exchange between informational theory and molecular biology. The computer virus, derived from work in the informational sciences, is also a code, a kind of performative language. Thus, both viruses become a problem of language, demonstrating Haraway's contention that "communications sciences and modern biologies are constructed by a common move–*the translation of the world into a problem of coding*, a search for a common language in which all resistance to instrumental control disappears and all heterogeneity can be submitted to disassembly, reassembly, investment, and exchange" (Simians164). In other words, the world is translatable into a series of information processors, whose biological or computational associations are irrelevant. Machines and organisms have been reconceived as "coded texts through which we engage in the play of writing and reading the world" (Haraway, Simians 152). The two viruses, then, are interchangeable in this context. Of course, the public's confusion about the computer virus and its function is in large part due simply to its designation as "virus," but the fact that we find

ourselves having to draw these distinctions illustrates how the language of computer science fails to differentiate the biological from the computational. The association between the computer virus and the biological is not simply metaphorical, no matter how often computer experts assert otherwise. That is, computer viruses have been *intentionally* modeled on biological viruses; even Benford's description of his program in "The Scarred Man" is clearly modeled after a biological virus, and the first actual computer "viruses" acted in decidedly viral ways. It is not that no other descriptive term existed for this new phenomenon; rather, it is that from the beginning the biological virus served as its referent.

The definition of the computer virus was not formalized until 1983, although virus programs themselves were already being developed on Apple computers. Under the direction of his advisor Len Adelman, Fred Cohen, a graduate student at University of Southern California, used the term "computer virus" to refer to a simple virus he created for research purposes (Spafford et al [Hoffman] 29). Significantly, Cohen implanted one of his early viruses in a program called "vd," an abbreviation, presumably, for venereal disease. Virus names such as "AIDS" and "Cyberaids" soon followed (though not authored by Cohen), names that make explicit the extent to which virus writers mined biological metaphors. In addition, AIDS itself has sometimes been referred to as a "Trojan Horse" disease. AIDS awareness and the deployment of computer viruses occurred concurrently, and the prophylactic measures that apply to the prevention of AIDS apply equally to that of the computer virus.

The rhetoric of infection paranoia, and particularly sexually transmitted disease

paranoia, makes up a good deal of the discourse surrounding the computer virus:

> If you communicate with other computers . . . your risk could be high. If
> you deal in pirate copies of software from people you don't know (or
> even if you do know the source of your copy, but not the source of the
> other person's copy), your risk could be *very* high . . . . If you have
> programs that you purchased in shrink wrap by mail from a developer or
> perhaps an electronic mail setup, your risk may not be as great . . . . If
> you're just John or Jane User you'll probably never have a problem if
> you simply apply common sense (what we sometimes call "safe hex").
> (Fites et al 4)

The metaphors used here are intentional, right down to the importance of the "shrink

wrap," (i.e. a condom); the authors actually encourage users to think of computer viruses

as analogous to sexually transmitted diseases. If users are better informed, they suggest,

they won't be inclined to engage in "high-risk" behaviors like swapping disks. The

reference here to "Jane or John User" is telling; we should all aspire to be these normal,

(read: heterosexual) folks who never engage in "deviant" behavior. The phallic virus

intends to contaminate us all, so we must adjust our behaviors accordingly. This attitude

is reminiscent of AIDS rhetoric that not-so-subtly suggests that Jane and John really

don't have anything to worry about if they stick to heterosexual norms. As with

emerging viruses and bioweapons, the computer virus functions as a locus for anxiety

about AIDS.[4]

Descriptions of viral infection also echo the language of the computer age, as the

biological virus is also referred to as a problem of coding.[5] Thus the two can never quite

be separated from one another, both in the minds of the public and in the minds of virus

writers themselves. The exchange between computer science and biology is a

particularly complex one, and it is by no means a one way exchange. We may not only

view a certain kind of language as a disease, as the authors of <u>The Computer Virus</u>

<u>Crisis</u> urge us to do, but we may also view disease as a problem of language.[6] Kruger,

who observes that this intersection focuses attention on the "increasingly tenuous"

borderline between the natural and artificial, argues that the choice of a biological

metaphor to describe an intentionally constructed segment of computer language

suggests just how strongly ingrained is this idea of virus as language and as

informational entity. Analyzing the virus as the node for the intersection between the

biological and computational, he notes the extent to which each virus is complicated by

its counterpart:

> The metaphoric crossing of computational and biological realms tends to
> blur the distinction between a 'natural' disease (or disaster) and an
> 'artificial' (intentionally composed) challenge to coherence, so that, on
> the one hand, the computer virus is naturalized (gaining a life of its own)
> while, on the other, the biological virus is constructed as somehow
> artificial (in fact, in some theories about HIV–perhaps humanly
> constructed–and for very specific purposes of social control). (23)

This metaphoric crossing and its consequences are literalized in <u>Snow Crash</u> and

<u>Synners</u>, effecting a "naturalization" of computer viruses while rendering humans, and

their viruses, in some sense artificial. Biological disease in these texts is both natural

and artificial, brought about by the power of language–in this case, the power of

machine language.

  Humans in <u>Synners</u> and <u>Snow Crash</u> are susceptible to "crossover" viruses

because they are heavily mediated by technology. In Cadigan's <u>Synners</u>, as in Gibson,

implants are run of the mill, and the closeness of the human-computer interface is

facilitated by a new technology that allows the user–through the implantation of brain socket implants made of living tissue–to plug directly into the global communications network called the System. The development of this socket technology is central to the novel, and the "synners" of the title are the first to test out the brain sockets commercially. Video artists who synthesize rock music and images to make virtual reality music videos, they use the brain sockets to transmit their vision directly to the consumer, who must also be outfitted with the sockets. Pawns of a large corporation called Diversifications that acquires both their music production company and the company that invents the sockets, the synners include Gina Aiesi and her lover Visual Mark, who are among the very first to undergo socket implantation. What they eventually discover is that although the brain sockets facilitate undreamed of heights of creativity, they are also unstable, and can effect cerebral strokes in its users. When Visual Mark suffers a stroke while hooked into the System, the stroke takes the form of a computer virus and a contagion, destroying both the System and the brains of those plugged into it. Just as the brain socket technology allows for the transfer of images from the artist to the consumer, so does it allow for the transmission of the stroke/virus. In other words, the stroke/virus only comes into existence because the computer and the brain are now directly connected. The border between human and computer no longer exists, and Cadigan explores this dissolution through the agency of viruses.

The California of Synners is the California of the near future–traffic is hell, *the* massive earthquake has finally hit ("the Big One"), and the entertainment industry has fully embraced the technology of virtual reality. Significantly, though, "The Age of the

Retrovirus" has passed. Hacking is largely the domain of the youth, and people coexist

uneasily with computer viruses that pop up everywhere. One of these strains, called Dr.

Fish, generates unsolicited health advice and appears in venues ranging from drive-thru

menus to the computers aboard computer-controlled rental cars. Unlike the stroke/virus,

it is seemingly harmless and yet deeply entrenched in computer systems throughout Los

Angeles. It turns out that Dr. Fish is a manifestation of an AI that is a sentient part of

the System. Calling itself "Art Fish," it is intimately associated with viruses, as the

hacker Fez explains: "I guess you could call it a virus, though that's not strictly true.

It's not just *one*, that is, but several, and at least parts of many more than that. And it's

not really a true virus anymore in many ways . . . . Anytime a new access opens up on

the dataline, as soon as it comes into contact with Art, it's 'infected.' And there is no

part of the net that is *not* Art" (175).   Its full appellation is Dr. Art Fish, V.D. (Virus

Doctor), a designation that hearkens back to the early virus program by Fred Cohen

called v.d. Reinforcing this connection is Sam, a young female hacker, who unwittingly

comparison of the Dr. Fish strain to herpes. Art is a case in point of the "naturalized"

computer virus.   Imbued with both intentionality and human characteristics, Art is

a product of hacker manipulation; it rose out of the "chaos" of the net, assembling

spontaneously into the present AI incarnation. The virus serves here as the agent of

transformation, though what emerges is not posthuman as I have defined it in previous

chapters, but rather a "synthesized human" (386), or a posthuman in Hayles's sense of

the term.[7] As for humans, their close alliance with technology and computers is

frequently emphasized in Cadigan's novel: "We've become denizens of the net. Homo

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datum" (386). They are the "incurably informed," or "synthesizing humans." Not *quite* computers, they are nevertheless willing to "change for the machines," as Visual Mark puts it, the synner who makes the most radical change of all by going on-line permanently and abandoning his body. In the context of the novel, such a change is not necessarily positive; despite her sophisticated exploration of the fluidity of the boundaries between human and machine, Cadigan privileges embodied subjectivity, as we shall see.

The emergence of the stroke/virus is a unique phenomenon, only possible because of the new socket technology, and consequently the characters have difficulty characterizing it. It is also, of course, a contagion that crosses the boundaries of the natural and the artificial. On the one hand, it is a contagious stroke that somehow replicates within the System. On the other hand, according to Mark, "It was a virus, but with a most important difference: this one knew where it was, and what it was, and *that* it was. This one was alive" (330). In other words, the computer virus is conscious in the same way that Art Fish is conscious, but its goal is ultimately destructive. It is alive, "naturalized," and a hybrid, very much like Art, who argues that his counterpart on the net should not be characterized as a virus: "It's *not* just an infection. It's not a virus or a bomb, it's–I don't know what to call it " (357). Mutating and adapting to its environment, the stroke/virus is a slippery construct, and, as other chapters have shown, the figure of the virus is accorded a certain liminal status. The fact that the stroke/virus is an entirely new phenomenon brings to mind Sontag's comments in "AIDS and Its Metaphors" about the exchange of metaphors between computers, the newest

transforming elements in the modern world, and the newest transforming illnesses, metaphors that distinguish AIDS from other plague-like illnesses: "For though the fears AIDS represents are old, its status as that unexpected event, an entirely new disease–a new judgement, as it were–adds to the dread" (158-159). Mark is, in effect, "Patient Zero," and numerous users with sockets plugged into the System succumb to the virus that he unintentionally initiates.[8]

It is the hackers, together with Mark, Art, Gina, and Sam's socketed father Gabe, who finally confront and defeat the virus. Mark's consciousness joins with Art, and together they become "Markt," a synthesized entity that can only provide minimal aid to Gina and Gabe as they go on-line to try to neutralize the virus. Its interests are perhaps too close to that of the virus: "One of us is too viral, and the other is too . . .*marked*" (418). "Too viral," in this context, means too far removed from humanity. Fez notes that Art's viral core and lack of "heart" prevent him from truly feeling for humans, remarking that "If he were a flesh person, I'd watch him for sociopathic tendencies . . . what's more antisocial than a virus?" (393). Only humans, it is made clear, can succeed against the virus. "Alive" in the sense that Art is alive, the virus is far more ominous, in that it is imbued with emotions by its "creator" Mark, who recognizes himself in the "pain, compulsion, the old drive toward oblivion" (299) when he comes across an early incarnation of the stroke/virus. Art simply does not have the tools to combat that which is both conscious *and* perceptive; only humans have that capability, as well as the responsibility to destroy the pathogen that they unintentionally created.

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The ultimate showdown in Synners, as in Neuromancer, takes place in a parallel, virtual world where fighting the "virus" is synonymous with combating Gina and Gabe's own fears. The formula is very similar; in Neuromancer, hacker Henry Case is forced to confront the mistakes of his past, his fears, and his desires by an AI that calls up scenes and people from his life. He defeats the AI by refusing to succumb to the temptations it offers him. In Synners, the virus is similarly defeated, as Gina and Gabe refuse to give in to the fears that the virus calls up from deep within their psyches. In both cases, the human subjects, "jacked in," synthesizing, or socketed as they may be, triumph over their artificial counterparts, privileging the material reality of human experience over that of the non-human.

The fact that Mark sloughs off his body and Gina preserves hers suggests that Cadigan does not trouble gender stereotypes that associate men with mind and women with body, but Gabe and Gina's rout of the virus makes a strong case for the privileged position of embodied subjectivity in the novel.[9] Neither envies Mark his transformation. Theirs is the lasting connection in the novel; Gina leaves behind an electronic copy of herself for "Markt," but she and Gabe are lovers in the real world. It is the virus that affords them their life-changing experiences, just as it does for Mark, who abandons his body in response to it. All the characters, synthesizing humans and synthesized humans, engage in collective action to combat the virus, and it must be noted that "Markt" evolves as a direct result of the virus's assault upon the System. Cadigan's novel, like other cyberpunk novels, plays with a variety of subjectivities that incorporate the natural and the artificial. Toward the end of the novel, Fez observes to his fellow hackers that

"We might actually have two species of human now, synthesizing human and synthesized human, all of us being the former, and Art Fish being the latter" (386). Reminded of Mark's newest incarnation, he adds, "Make that three species. And like all good life forms, we have a natural enemy that can prey on all of us" (387). That three different kinds of subjects can be prey to the same "natural" enemy illustrates the extent to which the computational and the biological are conflated in Synners.

If the socketed humans in the novel are not *quite* computers, they are in a sense indistinguishable from them. Art lectures Sam about humans assuming that they need not take the precautions they do with their computer systems: "You people got no shields. You put in the sockets, but you forgot about the watchdogs and the alarm systems and the antivirals and the vaccines. You people put them on every neural net except your own" (358). In other words, in constructing the sockets, humans did not bother to construct a corresponding immune system that would protect against the input they receive from the System. It proves to be a fatal lack of foresight, a mistake that dooms the technology of the brain sockets–but only temporarily. There is simply too much money to be made. To Gina, less naive than Gabe, who believes the sockets will be banned and insists on living with what he calls "appropriate technology," it would be impossible to bury the technology. She reminds Gabe that "All *appropriate technology* hurt somebody. Every technology has its original sin. . . . Makes us original synners. And we still got to live with what we made" (435). The title of the novel, then, resonates with this idea of original sin and the responsibility of those who "synned." Wolmark argues that this notion of accountability, coupled with the depiction of

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technology as "out of control" throughout the novel, suggests that Cadigan feels an ambivalence toward technology that is not usually apparent in most cyberpunk fiction, which often features the indiscriminate celebration of it (126).[10] Cadigan, no doubt drawing from real instances of chaos and destruction caused by viruses or worms, cautions that we are complacent at our own risk.

In Synners, humans, AIs, and computers are all subject to the same "natural" enemy, as Fez puts it. It does seem only "natural," though, that with the emergence of new subjectivities, corresponding enemies will also emerge. Of course, Markt owes its genesis to the virus, the agent that not only emphasizes the degree to which humans are *already* mediated by technology, but also forces the evolution of an entity that is no longer human in any traditional sense. The binary of self and non-self, then, is compromised even further through the agency of the virus, and the breakdown between the natural and the artificial boundaries in Synners is surely most obvious in the way that humans are required to become aware of themselves as constructs, as indistinguishable from their artificial extensions. Art's words to Sam about the vulnerability of humans to this new virus bring home the fact that the virus's attack necessitates the reconceptualization of what it means to be human: "For the first time ever . . . it's possible for people to die of bad memes, just like computers. Just like software" (357). As with the biological viruses discussed in previous chapters, the computer virus has a way of making the novel's humans other to themselves, but there is little to suggest that this new subject position is any way liberatory; rather, it seems clear that Cadigan's tale is a cautionary one, in spite of the positive collective action that results as a response to

viral assault. The novel rests on the idea that memes, or "mind viruses," are more than dangerous–they are potentially fatal.

This concept of the meme is one that runs throughout both Synners and Snow Crash, though Stephenson is somewhat more explicit in his treatment of it. As current theories about the meme clearly inform both of these texts and mine both biological and computer virus metaphors, I think it necessary to provide an outline here of the history of what is touted as the "new science" of memetics, as well as its current application in fields ranging from philosophy to economics. I will then examine Snow Crash within the context of meme theory, and compare its treatment of the meme with that of Synners.

As it is popularly constructed, the meme operates in much the same way that the alien consciousness does in The X-Files, using our brains as hosts and issuing directives that we blindly follow, whether that be whistling a catchy tune, repeating a Seinfeldian phrase ("yada, yada, yada"), or wearing the latest fashion. Like a virus, it has no other purpose other than to replicate, and it is transmitted through "brain-to-brain" contact.[11] Imitation is what guarantees a meme's success. And while Richard Dawkins, evolutionary biologist and originator of the term, insists that "We, alone on earth, can rebel against the tyranny of selfish replicators" (The Selfish Gene 201), some accounts of the meme suggest otherwise.[12] Dawkins, if fact, admits to having rather modest aims, introducing the meme in The Selfish Gene (1976) primarily as a counter to the idea that the gene is the only unit of natural selection, and thus the only one that drives the process of evolution. The meme, then, is analogous to the gene in that it engages in a

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Darwinian struggle to get itself copied. He notes, "The original didactic purpose of the meme was the negative one of cutting the selfish gene down to size. I became a little alarmed at the number of my readers who took the meme more positively as a theory of human culture in its own right–either to criticise it . . . or to carry it far beyond the limits of what I then thought was justified" (The Meme Machine xvi). As Dawkins observes here, it appears that the meme meme (or the Meta-meme) has mutated in the process of ensuring its replication; its success has secured it a place in the Oxford English Dictionary, and it is the star of several websites devoted to its propagation, including the "Church of Virus," whose patron Saint is, not surprisingly, Charles Darwin. The meme is also featured in a number of books, including Aaron Lynch's Thought Contagion (1996), Susan Blackmore's The Meme Machine (1999), Richard Brodie's Virus of the Mind (1996), J. M. Balkin's Cultural Software (1998), Douglas Rushkoff's Media Virus! (1994), Howard Bloom's The Lucifer Principle (1995), and the philosopher Daniel Dennett's Consciousness Explained (1991) and Darwin's Dangerous Idea (1995).

As some of these titles suggest, the meme is more readily compared to the virus than it is to the gene, perhaps echoing Dawkins' original contention that "When you plant a fertile meme in my mind you literally parasitize my brain, turning it into a vehicle for the meme's propagation in just the way that a virus may parasitize the genetic mechanism of the host cell" (The Selfish Gene 192). Indeed, in his 1991 article "Viruses of the Mind," Dawkins himself thoroughly embraces the metaphor, arguing that "memeplexes" (mutually compatible groups of memes) such as religion and cults are viral in nature, meaning that they spread rapidly through large populations by

replicating themselves using a variety of copying strategies. Children, less able to fend off memes, are particularly susceptible to this kind of infection, Dawkins argues, and he details in the course of his argument the "symptoms" that a virulent case of faith produces. For Dawkins, however, a memeplex such as science, while it appears "superficially virus-like," does not fall into the category of mind virus. In other words, a "viral" meme–as opposed to an apparently non-viral meme–has decidedly negative connotations, constituting its own epidemiology.

The popular literature on the meme emphasizes its pathogenic qualities, simply by adopting the rhetoric of emerging virus tales. Richard Brodie's Virus of the Mind opens with a "warning" to the unwary reader: "This book contains a live mind virus. Do not read further unless you are willing to be infected. The infection may affect the way you think in subtle or not-so-subtle ways–or even turn your world view inside out" (9). This introduction mimics "legitimate" warnings that notify us of imminent contact with biohazardous material, much in the way that The Hot Zone does, as its mock-up of USAMRIID guides the readers through the various biosafety levels in its opening pages. Brodie, taking Dawkins' view, explores the effects of those memes that he considers to be pernicious. The imagery of (harmful) contagion permeates his discussion of religion, cults, gangs, advertising, and conspiracy theories, and yet Brodie's stated goal is that his explanation of the science of memetics will itself function as a "mind virus" that will innoculate readers against more harmful ones. Presumably there is a difference between "good" and "bad" mind viruses, a distinction that seems irrelevant because of the construction of the meme as a virus, which, despite its positive function in the science

fiction I have analyzed in previous chapters, is pathogenic in a debilitating sense. If Brodie's designation of good and bad viruses strikes the reader as arbitrary, it comes as no surprise, since Dawkins, the "father" of memetics, is equally arbitrary in his designation of viral and non-viral memes. To readers unversed in memetics, Dawkins' "Viruses of the Mind" might come across as a rather simplistic treatise, the main contention of which appears to be the following: religion=bad, science=good. If Brodie, who dutifully pays homage to Dawkins in his text, is attempting to appropriate the pathogenicity of the virus in an attempt to construct new, positive associations for it, he does so in a way that is confusing, poorly reasoned, and likely to reinforce negative associations with the virus–and, by extension, the "mind virus."

Pathogenicity is a quality that the "Church of Virus" embraces, the web site devoted to a religion that is designed to "compete with the traditional (irrational) religions in the human ideosphere with the idea that it would introduce and propagate memes which would ensure the survival and evolution of our species." Lest we question the effectiveness of using the symbol of a virus as means to win converts, the site has an answer for us: "The name was chosen to be deliberately antagonistic, to put people on their guard and let them know this idea was designed to infect them. Call it truth in advertising." Certainly the large biohazard symbol on the site's old home page would have appeared alarming enough to send surfers on their merry way, skipping the sections on memetics, philosophy, and the Church's mission statement altogether.[13] Or, conversely, such an odd juxtaposition of terms might peak one's curiosity. The new site is less intimidating, however, with a picture of "St. Darwin" dwarfing the biohazard

symbol, and an added subtitle: "A neo-cybernetic philosophy for the 21st century." And while the Church's mind virus is meant to "infect" the unwary user, it is paradoxically a "good" virus, as it is purported to be more useful and accurate than other competing viruses (religions). Again, this is the line of thinking that Brodie adopts, but at least the Church of the Virus offers some actual alternatives to what it considers to be pernicious mind viruses, mostly in the form of recommended texts, or "meme vehicles."

Even a memetic lexicon, compiled by Glenn Grant in 1990 and reproduced at the Church's site, employs the language of contagion, distinguishing between terms such as "infection strategy," "vaccime," "vector," "immuno-depressant,"and "retromeme."[14] Such terminology lends materiality to the meme, associating it with something that we know has a definite structure, even though we cannot see it. And Dawkins agrees that memes should be thought of as living structures, not just metaphorically, but technically (The Selfish Gene 192). Why, then, we might ask, is the meme not more readily associated with the more neutral-sounding, if still "selfish," gene? One answer might be that we are already primed by epidemiological models–both of the biological and the computer variety–but another might be that genes and viruses function in similar ways, even if a gene is not generally associated with parasitism. As Dawkins observes, "viruses may be genes who have broken loose from 'colonies' such as ourselves. . . . The suggestion is that they have evolved from 'rebel' genes who escaped, and now travel from body to body directly through the air, rather than via the more conventional vehicles–sperms and eggs. If this is true, we might just as well regard ourselves as colonies of viruses!" (The Selfish Gene 182). And that is exactly how some memeticists

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view the human brain–as a colony of "mind" viruses, some of which are more successful at replicating than others.

Aaron Lynch, among others, defends the use of contagion imagery to describe the transmission of memes: "Memetic folkways need not correspond to viral diseases, and so do not always deserve the same bad reputation. . . . The terms *thought contagion* and *epidemiology* . . . carry neutral connotations in the context of memetics theory" (10). We need only to look to the Church of Virus to view the counter to that defense, whose web site employs the language of contagion precisely because it is anything *but* neutral. We might also note that Lynch does not try to divorce the meme from the language of contagion, which serves as an implicit acknowledgment of the impossibility of such an endeavor. Instead he suggests that the meme is a more permeable construct, open to other interpretations. In other words, the meme really is a lot like a virus, that permeable body that lends itself to any number of interpretive possibilities. Perhaps, if memeticists are indeed able to divest the meme of good/bad connotations, there is hope for an understanding of the virus that does not simply rely upon the self/non-self and good/bad hierarchies. So far, however, the meme continues to be subject to the virus's (mostly negative) metaphorical attachments.

As I have outlined it here, memetics, often touted as a "new" science, may sound as if it owes much to the well-established field of social science known as social contagion theory, which examines the spread of certain behaviors in populations. Aggression, hysteria, and suicidal tendencies are among the "epidemics" that social contagion theorists research, using a variety of methods.[15] What differentiates memetics

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from most social contagion theory, however, is the former's emphasis on evolutionary

process, as well as its positing of a physical structure that functions as the unit of

cultural transmission. The very materiality of the meme is what so many critics find

problematic about memetics, particularly as the physical structure of the meme has not,

up to this point, been proven to exist. In contrast, the meme's metaphorical counterparts,

genes and viruses, may be discerned with the proper equipment, though we might have

difficulty describing just what constitutes a gene, exactly. We have an easier time

imagining viruses, which are self-enclosed entities like bacteria or cells.[16] In the 1980s

and 1990s, we could hardly escape the images of viruses, with renderings of HIV

emblazoned across the cover of numerous magazines and other publications. And we

now have the terminology of viruses at our disposal, after years of exposure to the AIDS

epidemic and years of attempting to "innoculate" the precious electronic extensions of

our minds against marauding lines of code. It is no wonder, then, that the figure of the

virus is so readily appropriated by adherents to meme theory, who are themselves well-

versed in the language of contagion.

Some time before Dawkins posited the parasitic nature of the unit of cultural

transmission we know as the meme, William S. Burroughs attributed similar

characteristics to the word itself:

> My general theory since 1971 has been that the Word is literally a virus,
> and that it has not been recognized as such because it has achieved a state
> of relatively stable symbiosis with its human host; that is to say, the Word
> Virus (the Other Half) has established itself so firmly as an accepted part
> of the human organism that it can now sneer at gangster viruses like
> smallpox and turn them over to the Pasteur Institute. But the Word
> clearly bears the single identifying feature of a virus: it is an organism

with no internal function other than to replicate itself. (The Adding
Machine 48)

The word, like the meme, has a discernable material structure, but Burroughs does not

limit the virus to representation of language only; he notes that "image is virus" and that

"The whole quality of human consciousness, as expressed in male and female, is

basically a virus mechanism" (Cities of the Red Night). Memetic theorists make similar

claims, but few embrace the virus as thoroughly as Burroughs does, who details the

literal infection of the body by the Word Virus in a number of texts. For Burroughs, the

Word (the Other Half) is responsible for imposing dualism, a state that leads to endless

conflicts. Far from suggesting that the binary of self and other may be deconstructed by

an interrogation of the virus itself, Burroughs portrays the Word as that which actually

initiates this central binary, thus preventing unity.[17] Word and image–both powerful

viruses–are a means of control by those who wield them, such as the Nova Mob in The

Ticket That Exploded (1962). Thus Burroughs precedes Cadigan and Stephenson in his

use of fictional viral "memes," incorporating his theory of the Word in his novels years

before Dawkins coined the term meme.

The strategies of the alien colonists in The X-Files owe something to those of

Burroughs' own alien Nova Mob, who control humans through deployment of a kind of

media virus. Like the meme, the word is biologized, or concretized, in Burroughs' texts.

His use of viral metaphors is an important, though uncredited, predecessor to French

philosopher Jean Baudrillard's adoption of viral metaphors, which Baudrillard uses to

describe thought and image.[18] For Baudrillard, the media "transmit the virus. They are

the virus." (<u>Paroxysm</u> 33). Memeticists might phrase it a little differently, noting that the media is merely a vehicle that disseminates memes. Following Baudrillard's characterization of the media, we could say that the Nike March Madness commercials examined in Chapter Two–those glossy and homogenized media products–are in some sense self-reflexive, underscoring their own viral aspects. In fact, the tone of the commercials bears some relation to what others have termed Baudrillard's "apocalyptic thinking," which takes the virus, in addition to the genetic code, as one of its central tropes. Although the Nike spots are decidedly tongue-in-cheek, they appropriate darker end-game scenarios from emerging virus tales and <u>The X-Files</u>. While ostensibly hawking Nike products, they also associate the brand with a rapidly spreading contagion–the effect is that March Madness somehow arises from Nike itself, rendering the swoosh synonymous with the agent of infection.

This alliance is not so far removed from the attempts of marketers to create memes of their products, in hopes that they will proliferate, either through slogan, logo, or some other marker. This is of course not a new idea; what is new is the conscious appropriation of the term "meme" or "mind virus" in order to describe these marketing strategies, as well as the use of the Internet and so-called benign computer viruses to spread product information. Nike, apparently, had few problems with the idea of aligning itself with the imagery of contagion. Mike Folino, one of those who came up with the original idea, joked that "Nike probably understands that March Madness is a real problem in society right now, as a disease. It's brave of them to come out and talk about it and show what really happens, [because] their sneakers and athletic wear are

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part of the cause" (Woodward 14).[19] What we can see here is that just as the figure of

the virus is appropriated in various contexts to symbolize communism, so it can also be

adapted to simulate the spread of capitalism, a notion that both Cadigan and Stephenson

examine in their texts and one to which I will return. What is especially significant in

this context is that the marketing "meme," while clearly associated with viral imagery, is

adopted precisely because the sole function of the virus is replication; the meme is not

evil or good, but simply a self-replicator, an agent that is only "good" in the sense that it

spreads the capitalist Word. Thus marketers, who artlessly adopt the term meme to

serve their own ends, come closer to making the association of epidemiology with the

meme "neutral" than do the memeticists themselves, who frequently subject replication

to philosophical and moral standards of judgement. Marketers don't bother

characterizing replication (i.e. replication of Nike logo is good, replication of Camel

logo is bad)–it is simply a workable metaphor, one that's good for business.

As memetics employs the language and imagery of biological viruses, so does it

appropriate the language of computer viruses. In 1976, even before the development of

computer viruses, Dawkins writes in the Selfish Gene that "The computers in which

memes live are human brains" (197), which he then follows up with a note in the 1989

edition in which he recognizes the aptness of his metaphor: "It was obviously

predictable that manufactured electronic computers, too, would eventually play host to

self-replicating patterns of information–memes . . . . It is a perfect milieu for self-

replicating programs to flourish and spread" (329). He admits that when he wrote the

first edition of the book, he believed that undesirable computer memes would only result

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as a spontaneous error in the copying of a program, unable to imagine that people would in the future deliberately program viruses and worms. In his 1991 article "Viruses of the Mind," the title of which is clearly an homage to Burroughs, who coined the phrase, he explains the memetic "infection" of religion by explicitly comparing it to the infection of computers by viruses, constructing what he calls a "model for an informational epidemiology." Although he acknowledges that computers and DNA actually replicate more faithfully than the human brain, he argues that "At the very least the mind is a plausible *candidate* for infection by something like a computer virus." What is particularly noteworthy about this essay, which basically serves as a condemnation of religion-as-virus, is Dawkins' proposal that computer viruses can be used for beneficial purposes. Among his suggestions are transforming existing anti-viral programs into viruses and sending out viruses to do market research. As I previously mentioned, it is business that has most visibly put this notion of the beneficial virus to work, in "viral marketing" schemes that have customers propagate a product by making them "vectors" for company logos or slogans. For example, Hotmail, a free e-mail service, attaches an advertisement to every missive that its users send. At this time no traditional computer viruses actually circulate in this fashion, however, and even the Hotmail attachment is not a virus, per se. Rather, "viral marketing," a term coined by Steve Jurvetson and Tim Draper, is simply a high-tech version of word-of-mouth. But it is certainly easy to imagine, as Dawkins suggests, that there will come a time when "viruses, both bad and good, have become so ubiquitous that we could speak of an ecological community of viruses and legitimate programs coexisting in the siliconsphere " ("Mind Viruses").

Indeed, this scenario is precisely what Cadigan envisages in <u>Synners</u>. The viral extensions of Art Fish even make other programs more responsive, initiating in them a kind of evolutionary process. And one hacker, disgusted with the buggy computer-controlled rental car system, remarks, "GridLid's so stuffed with viruses that someday the viruses are just gonna take over. Probably do a better job, too" (149). Dawkins is of a similar mind: "I envisage a time when . . . computer viruses may evolve towards compatibility with other viruses, to form communities or gangs" ("Mind Viruses"). He does not find the thought comforting, however.

As Dawkins and others show, the comparison between memes and computer viruses rests on the corresponding analogy between brains and computers: "The computers in which memes live are human brains" (Dawkins, <u>The Selfish Gene</u> 197). According to some meme theorists, however, the brain is not simply a vehicle for meme propagation; it is instead itself a complex of memes, suggesting that our minds are largely the creation of memes. J. M. Balkin embraces this notion, as well as the brain-as-computer metaphor, in <u>Cultural Software</u>, in which he argues that humans are constituted by cultural information, the basis of our historical existence. This cultural information he calls "cultural software," which runs on the computers of our brains, a metaphor he justifies because of its appropriateness in explaining how cultural understanding may be shared while still accounting for the inevitable differentiation among members of a culture or interpretive community. He believes it a more useful trope for explaining how people come to believe the things they believe than Marxist theories of ideology, which he believes "view ideology as a disease or a decrepit form of

human thought" (19). According to him, because the idea of software running on a computer does not carry inherently negative connotations, but rather suggests the processing of value-neutral information, it allows us to understand ideology not simply through its negative effects, but through its positive ones as well. In response to Balkin's characterization of value-neutral information, which erroneously assumes for human thought the same neutrality that information theorists impart to information, we would do well to remember Frederic Jameson's dictum "Always historicize!" in The Political Unconscious (1981), in which he states that "everything is 'in the last analysis' political" (20). Thus, in whatever way ideology is constituted, there can be no "value-neutral information." Ideological power in Balkin's scenario "is the power that cultural software has over the persons who are constituted by it, who are persons because of it. Instead of seeing ideology in the form of false beliefs held by subjects who preexist those beliefs, it locates the source of ideological power in the constitution of subjectivity itself" (Balkin 19). Balkin's construction of cultural software is problematic, employing a metaphor that glosses over the complexity of ideology.

Balkin's theory, like much of meme theory, is similar to any number of poststructuralist theories that posit the instability of the subject, and indeed Dennett, Dawkins, and Blackmore argue that subjectivity as it is traditionally understood is an illusion. Balkin, however, admits that cultural software is not the *sole* component of human reason, but rather its historical component–he is not entirely willing to give up subjectivity to the memes. In other words, he grants that the human brain's operating system is much more complex than the metaphor he employs. Nevertheless, he firmly

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advances the idea that "Our human existence as embodiments of information, as bearers

of cultural know-how, is the most basic motivation for the metaphor of cultural

software" (15). That humans may be so readily relegated to the status of "meme

reception machines" or computers is unsurprising in view of the exchanges between

informational theory and molecular biology that I referred to earlier, but even the most

careful analysis of the brain in relation to computers appears surprisingly incongruous,

and one that requires continual explanatory asides and justifications.[20] Perhaps no other

comparison, however, other than that of the corresponding viruses, illustrates the extent

of our inability to separate the biological from the computational.

If Dawkins and Balkin were to construct a fictional universe in which memes

reigned supreme, it might look very much like the one Neal Stephenson creates in Snow

Crash. This world is driven by the central metaphor that human are computers; those

who know how to program cultural software–using the human equivalent of machine

language–have the ability to shape human will and thought.[21] They control both the

input and output of information, which, as I discussed earlier, is a commodity more

precious than human life. In The X-Files the government seeks to control (and

manipulate) DNA, the code of life, thereby ensuring the ultimate triumph of the carceral.

In Snow Crash, it is primarily the brain which is subject to surveillance and

manipulation; the ends of the power brokers, however, are the same as those in The X-

Files, and the villains in Snow Crash gain direct access to the brain by virtue of memes

and a biological virus. Prey to the boundary-crossing Snow Crash virus, humans can be

infected in both the material world and in the Metaverse, Stephenson's update of

Gibsonian cyberspace. That is, Snow Crash may be transmitted by blood and other bodily fluids, or by computer code. Like the virus in Synners, it refuses to recognize the boundary between the natural and artificial realms. The resulting infection causes its human hosts to babble long lines of "code," or the universal tongue that is based in the deep structures of the brain. Thus the victim is effectively cut off from higher-level brain functions. Once the machine language of the brain is accessed, it is susceptible to programming by the purveyor of the drug, right-wing megalomaniacal Texas capitalist L. Bob Rife, whose ultimate goal is the control of information.

The "software" that Rife installs in these brains renders humans as little more than automatons, much like those infected with the viral alien consciousness in The X-Files. They follow Rife's directives, but are not conscious of doing so, as these directives bypass the brain's high-level functions that allow for independent thought. They are, in a sense, not truly conscious. Snow Crash, characterized at one point as "a virus, a drug, or a religion," is a viral idea–a meme–with a biological virus counterpart. In other words, it is the instantiation of Dawkins' contention that "The computers in which memes live are human brains" (The Selfish Gene 197). What is only speculative in memetics–i.e. the physical structure of the meme–becomes concrete in science fiction with the novel's conflation of the meme and the virus. Here again can we see how science fiction mirrors and extrapolates from developments in scientific theory–if we grant that memetics is indeed a science, that is. The Snow Crash virus is the tool of an ancient cult, a metavirus that provides the foundation for ancient civilization and persists to this day:

> We are all susceptible to the pull of viral ideas. Like mass hysteria. . . . .
> No matter how smart we get, there is always this deep irrational part that
> makes us potential hosts for self-replicating information. But being
> physically infected . . . makes you a whole lot more susceptible. The
> only thing that keeps these things from taking over is the Babel
> factor–the walls of mutual incomprehension that compartmentalize the
> human race and stop the spread of viruses. (399-400)

Weaving together Sumerian and Judeo-Christian mythology, with no small amount of linguistics theory, Stephenson constructs a story of the origin of modern human consciousness that credits a particular virus with forcing its emergence. We might compare this evolution to that of Markt in Synners, who also emerges as a result of viral influences, or to Darwin's Radio, in which a virus facilitates human evolution.. In Snow Crash, the "Babel factor" is considered to be the defining moment of the emergence of human consciousness, as it represents the point at which humans no longer communicate in a common tongue and develop new and different languages. As in the story of the Tower of Babel, this radical departure from a universal grammar is not voluntary; it is, rather, the work of a neurolinguistic virus, or "nam-shub" ("a speech with magical force"), programmed by an ancient "hacker," of sorts, to counter the metavirus. Echoing Burroughs, Stephenson suggests that human consciousness is derived from a virus mechanism.

Civilization as we know it today, Stephenson explains, is a result of this new, and yet very old, virus. To explain the shift that Babel represents, he takes us back to Sumeria, whose people spoke in a language unlike any modern tongue–i.e. the Edenic language of which the Jewish and Christian religions speak. The Sumerians were not truly conscious; rather, they were ruled by verbal rules, or programs, called *me*.

Basically, the *me* are the cultural software of Sumerian societies, endowing their human hosts with skills ranging from baking bread to building houses to diplomacy. Hiro Protagonist, the aptly named contemporary hacker who researches the connection between Babel and L. Bob Rife's plot to control people through the agency of the Snow Crash virus, likens *me* to the operating system of a computer: "To start up the machine, you have to infuse those circuits with a collection of rules that tell it how to function. How to be a computer. It sounds as though these *me* served as the operating system of the society, organizing an inert collection of people into a functioning system" (257).

Autonomy among the Sumerians, however, did not exist; people simply followed the programs "installed" on their hard drive, which made them easy to control. They were incapable of fending off these mind viruses because, like computers, they were not conscious. That is, their brains had yet to develop an immune system, which would have provided them with the necessary barriers and warning systems to stave off viruses.[22] In <u>Synners</u>, the failure to develop an immune system to protect against a new kind of virus is what causes the deaths of those who use the brain sockets. As Art admonishes Sam, "You people got no shields" (358). In the present-day of <u>Snow Crash</u>, however, many humans *have* developed immunities against certain kinds of memes, which is why Rife feels it necessary to cut them off from higher-level brain functions. Robbed of consciousness, and hence immunity, they become susceptible to his programming.

The *me*, a manifestation of the metavirus, were stored in temples–ancient databases–controlled by a priest-king figure called an *en* who distributed the *me* to the

people. Enki, who was one of these *en* and revered as a Promethean god by the Sumerians, decided to liberate the people from their viral civilization; he forced them to innovate and think independently by releasing his nam-shub into the world, which served to reprogram the deep structures of the brain and sever the connections from the common language: "Babel is the gateway in our minds, a gateway that was opened by the nam-shub of Enki that broke us free from the metavirus and gave us the ability to think–moved us from a materialistic world to a dualistic world–a binary world–with both a physical and a spiritual component" (399). Again we have an echo of Burroughs, but with a twist; here a word virus is responsible both for "unity" (in the form of a universal language) *and* dualism. For Burroughs the Word virus imposes a dualism that humans can never truly overcome; he avows that there can be no unity. Unlike Burroughs, Stephenson suggests that the virus can serve a useful function, even if it is only to combat another virus.

Fast forward five thousand years, and the metavirus returns with a vengeance in the form of a digital virus, crashing the mind of hackers, those whose understanding of binary code is built into the deep structures of the brain. L. Bob Rife, recognizing that contemporary hackers in effect program their own nam-shubs by writing and executing computer code, which is itself a kind of performative speech, hopes to bully them into standing aside while he "converts" others using the biological version of the virus. In a "postrational" society, where a vast number of people are illiterate and rely on the oral tradition of television culture, people are particularly susceptible to the kind of mind viruses that Rife promotes, as they do not possess the barriers that education can

provide. Hackers, as a literate power elite who understand the nature of information, are

not as susceptible to these virulent memes. Thus Rife acquires the agent of Snow Crash,

"the atomic bomb of informational warfare–a virus that causes any system to infect itself

with new viruses" (200), in hopes of keeping hackers in line by holding it in reserve as a

threat. Once the virus is revealed to a hacker in the virtual reality world of the

Metaverse, a world that is only made possible by Rife's fiber-optic network, the brain

becomes infected and the mind is destroyed.[23]

The primary way Rife spreads the metavirus among the masses, however, is

through a combination of religious practices and the transmission through blood. The

biological version of the metavirus is associated with the Sumerian goddess Asherah,

whose followers promoted the transmission through the use of cult prostitutes. Even

after Babel, this biological version of the metavirus remained dormant in the brain,

passed on from one generation to the next and prone to occasional "outbreaks" which

involved instances of glossalia, or the speaking in tongues–presumably in the universal

language. In Stephenson these outbreaks are depicted as ominous, suggesting a

dangerous irrationality that must be suppressed. In Griffith's Ammonite, the Jeep virus

bestows a similar facility for a kind of "universal" language upon the infected, who tap

into this language when meditating, singing, and even achieving conception; that women

can access this language is considered a boon. Like those infected with the metavirus,

the women of Jeep access an ancient language, but unlike those infected in Stephenson's

novel, they are conscious of doing so. The communal language to them is a version of

the nam-shub, as they can effect changes in the material world just by speaking it. It is,

like machine language, performative. The viral universal language in Stephenson, then, is deeply irrational and therefore dangerous; universal, or semiotic, language in Griffith disrupts rationality and therefore enables a subversion of the patriarchal discourse that is the heritage of the women who speak it. It is the subversion of rationality that characters in Snow Crash fight against, aligning Asherah and her virus, which disrupts rationality, with the villains in the text. If there is a language that is privileged in Snow Crash, it is machine language, which issues from the minds of rational, well-educated programmers. Its counterpart is instinctive and imprecise, arising from the infected and susceptible body/brain.

In many ways, Stephenson privileges rationality in his text; Asherah is associated with the body, and Enki, who combats the virus she promotes with a neurolinguistic one, with the mind. Consequently, Asherah, like many stereotypical depictions of women, is associated with the pre-rational or even irrational, while Enki is credited with ushering in a new rational age. Asherah is deeply, treacherously entrenched in the body, coiled like a serpent around the brainstem; the goddess's ophidian associations owe something to this snake-like description of the virus, which, as we saw with Shelley's Plague and Preston's filovirus, is evocative of the virus's cunning and evil nature. Of course, as we also see in Preston, the virus is associated with a voracious feminine sexuality that can wither testicles, among other things. Asherah's use of sexuality is successful in winning her followers, and she endures even to this day. The contemporary manifestation of the cult of Asherah is the Pentecostal church, which Rife appropriates and transforms into the Reverend Wayne's Pearly Gates

franchise and which spreads throughout the West and the Third World.[24] Recognizing, as Dawkins does, that religion is an extraordinarily powerful meme which taps into "this deep irrational part that makes us potential hosts for self-replicating information" (Stephenson 399), Rife uses it as a vehicle for transmission of the virus. To ensure the susceptibility of his converts, he sends out missionaries to developing countries to vaccinate their populations, adding a dollop of Snow Crash into the mix. For the populations of the decadent West, he devises a drug composed primarily of addictive drugs and the virus, similar to the amyl nitrate "poppers" once linked with AIDS transmission.

In describing Snow Crash as a virus that causes any system–including a human "system"–to infect itself with other viruses, and by explaining its transmission under the guise of now debunked theories about HIV that traced its origin to contaminated vaccinations or "poppers," Stephenson not only echoes AIDS lore, but he broadly satirizes the idea that AIDS may in fact be a conspiracy engineered by some malevolent entity. In this case, the virus is synonymous with corporate interests and religion, two things that are virtually indistinguishable in the novel. Stephenson takes the analogy between religion and the virus as far as it will go; not only is Reverend Wayne's church viral in the sense that Dawkins describes religion, attributing a memetic cause to this particular spread of mind viruses, but it actively propagates biological viruses in a double whammy meant to ensure the complete loss of autonomy of the masses. Religion is not simply an opiate–it is an infection.[25] Cadigan also employs this metaphor in Synners, setting up a virtual church called "The St. Dismas Infirmary for the Incurably

Informed" as a front for the exchange of stolen and sensitive information. St. Diz is the pseudonym for Art Fish, the viral AI. The St. Dismas Infirmary is a church, basically, for hackers, while Reverend Wayne's caters to a much different population: Christian, conservative, uneducated.[26] That Stephenson makes a fundamentalist Christian sect responsible for the spread of a plague transmitted by blood, whose original source is a woman, is a savage jab at the Christian Right, whose early attitudes about AIDS helped to shape the popular view that only un-Christian and "unnatural" people contract AIDS.

The L.A. of Snow Crash, home of Hiro Protagonist and his sidekick Y.T., a fifteen-year-old skateboarding Kourier who delivers packages by way of the cars she "poons" (harpoons) on the freeway, is very much like the one depicted in Synners. California, it seems, is an ideal setting for viral apocalypse, or "infocalypse," Rife's plan to deploy Snow Crash in the Metaverse. Dangerous, overpopulated, and overrun with franchises, the L.A. depicted in the novel differs only by degrees from the L.A. of today, and Stephenson's deft satirical strokes delineate an America that is strikingly familiar:

> 'No surprises' is the motto of the franchise ghetto, its *Good Housekeeping* seal, subliminally blazoned on every sign and logo that make up the curves and grids of light that outline the Basin . . . . The people of America, who live in the world's most surprising and terrible country, take comfort in that motto. Follow the loglo outward, to where the growth is enfolded into the valleys and the canyons, and you find the land of the refugees. They have fled from the true America, the America of atomic bombs, scalpings, hip-hop, chaos theory, cement overshoes, snake handlers, spree killers, space walks, buffalo jumps, drive-bys, cruise missiles, Sherman's March, gridlock, motorcycle gangs, and bungee jumping. They have parallel-parked their bimbo boxes in identical computer-designed Burbclave street patterns and secreted themselves in symmetrical sheetrock shitholes with vinyl floors and ill-fitting woodwork and no sidewalks, vast house farms out in the loglo wilderness, a culture medium for a medium culture. (191)

The economic stability of the United States, whose output is reduced to the four things it can do best–music, movies, microcode, and high-speed pizza delivery–depends primarily on a series of franchises. Government as we know it has all but disappeared, replaced by the likes of Uncle Enzo's CosaNostra Pizza, Narcolombia, Reverend Wayne's Pearly Gates, and Mr. Lee's Greater Hong Kong–all of which may be found in any city in America. The notion that a single corporation in <u>Synners</u> marketing the brain sockets "seemed to be more pervasive than Dr. Fish" (154) is broadened in <u>Snow Crash</u> to include a contemplation of the franchise phenomenon as inherently viral: "The franchise and the virus work on the same principle: what thrives in one place will thrive in another. You just have to find a sufficiently virulent business plan, condense it into a three-ring binder–its DNA–xerox it, and embed it in the fertile lining of a well-traveled highway" (190-191). What this suggests is that the virus is as suited to a description of rampant capitalism as it is to the Cold War style communism explored in Chapter Two. And if the parallels between Sumerian culture (pre-rational) and ours (postrational) are not already manifest in the description of the susceptibility to memes, the comparison between the distribution of those memes or cultural software in each reinforces the association. Sumerian culture, with its temples full of successful viruses, is no different from a contemporary franchise operation, "except that it had ziggurats instead of golden arches, and clay tablets instead of three-ring binders" (397).

Hiro, a freelance hacker who originally helped develop the Metaverse, is a suitable choice to help defeat Rife's plans precisely because he is not a "corporate assembly-line hacker" and thus less susceptible to infection. That is, Hiro is an

innovator, and unwilling to be constrained by mind-numbing corporate rules and regulations. There is a sameness about corporate hackers that is dangerous, a hegemony that is echoed in the franchise motto: "no surprises." Variety, or difference, is what confounds a virus in nature, and capitalism ensures that there is increasingly less and less difference with the spread of franchises across the globe. Not only does Hiro confound sameness with his innovative programming skills and his individuality, but, as a Korean-African American, he is genetically diverse as well. Vulnerable to Snow Crash, he is nevertheless capable of inoculating his brain against other virulent memes. His partner Juanita, however, manages to combat the metavirus directly after voluntarily submitting to an implantation of a radio antennae into her brainstem by Rife, who issues directives to his automatons via the antennae. In effect, Juanita joins the thousands of Third World refugees on the Raft, a conglomeration of ships that Rife has constructed into a tightly organized hierarchy of people speaking the same tongue. His plan is to have them invade California, thus hastening the spread of the virus. The "wireheads" like Juanita issue his commands to the wireless, but Juanita overcomes her programming, eventually becoming a "ba'al shem," a (pre-Enki) sorcerer for whom the utterance of words is calculated to effect material changes. What Hiro and Juanita can do with binary code on computer systems, Juanita can now do with brains: "I can hack the brainstem" (430). Her abilities are now on a par with the infected women in Ammonite, who also effect material changes with the utterance of their communal language. Unlike those women, Juanita appears to be the only one of her kind; the virus does not enable a sense of community for her.

Much more so than Visual Mark in Synners, who is basically the progenitor and victim of the stroke/virus, Juanita is able to use the metavirus for her own ends, suggesting the liberatory potential of this particular boundary-crossing virus. However, as Hayles and David Porush point out, Juanita drops out of the plot, functioning as little more than a love interest for Hiro. Porush argues that Stephenson attempts to preserve the rationality he privileges throughout the novel by not devoting more time to Juanita's newfound mystical abilities; for him, the text rejects the spiritual transcendence that Juanita's transformation suggests (568). Hayles, on the other hand, argues that the explanation for Juanita's treatment is not quite as clear-cut, pointing out places in the text where rationality it itself clearly useless to those who combat Snow Crash. What neither critic discusses is the fact that Hiro also serves as a ba'al shem of sorts, constructing a nam-shub against the digital version of Snow Crash in the Metaverse. Hiro devises a bit of medicine that disables the virus, thereby saving thousands of hackers from "the Big One," or infocalypse.[27] Certainly Hiro's powers are less mystical, but no less effective, than Juanita's.

Perhaps Juanita's part in the final battle pitched between Rife and his minions and Hiro, Y.T., Uncle Enzo of CosaNostra Pizza, and Mr. Lee of Mr. Lee's Greater Hong Kong, is minimized because Stephenson prefers to stage the confrontation according to good old-fashioned American ingenuity and the well-established rules between good guys and bad guys. And yet part of this showdown takes place in the Metaverse, where we are told that magic is possible: "The Metaverse in its entirety could be considered single vast nam-shub, enacting itself on L. Bob Rife's fiber-optic

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network" (212). Or perhaps Juanita is too clearly compromised by the virus, not far

enough removed from those on the Raft controlled by Rife. Whatever the case, there is

little contemplation of Juanita's transformation, which suggests that if it is not altogether

dismissed as an indicator of the liberatory potentiality of the virus, it is at least

problematic. In Cadigan's novel, on the other hand, numerous characters speculate

about the implications of the new subjectivities as represented by Art, Mark, and finally

Markt. Stephenson does not dwell on the "newness" of the subjectivities as represented

by Rife's automatons or Juanita, in part because it is clear that while they may be new in

the context of the contemporary culture of the novel, they are in fact ancient, brought

about by a virus that is also "new" and yet very old. Despite the differences in the

novels, though, both Cadigan and Stephenson are invested in preserving the autonomous

human subject against the virus that threatens it.

Nevertheless, characters in both novels are so heavily mediated by technology

that it is difficult not to think about them as somehow inextricable from their artificial

counterparts, much like the viruses themselves.[28]   What is different about this

construction versus the one Cadigan presents is that it suggests that our natures have

always been inherently computational; humanity as we know it is a relatively new

phenomenon, brought about by a neurolinguistic virus that separates us from this

essential nature. The "other" in Snow Crash is not simply a virus; rather, it is the

automaton that stands in contrast with the fully realized "human," a creature of free will

and consciousness. In a similar way, Art Fish represents that which is completely

removed from humanity, however much it attempts to approximate it by representing

itself as human. "Viral to the core," it cannot truly empathize with the humans it claims as friends. But Art Fish, a viral AI, is a new phenomenon; in Cadigan, *humanity* is "old" and the viral is new. For the synners, the realization that they have suddenly become prey to an enemy once reserved for computers alone requires them to become aware of themselves as constructs–if not actually computers, at least indistinguishable from them.

In other words, in Snow Crash, one is born a computer; in Synners, one becomes one. In both texts, though, there is an suspicion of technology that suggests an uneasiness with the equation of humans and computers. Hiro, though not averse to using top-of-the-line weaponry in his battle against Rife and his followers, favors using a couple of Japanese samurai swords given to him by his father, who had come by them when he killed a Japanese officer during World War II. Mafia boss Uncle Enzo, who finds himself in a fight with a very dangerous Aleut Indian called Raven–one of Rife's key heavies–reverts to using combat techniques honed in the jungles of Vietnam. He survives because of his quick thinking and his distrust of technology: "This is exactly the kind of high-tech nonsense that never, ever worked when we tried it in Vietnam" (458). Even Ng, the "mechanically assisted" Vietnamese Security expert who works with Hiro, the Mafia, and Mr. Lee's Greater Hong Kong, and provides Hiro with a nuclear-powered machine gun that "snow crashes" as a crucial moment because of bugs in its system software, warns him that "No piece of software is ever bug free" (408). And Uncle Enzo rejoins, "I guess there's little bit of Asherah in all of us" (408). We are

left, then, to trust our own senses, which like our technology are riddled with viruses and inconsistencies, but still preferable to those of soulless machines.

In the end, individuals working together assert their own viral programming in Snow Crash, using Enki's original counter-virus to restore, or reprogram, the brain's higher-level functions. Once again the virus bestows individuality and agency upon the zombie-like collective of the infected. As for Rife, he is dispatched by the Rat Thing, a cyborg "guard dog" programmed by Ng Security Industries and equipped with radiothermal isotopes that allows him to run at over seven hundred miles per hour. Although Rat Things are conditioned to stay within their "hutches" until they receive commands telling them otherwise, this Rat Thing overcomes his programming because of his love for Y.T., whom he perceives as being in danger and who was his owner before he had been transformed into "Rat Thing number B-782." As a result, he sacrifices himself and manages to prevent Rife from escaping by annihilating his plane. Like Juanita, the Rat Thing refuses to submit to the programming that robs him of autonomy. The dog in him reasserts itself, shrugging off his conditioning. That the last, spectacularly violent scene in the novel involves a cyborg dog whose loyalty wins out over his programming suggests that, in the end, technology cannot replace that which makes us human (and dog, in this case).

Stephenson, like some contemporary memeticists, holds out for the possibility that there is some defense against memetic/viral programming–that we may choose our own programming. The idea, as Susan Blackmore proposes in The Meme Machine, that our notions of free will and consciousness are illusions created by memes for the

purpose of their own replication runs counter to Dawkins' assertion that "We, alone on earth, can rebel against the tyranny of selfish replicators." But it is Dawkins' vision that Snow Crash finally embraces, transferring control back to the individual. The same is true for Synners, in which "For the first time ever . . . it's possible for people to die of bad memes, just like computers. Just like software" (357). Like Stephenson, however, Cadigan suggests that memes are a fact of life, but that memes and viruses are not always destructive. And Enki's nam-shub demonstrates that although we are already compromised by viruses, they do not necessarily render us as less (or more) than human. In other words, as I have argued in previous chapters, human and virus are inextricable.

Both of these texts, while they serve to disrupt binaries between the natural/artificial and self/other by taking full advantage of the liminal status of the virus, as well as by effecting a naturalization of computer viruses and rendering humans and their viruses as artificial, only hint at the subject's capacity for disruption. Like victims of a typical biological viral infection, most of the humans involved revert to a version of "normal" once the infection has run its course. They may be changed by their experience, perhaps inoculated against certain memetic invasions, but they are essentially the same: human. There are a few left in the infection's wake–Markt, Juanita–that suggest the virus can function as a kind of evolutionary agent, but these characters clearly play a secondary role to those who take on the virus directly. Nevertheless, the central question these texts asks is how much of what we traditionally define as "human" is actually compromised by the virus? In Stephenson's novel humans are (always) already compromised by the virus, as human consciousness is

derived from a virus mechanism. In Cadigan's novel, humans have a symbiotic

relationship with the memes and viruses that can be as dangerous as it is rewarding.

Both authors revel in the mutability of the virus, a chameleon pathogen which assumes

any number of (sometimes contradictory) roles in their texts. Whether characterized as

drug, religion, or dessert topping, the virus is an important locus for startling

transformations and disruptions, for crossing boundaries that have yet to be crossed

(except in discourse) outside of fiction, and for revealing the constructed nature of that

which we tend to view as fixed and essential.

NOTES

1. Because of increasing computerization, however, more mechanisms and information systems are subject to viral catastrophe, as the Y2K scare illustrated. That suggests that computer viruses could possibly threaten human lives, as E.L. Leiss argues: "malfunctioning of a certain system due to missing data or programs may result in a massive loss of life (e.g. an air traffic control system; a control system for a hydro-electric dam or a nuclear power plant). Equally important, the potential of disruption can conceivable be more paralyzing than the explosion of a small bomb" (12).

2. A Trojan horse is defined as "a block of undesired code intentionally hidden within a desirable block of code. Examples of Trojan horses are logic bombs and time bombs, which perform some function based on a logical condition or a time condition, respectively" (Hoffman 5).

3. Bruce Sterling is perhaps the most vocal spokesperson for cyberpunk art, suggesting in his introduction to the Mirrorshades (1986) anthology that it captures "a new kind of integration. The overlapping of worlds that were formerly separate: the realm of high tech and the modern pop underground . . . . The work of the cyberpunks is paralleled through the Eighties pop culture: in rock video; in the hacker underground; in the jarring street tech of hip-hop and scratch music; in the synthesizer rock of London and Tokyo" (183). Numerous critics have cast doubt as to whether cyberpunk actually represents anything new, and it must be said that the vision promoted in Gibson's rather cautionary tales accepted as the cyberpunk ethos is generally one that appeals to a white male audience.

4. In "Hacking Away at the Counterculture," Andrew Ross writes,

> In fact, the media commentary on the virus scare has not run not so much tongue-in-cheek as hand-in-glove with the rhetoric of AIDS hysteria–the common use of terms like killer virus and epidemic; the focus on hi-risk personal contact . . . the obsession with defense, security, and immunity; and the climate of suspicion generated around communitarian acts of sharing. The underlying moral imperative being this: You can't trust your best friend's software any more than you can trust his or her bodily fluids–safe software or no software at all! (PMC 1)

5. Sontag argues that these metaphors are "central to ideas about AIDS that distinguish this illness from others that have been regarded as plague-like" (158). And, as Weinstock argues, "as more and more people utilize computer technology, I suggest the association also functions in reverse–that the omnipresence of biological viruses triggers conscious or unconscious concern regarding computer viruses" (7).

6. Or, as Haraway puts it, "Disease is a subspecies of information malfunction or communications pathology; disease is a process of misrecognition or transgression of the boundaries of a strategic assemblage called self" (212)

7. In How We Became Posthuman (1999), Hayles notes that the posthuman view "configures human being so that it can be seamlessly articulated with intelligent machines" (3).

8. Its intent is unintentionally "programmed" by Mark himself. When he comes across the early incarnation of the stroke/virus, or the "little one," he recognizes himself in the "pain, compulsion, the old drive toward oblivion" (299). There is no mind, however, only intent: "It was a voracious thing . . . . Juggernaut, wanting to devour, infiltrate, rape, merge . . . . yet no more deliberately evil than cobra venom. It knew nothing else, and in a way it knew nothing at all, except that it would do what it would do" (299).

9. Indeed, it is literally through the agency of the "body" that Markt is preserved intact. Sam, Gabe's teenage daughter, converts an insulin pump into a power source by attaching it to her stomach, drawing energy from her own body electricity and providing an uninfected power source for her computer. Because the level of power output from her body is so low, it is one of the few input/output areas that passes unnoticed by the virus. Thus she is able to keep both Art and Mark safe through "body power."

10. Wolmark is referring here primarily to Gibson's version of cyberpunk, but although I would argue that a significant feature of the cyberpunk "ethic" is the uncritical celebration of technology, I do not believe that Gibson is necessarily uncritical. There is, however, no sense in his texts that technology must become accountable.

11. In <u>Consciousness Explained</u>, the philosopher Daniel Dennett explains that memes are also carried by "meme vehicles" such as books, pictures, sayings, etc., arguing that "A meme's existence depends on a physical embodiment of some medium" (203-204)

12. Daniel Dennett, who writes "a human mind is itself an artifact created when memes restructure a human brain in order to make it a better habitat for memes" argues that because memes and minds are inextricably associated, "the 'independent' mind struggling to protect itself from alien and dangerous memes is a myth" (<u>Consciousness Explained</u> 207). See also Susan Blackmore's <u>The Meme Machine</u> and J. M. Balkin <u>Cultural Software</u>, which argue for the symbiosis of memes and their hosts.

13. Among other things, the Church of Virus is "a forum for rational discourse, a memetically engineered atheistic religion, a synthesis of religion and evolution, the best possible conceptual framework for living and thinking, a neo-cybernetic philosophy for the 21st century, Darwin's dangerous idea out of control, an extended phenotype of the Virion Council." You may become a member as well as a "vector," or one who spreads the word by copying the church's logo to your very own home page.

14. *infection strategy*

Any memetic strategy which encourages infection of a host. Jokes encourage infection by being humorous, tunes by evoking various emotions, slogans and catch-phrases by being terse and continuously repeated. Common infection strategies are "Villain vs. victim", "Fear of Death", and "Sense of Community". In a meme-complex, the bait co-meme is often central to the infection strategy. (See replication strategy; mimicry.) (GMG)

vaccime

(pron. vak-seem) Any meta-meme which confers resistance or immunity to one or more memes, allowing that person to be exposed without acquiring an active infection. Also called an `immuno-meme.' Common immune-conferring memes are "Faith", "Loyalty", "Skepticism", and "tolerance". (See: meme-allergy.) (GMG.)

vector

A medium, method, or vehicle for the transmission of memes. Almost any communication medium can be a memetic vector. (GMG)

immuno-depressant

Anything that tends to reduce a person's memetic immunity. Common immuno-depressants are: travel, disorientation, physical and emotional exhaustion, insecurity, emotional shock, loss of home or loved ones, future shock, culture shock, isolation stress, unfamiliar social situations, certain drugs, loneliness, alienation, paranoia, repeated exposure, respect for Authority, escapism, and hypnosis (suspension of critical judgment). Recruiters for cults often target airports and bus terminals because travelers are likely to be subject to a number of these immuno-depressants. (GMG) (See cult.)

retromeme

> A meme which attempts to splice itself into an existing meme-complex (example: Marxist-Leninists trying to co-opt other sociotypes). (GMG)

15. For an overview of the field, see Levy, D.A. and Nail, P.R. (1993) Contagion: A theoretical and empirical review and reconceptualization. *Genetic, Social and General Psychology Monographs* 119: 235-285. Elaine Showalter's recent cultural studies work <u>Hystories</u> (1997) represents a recasting of the idea of social or emotional contagion; using a feminist psychoanalytic approach, Showalter examines chronic fatigue syndrome, Gulf War syndrome, recovered memories of sexual abuse, multiple personality disorder, satanic ritual abuse, and alien abduction as examples of what she calls "hysterical epidemics." Her contention is that hysteria, far from being eradicated as a syndrome, is very much alive and proliferating in contemporary culture:

> Hysteria not only survives in the 1990s, it is more contagious than in the past. Infectious diseases spread by ecological change, modern technology, urbanization, jet travel, and human interaction. Infectious epidemics of hysteria spread by stories circulated through self-help books, articles in newspapers and magazines, TV talk shows and series, films, the Internet, and even literary criticism. The cultural narratives of hysteria, which I call *hystories*, multiply rapidly and uncontrollably in the era of mass media, telecommunications, and e-mail. (5)

16. For analyses of the visual representations of the virus that corresponded with the emergence of HIV, see Treichler, Patton, Martin, Haraway.

17. In <u>William S. Burroughs</u>, Jenny Skerl writes,

> Burroughs attacks all either-or thinking, especially the separation and opposition of mind and body, word and world, birth and death, pleasure and pain, male and female. It is these concepts, according to Burroughs, that trap us into bodies that can be manipulated by power elites. The primary form of control is a sexuality in which the Other Half is a yearning for another body to assuage the feeling of separation caused by dualism. (123)

18. See Scott Bukatman's chapter "Terminal Image" in <u>Terminal Identity</u> (1996) for an analysis of the image/media virus employed by Burroughs and Baudrillard.

19. What is presumably "spreading" in the Nike commercials is the phenomenon of March Madness, not necessarily Nike itself (unless we count the spread of Nike through the agency of advertising). With MTV, another marketing behemoth, we have the case of a logo even more explicitly associated with a pathogen. Last year, users who

frequented the network's web site found themselves immediately confronted with the logo's newest incarnation: MTVirus.

The site is an interactive database, in which the user may obtain information by using laboratory tools such as a microscope (or "tubescan") and a syringe. The "viruses" themselves are quite large and blobby, and one must "freeze" them with the syringe in order to glean the latest music news. What is particularly unusual about the site is the Jules Verne-styled equipment and laboratory, which makes an interesting complement to the high-tech aura surrounding contemporary virus research. For a treatment of MTV as a "media virus," see Douglas Rushkoff's Media Virus!: Hidden Agendas in Popular Culture.

20. To be fair, Balkin notes in his introduction he does not believe the human mind works like any existing computer, and writes that "it is highly misleading to think of individuals as consisting of identical hardware into which identical copies of software are sold" (5).

21. In How We Became Posthuman, Katherine Hayles observes, "The world that Snow Crash depicts–part virtual, part real–is driven by a single overpowering metaphor: humans are computers . . . . As if in response to the cybernetic models of the brain, Neal Stephenson reasons that there must exist in humans a basic programming level . . . at which free will and autonomy are no more in play than they are for core memory running a program" (272).

22. Like Dawkins, Stephenson assumes that a sufficiently educated, or "rational" mind, is more able to fend off memes that those not as accustomed to analyzing and evaluating ideas. The more one reasons, presumably, the more one is able to prevent certain memetic infestations. Juanita, one of Hiro's partners, suggests that the brain can innoculate itself: "Your brain has an immune system, just like your body. The more you use it–the more viruses you get exposed to–the better your immune system becomes" (429).

23.   Under the right conditions, your ears–or eyes–can tie into the deep structures, bypassing the higher language functions. Which is to say, someone who knows all the right words can speak words, or show you visual symbols, that go past all your defenses and sink right into your brainstem. Like a cracker who breaks into a computer system, bypasses all the security precautions, and plugs himself into the core, enabling him to exert absolute control over the machine. (395)

24. Pentecosts, in addition to practicing glossalia, are notorious as snake-handlers, indicating another connection to the ancient worship of Asherah.

25. Interestingly, the "Church of Virus" website, which promulgates a similar theology, lists Snow Crash among the recommended books for its adherents.

26.   In her analysis of <u>Snow Crash</u>, Barbara Browning, commenting on the association of the Christian Right and attitudes towards AIDS, observes that "the subtler point behind the blunt political irony of corporate Christianity behind a plague spread by infected bodily fluids is that even the most 'orderly' of contemporary 'lifestyle choices' is already infected with others" (134).

27. Like the viruses discussed in Chapter One, this viral weapon is equated with a nuclear bomb. It "explodes" in the Metaverse, before the eyes of thousands of hackers.

28. As Hayles says of Stephenson's novel, "Although <u>Snow Crash</u> obviously comes down on the side of preserving autonomy, individuality, and consciousness, it also reinforces the equation of humans with computers . . . . Emphasizing the force of performative language in an infoworld, it *performs* the construction of humans as computers" (278).