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# Tomorrow through the Past

## Neal Stephenson and the Project of Global Modernization

Edited by
Jon Lewis

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Finally, I dedicate this work to my family.

# PREFACE

Neal Stephenson was born in 1959; unlike some of the writers he is compared to, including Thomas Pynchon and Don DeLillo, he is a child of the 1960s and '70s, not the 1940s and '50s. In particular, Stephenson's fifth novel, *Cryptonomicon* (1999), has drawn comparison with both *Gravity's Rainbow* (1973) and *Underworld* (1997); Stephenson has said such associations do not displease him, but what distinguishes his voice and body of work is his examination of technological innovations coupled with a fast-paced prose style that appeals to a wide audience ranging from SF enthusiasts to hard scientists and literary scholars. And while Stephenson is closer in age to William T. Vollman and David Foster Wallace, he generally displays a less ironic sensibility than such writers, and *Snow Crash* (1992) and *The Diamond Age* (1995) certainly fit more within the boundaries of genre fiction, particularly science fiction. Likewise, while Wallace's short works appear in *Harper's* and *Gourmet*, Stephenson's appear in *Wired* and *Forbes*.

Although Stephenson grew up with the Vietnam War, not the Second World War like DeLillo and Pynchon, thus far, only one of his characters saw military service in Vietnam and it occurs off the page. On the other hand, World War Two figures as an important connection between two of the main characters in his breakthrough novel, *Snow Crash*, and nearly half of *Cryptonomicon* is set in the European and the Pacific theaters of war. Most importantly, throughout his novels, Neal Stephenson continually demonstrates the human costs of global modernization, and although his stories always revolve around the creative forces in societies—the engineers, the innovators, the savants—they do so without completely sacrificing these characters' humanity to celebrate or fetishize their handiwork.

Unlike such writers as Wallace, John Barth, and Toni Morrison, Stephenson does not hold a teaching post, nor does he regularly appear at writers' conferences and the like; we might term him a literary hacker coding his narratives each morning. He also sits on the board of Blue Origin, Amazon.com founder Jeff Bezos' space exploration start-up. He says that his down time in the afternoons recharges his creative batteries, but like his most famous character, *Snow Crash*'s Hiro Protagonist, one can imagine Stephenson hunkering down in his office listening to speed metal and other "relentlessly loud" music while coding his texts.[i] The metaphor of Stephenson as a kind of literary engineer programming his texts fails a bit with the knowledge that he

wrote the first draft of the immense, three volume *Baroque Cycle* (2003-2004) in long hand. Perhaps a better metaphor can be drawn from *Cryptonomicon*, where an IT entrepreneur named Randy Waterhouse employs an epistemology drawn from J.R.R. Tolkien's *Lord of the Rings* (1954-55) to describe himself and others. He labels academics, such as his girlfriend Charlene, "Hobbits," saying that they are squabbling creatures, out of touch with the real world, and living in the protected, isolated Shire that is the ivory tower. By contrast, Randy thinks of himself as one of Tolkien's Dwarves: "stout, taciturn, vaguely magical characters who spent a lot of time in the dark hammering out beautiful things, e.g. Rings of Power" (80-81). While Stephenson is a thin man, he generally does not seek publicity; unlike Wallace, for example, he has not appeared on programs like *The Charlie Rose Show*, but he is surely not in Salinger's or Pynchon's league as far as being a recluse. As he says on his website, his time is spoken for. But there is perhaps some self-effacement in the Tolkien epistemology, with the image of Stephenson going down to the basement to hammer out his beautiful creations while groups like Soundgarden or Audioslave pound away on his eardrums.

This collection began with five presentations at the 2006 XX$^{th}$ Century Literature Conference at the University of Louisville; four of those essays appear here in expanded versions. Although his works are now met by reviews in popular magazines and newspapers as well as academic journals, this is the first volume of scholarly essays focused exclusively on Stephenson. The contributors hope that the essays will open the works to general readers and instructors and provide a foundation for academics building the body of critical responses. After a general introduction to Stephenson, the novels, and some of his major themes, we will examine each novel originally published under Stephenson's name (more on that shortly). There is one essay on Stephenson's long non-fiction piece on computer operating systems, *In the Beginning ... Was the Command Line* (1999); however, we will not examine his uncollected short stories, shorter non-fiction pieces, or the collaborations between Stephenson and his uncle George F. Jewsbury originally published under the name "Stephen Bury," *Interface* (1994) and *The Cobweb* (1996). In 2005, these novels were republished under the names Neal Stephenson and "J. Frederick George," Jewsbury's pseudonym. They are thrillers along the lines of Tom Clancy's Jack Ryan series, and Stephenson has said that at first, he and his uncle thought that Stephen Bury would support Neal Stephenson's work. Since *Snow Crash*, the Stephenson name has been able to carry itself, to say the very least. Most of all, we feel that as Stephenson's work has expanded beyond the early "Damn! I hadn't thought of *that* but somebody should *totally* do it!" works to the mature engagements with the scope and scale of modernization in western civilization,

it is time to afford his works the attention they demand. He is one of America's finest writers, with a career that promises continued, relentless challenges to notions of "genre fiction" itself while aggressively setting intellectual and technological agendas.

# INTRODUCTION

## Biography

David Town Stephenson and Janet Elaine Jewsbury met in Pullman, Washington in 1954; they were married three years later. They were students at Washington State University where David majored in electrical engineering, Janet in chemistry. After graduation, David's Army service and graduate work took them to Massachusetts, Maryland, and Illinois. More importantly, Stephenson's parents both come from families with scientific and academic traditions: David's father was a physics professor and Janet's father was a biochemistry professor. While we should perhaps take the "About the Author" section of *Snow Crash* with a large grain of salt (see author interview), Stephenson there describes his family as "a clan of rootless, itinerant hard-science and engineering professors (mostly Pac-10, Big 10, and Big 8 with the occasional wild strain of Ivy)" (441). It is true that from 1960 to 1966, Janet was a laboratory technician in biochemistry, and David was a graduate student at the University of Illinois. By 1966, David had completed his doctoral work and took a position at Iowa State University in the Department of Electrical and Computer Engineering; he is now an emeritus professor and active with a group that plays medieval music on period instruments. In 1973, Janet returned to the lab, working in the Biology Department at Iowa State until her retirement in 1992. Demonstrating this "clan's" wide range of interests, Janet's brother George F. Jewsbury, Stephenson's collaborator on the "Stephen Bury" novels, recently retired from his career as a historian at Oklahoma State University. It is easy to see how deeply the family's interests, careers, and predilections impacted Stephenson's writings, and one can surely see some roots of the Waterhouse clan, a group composed of mathematicians, engineers, astronomers, linguists (including Qwghlmian, the invented language of Stephenson's fictional island nation in the North Sea), and physicists in *Cryptonomicon* and *The Baroque Cycle*, in the Jewsbury and Stephenson families.

Neal Town Stephenson was born at Ft. Meade, Maryland, home of the National Security Agency, on October 31, 1959; his sisters were born in 1963 and 1969. He grew up in two college towns, Urbana and Ames, and as he describes *In the Beginning ... Was the Command Line*, he was first exposed to computers at Ames High School: "after a few introductory lectures, we students

were granted admission into a tiny room containing a teletype, a telephone, and an old-fashioned modem consisting of a metal box with a pair of rubber cups on the top" (9). It was a watershed moment, to be sure, but one may notice that nowhere in this description does the word "computer" appear. In those dark days, Neal and his classmates interfaced with the mainframe at Iowa State through the same technology that had been sending and receiving telegrams for decades. It was slow and arduous work, but at least there was no spam. More importantly, of course, the seed of Stephenson's interest in working with computers was sown in Ames and grew to play an important role in his college career and his literary interests.

He graduated from Ames High School in 1977 and matriculated to Boston University. Stephenson did not exactly follow in his mother's and father's footsteps and go into engineering or chemistry, but he did not major in English or creative writing, nor does he have an M.F.A. from Iowa or one of the other traditional writing programs. Rather, Stephenson initially declared a course of study in physics but switched to geography. He began to write fiction while a student and graduated in 1981. In the four years after he graduated, he worked odd jobs but eventually achieved two milestones: Vintage published *The Big U* in 1984, and the next year he married the pediatrician Ellen Lackermann. They have since lived mainly in Seattle with their children.

As is often the case with popular writers, Stephenson's work has been marked (and marketed) as genre fiction; in his case "science fiction" or "cyberpunk" are the most common labels, and he is often grouped with writers like Philip K. Dick, William Gibson, and Bruce Sterling, to name just three. This is not to say that "sci-fi" or "cyberpunk" are pejoratives; rather, such terms are often over used as well as over-simplified and reductive. Stephenson's works are often firmly entrenched in technological innovation, but they also demonstrate the misleading and limiting nature of such labels. *Snow Crash* and *The Diamond Age* offer hope amid the dystopic futures, but it is often elusive and resides in his human characters, not in the technologies they create or rely on. And while such authors as Ray Bradbury and Margaret Atwood have rejected the label "science fiction" for "speculative fiction," Stephenson maintains that he has always been a science fiction writer.[ii] However, it is profitable to view Stephenson's novels through the speculative fiction lens because, they "project worlds," to employ Oedipa Maas' phrase from Thomas Pynchon's *The Crying of Lot-49* (1965), to force readers to question the stability of the contemporary social order, the use values and corresponding human costs associated with technological innovations, and/or history's "progress."

Like Gibson, Atwood, and other writers who create images of future dystopias or speculate on the future of technology, Stephenson certainly makes great use of computers and other inventions in his writings; however, it is a

mistake to think that he is only interested in stories about digitized people, places, or things. That said, it was the publication of *Snow Crash* in 1992 that first brought him commercial and critical success; it also marked the moment when he became firmly filed under cyberpunk. According to Bruce Sterling's "freeware" essay "Cyberpunk in the Nineties," before the term cyberpunk "acquired its handy label and its sinister rep, [it] was a generous, open-handed effort, very street-level and anarchic, with a do-it-yourself attitude, an ethos it shared with garage-band 70s punk music."[iii] In other words, cyberpunk was a line of flight from established narrative styles, forms, and genres; like punk music, it broke out of the stagnation of 1970s culture. Of course, over the last 30 years, both cyberpunk fiction and punk music have been reterritorialized and are now largely part of the mainstream. No longer underground movements, both genres are accepted parts of the larger culture with established behaviors, characters, plots, themes, and fashions. As the Dead Kennedys sang in the 1980s, chain stores like Hot Topic now have "Anarchy for Sale" at the mall. Or, as Sterling says,

> When "cyberpunk writers" began to attract real notoriety, the idea of cyberpunk principles, open and available to anyone, was lost in the murk. Cyberpunk was an instant cult, probably the very definition of a cult in modern SF. Even generational contemporaries, who sympathized with much *Cheap Truth* rhetoric, came to distrust the cult itself—simply because the Cyberpunks had become "genre gurus" themselves. (n.p.)[iv]

The initial wave of cyberpunk was lost in the noise of fashion fads and commercialism, particularly the iconography of "mirrorshades" and black trench coats. Cyberpunk styles remains largely visually fixed in the culture, as the enormous box-office success of *The Matrix* series attests, through images of long black leather coats and mirrored sunglasses. In short, the term cyberpunk is reductive and vacuous, and according to Sterling, "'cyberpunk' simply means 'anything cyberpunks write.'" That covers a lot of ground and empties the term of much of its usefulness.

That history aside, *Snow Crash* is a novel about a 20-something, disaffected, racially mixed pizza "deliverator," hacker, and sword-fighter named Hiro Protagonist who lives in a U-Stor-It in Southern California. The novel traces his attempts to save the world through his programming acumen, cunning skills with samurai swords, and manipulations of the protocols of both real and virtual worlds. It is a violent novel, depicting a bleak society that has suffered a series of institutional crashes leaving governments, businesses, and lives fractured, decentralized, and franchised.[v] As such, *Snow Crash* is in many ways the prototypical cyberpunk novel.

For Stephenson's works, cyberpunk is an easily used, but ultimately inadequate adjective that is employed to describe what he does; it does not seem to matter that in *The Diamond Age*, a technological elite social group has attempted to recreate the social and moral orders (and fashions) of Victorian England, or that in *Cryptonomicon*, Randy Waterhouse and his friends wear either blue jeans or custom-tailored business suits while using their computers for (largely) legitimate business, to say nothing of his Age of Reason *Baroque Cycle*. In short, for Sterling, Gibson, and Stephenson, the cyberpunk label appears difficult, if not impossible, to shed.[vi] Further, when Hiro buys a top-of-the-line Yamaha motorcycle and dons a "full black coverall that swaddles everything from toes to neck in breathable, bulletproof fabric" or when he describes Y.T.'s fetishized thrasher outfits and weapons in *Snow Crash*, one could argue that Stephenson is parodying the many derivative cyberpunk protagonists modeled on Gibson's Case and Molly (*Snow Crash* 253).

On the other hand, because *Snow Crash* appeared almost a decade after *Neuromancer* (1984) and other founding cyberpunk texts, critics such as Pavel Frelik have called it "second-generation cyberpunk," arguing that Stephenson breathes fresh air into the genre:

> His style of writing is distinguishably more sophisticated than that of other authors. . . . [*Snow Crash*] gave the whole cyberpunk literary community a sense of hope in the times of mindless copiers and identity crisis. This is also the reason for Stephenson's almost immediate inclusion in the canon and frequent comparisons to both Thomas Pynchon and William Gibson. (91).

In his creation of the Metaverse, a virtual reality far more negotiable and interesting than Gibson's cyberspace in *Neuromancer*, there are great affinities with cyberpunk. However, by coupling his technological visions with compelling plots that engage the economic and political forces that engineer the postindustrial, highly mediated worlds his characters *and readers* inhabit and create, Stephenson has re-engineered the contemporary American novel.

## The Novels

Stephenson's first published work, the campus novel *The Big U*, was not a commercial success and was out of print for several years. Perennial reprinted it in 2001 to coincide with the paperback release of *Cryptonomicon*. While it is not as strong as the later novels, *The Big U* is perhaps not as bad as Stephenson now claims; however, Peter Sands' essay here is the first serious treatment of it. For examples of Stephenson's derision of the novel, one can go to the "Juvenilia" section of NealStephenson.com where he says, "*The Big U* is,

in many respects, a juvenile work, and should be understood as such." On his older site on the Well, he says:

> [V]irtually all of the first edition ended up getting pulped [creating] an unnatural scarcity of the printed book. . . This scarcity caused the price of the first edition to become ridiculously high, and led to bootleg editions being posted on the Web. If the book were judged on its own intrinisic [sic] merits, it would not attract such a high price or engender such curiosity. *The Big U* is what it is: a first novel written in a hurry by a young man a long time ago."[vii]

While it may be "hurried," *The Big U* is a useful introduction to some of the ideas, settings, and themes that reappeared and evolved in the succeeding works. Although the location of the titular university is never given, Stephenson seems to have incorporated many elements of Boston and Boston University into a Mid-Western college town like Ames or Urbana. Stephenson's alma mater is known as "BU," and one of the landmarks in the book, the huge neon "Big Wheel" near a mega-dorm known as "the Plex," calls to mind the famous Citgo sign near the BU campus and Fenway Park.

With *The Big U*, Stephenson begins telling stories involving computer technology and artificial intelligence, role-playing, and collective identities as kinds of intelligences, patterns and concepts that we will see in the AI Librarian in *Snow Crash*; Chester, Avi, Andrew, and Randy's love of role-playing games in *Cryptonomicon*; and the franchised, quasi-nation states or "burb-claves" in *Snow Crash* and the Neo-Victorians, CryptNet, the Drummers, and other "phyles" in *The Diamond Age*. So from this standpoint, *The Big U* is most useful for seeing the development of Stephenson's voice and work. It is also not that bad a story, but certainly not as complex or satisfying as the later novels.

Boston also figures in two of Stephenson's novels published since *The Big U*. *Zodiac: The Eco-Thriller* (1988) is set in and around the Charles River and Boston Harbor. While focused on the environmental damage that has been done to this watershed, the novel is more than just an attack on modern industry for the damages inflicted upon nature. It also marks Stephenson's continued interest in non-traditional intelligences and networks of information that emerged in *The Big U* and extends into the much more successful—commercially and artistically—works, *Snow Crash* and *The Diamond Age*. Finally, Boston reappeared as the setting for the opening of *Quicksilver* (2003), the first volume of *The Baroque Cycle*; in this work, Enoch Root, a character introduced in *Cryptonomicon*, steps onto Boston Common at precisely 10:33:52 a.m. on 12 October 1713 just as an "executioner raises the noose above the woman's head" (3). For some in the scene, this will hopefully be Boston's last public execution and the end of the hysteria that has gripped the colony for twenty years. In other words, the struggle to end the witch trials is one place

where we can see the signs of modernization and rationalism's approach over, in this case, religious fundamentalism.

But since *Zodiac*, Stephenson's works interrogate the human condition as created or manipulated through scientific discovery and global modernization. In *Snow Crash*, authoritarian American institutions lie in tatters. The centralized governments have failed, and patchworks of franchised nation-states and suburban enclaves or "franchulates" and "burb-claves" have sprung up, offering limited protection, employment, and/or living spaces for their consumers and citizens, though the line differentiating such groups has become quite fuzzy. While they have not entirely "gone legit," groups like the Mafia, the Columbian drug cartels, and the Yakuza are no longer targeted by the authorities as the FBI and other agencies have themselves become such privately owned and operated franchises as "MetaCops Unlimited," "General Jim's Defense System," and "Admiral Bob's Global Security" and under no obligation to prosecute—their only obligation is to their shareholders. Stephenson's most commercially successful novel thoroughly questions the validity of social orders and ideas of social progress supported by unchecked and unregulated capitalism. But the novel remains popular largely because of the Metaverse, the massive online virtual reality used by the world's most powerful people; it remains a "very cool" idea, far more like what people have been trying to create than the grids Gibson describes in *Neuromancer*.

The Metaverse remains Stephenson's most famous creation, and interestingly, it began as a melding of video games and graphic novels Stephenson planned with artist Tony Sheeder. Apparently more work went into programming computers trying to make this work than writing the finished novel. As with the example of "Randy the Dwarf" cited earlier, we can see a little of Stephenson in his main character as we learn that as a young man, Hiro Protagonist "only understood one or two things in the whole world—samurai movies and the Macintosh—and he understood them far, far too well" (53). In the Acknowledgements, Stephenson describes how he also delved deep into the Mac as he and Sheeder tried to create the initial conception of *Snow Crash*:

> I became intimately familiar with the inner workings of the Macintosh . . . [and] it became clear that the only way to make the Mac do things we needed it to do was to write a lot of custom image-processing software. I have probably spent more hours coding during the production of this work that I did actually writing it, even though it eventually turned away from the original graphic content, rendering most of that work useless from a practical viewpoint. (440)

While this work was "useless" as far as creating an innovative graphic novel, we can see elements of the character's history coming from Stephenson's hacking and programming.

Fourteen years after the novel was published, elements of the Metaverse have been realized in the real world. Many Massive Multiplayer Online Role Playing Games, or MMORPGs, including "World of Warcraft" and "Star Wars Galaxies," have thousands of users developing characters, economies, and histories through on-line quests and adventures. While virtual spaces on the Metaverse's scale and fully rendered avatars that look exactly like their users have not yet been realized, they are coming; many games and gaming and non-gaming websites have created avatars with customizable options including some basic emotions.[viii] Of course, *Snow Crash* also shows that innovation is not only for the good; such paradigm shifts always unleash unexpected dangers as when Hiro realizes that the Metaverse has become as deadly as the dystopia of Reality. While Stephenson moves here from logical to, shall we say, wilder speculations in the two books set in the future, there is no question that *Snow Crash* and its follow-up *The Diamond Age* have set agendas for innovations that have only begun to be realized, as Gray Scott's essay "Interdisciplinary Sage: Reading Stephenson Across the Curriculum" demonstrates.

*The Diamond Age* differs in several keys ways from *Snow Crash*, but it is no less engaged with the dangers and benefits of future technological developments. *The Diamond Age*, like *Snow Crash* and many cyberpunk and science fiction novels, is set in a divided future, where technological, economic, linguistic, and social barriers separate the elite from the dispossessed. In Shanghai and other major waterfront cities in *The Diamond Age*, the powerful gather together in "phyles" that control Sources, essentially seawater mines that extract useful molecules and atoms directly from the ocean. Those without a phyle are known in the novel as "thetes," and theirs is a desperate lot. Stephenson opens the novel with a thete named Bud, who we later learn is the father of the novel's protagonist, Nell. Unlike Hiro and his associates, Nell is (initially) illiterate and spends most of the first part of the novel sequestered in the apartment she shares with her brother, Harv, and their mother, Tequila. Her life changes when Harv steals an interactive storybook called a "Primer" that teaches Nell to read, think, and defend herself, and that slowly raises her to maturity.

As the Metaverse remains the standout feature of *Snow Crash*, the possibilities held by nanotechnology applications like the Primer distinguish *The Diamond Age*. The Source is literally just the beginning of nanotech's applications that appear to reach nearly all aspects of human life, and nanotechnology holds great promise for real-world innovations. We would all conceivably appreciate the extended life expectancies gained through the eradication of such "obsolete" causes of death as "cancer, scurvy, boiler-explosions, derailments, drive-by shootings, pogroms, blitzkriegs, mine shaft

collapses, ethnic cleansings, meltdowns, running with scissors, eating Drano, heating a cold house with charcoal briquets [sic], and being gored by oxen" (*Diamond Age* 42). However, people still die, and Stephenson imagines how people could use such technological innovations to invent new ways of killing each other: "[Nanotech] spawned concern that people from Phyle A might surreptitiously introduce a million lethal devices into the bodies of members of Phyle B, providing the technically sweetest possible twist on the trite, ancient dream of being able instantly to turn a whole society into gravy" (51). As with *Snow Crash*, Stephenson's technological speculations foster explorations of the costs and benefits of modernization while at the same time engaging his readers' imaginations. And like Kurt Vonnegut, an author with whom Stephenson has some unexplored affinities, he can be darkly funny.

In the fifth novel published under his own name, Stephenson engaged on a significantly different course than in *Snow Crash* and *The Diamond Age,* as *Cryptonomicon* is less speculative than historical fiction. Rather than imagining what dangers and amusements tomorrow's technological innovations may bring, *Cryptonomicon* "retreats" from the mid and late 21st Century to the 1940s and 1990s to explore the roots and potential hazards of the Information Age. It is a long but remarkable extension of some of his common themes and widens his creative palate. That said, Stephenson's character Enoch "the Red" Root, a magical character who has been alive since at least the Enlightenment and who dies and is resurrected during the novel, shows that Stephenson has not completely left the conventions or paradigms of the Science Fiction and Fantasy genres behind. *Cryptonomicon*'s scope is startling, moving deftly across China, Japan, the Philippines, Australia, Hawaii, and the Pacific Northwest to the East Coast of America, the United Kingdom, Scandinavia, and Central Europe while shifting between two time periods. Characters also witness the Hindenburg disaster, the attack on Pearl Harbor, and the Holocaust, consistently bringing human suffering to bear upon the technological innovations we may (want to) see as benign.

Like *The Diamond Age*, *Cryptonomicon* opens in Shanghai, but rather than at least a half-century from the present, it is set a half-century in the past, at exactly "1645 hours. Friday, the 28th of November 1941," just before the Japanese invasion of the city and nine days before the attack on Pearl Harbor (1). There are of course hackers and warriors throughout *Cryptonomicon*; no Stephenson text lacks for them. The novel's prologue features a United States Marine named Bobby Shaftoe riding on a truck careering through the streets of Shanghai. In succeeding sections, we are introduced to Bobby's contemporary, Lawrence Waterhouse, a mathematician and code-breaker, and then his grandson Randy, a present-day hacker and IT entrepreneur. It may lack such a memorable technological innovation as the Metaverse or nanotechnology, but

parts of *Cryptonomicon*'s contemporary plotline details the attempts to construct a data haven, a secure site that could theoretically disable the ability of governments to track taxable income for corporations and individuals as well as foster the secure trading of information by anyone able to afford access to the haven. Stephenson's discussion of innovations that we take for granted today, such as digital memory, posits that the world of digital information networks resulted from the hot and cold wars in the second half of the 20th century, and these "encoded" roots may reappear in unexpected times and places. Demonstrating that Stephenson is not always completely prescient, data havens may have become obsolete before their use reached a tipping point because of the ever-increasing storage capabilities of flash drives and other easily transported, encryptable media.[ix]

However, recent allegations that the NSA and other government agencies are tracking bank accounts and other online financial information without warrants proves that the "paranoia" demonstrated by Avi Halaby and other characters in *Cryptonomicon* may be warranted. While cryptography and cryptology are (to some) not as exciting as virtual realities or nanotechnology, Stephenson demonstrates that it is one of the defining protocols at work in American (and, by extension, Western) society. Further, through the World War Two plotlines, he shows how the making and breaking of secret codes precipitated today's economic, political, and industrial conditions. In other words, while the Manhattan Project and the development of nuclear and other weapons may have turned the tide in the war against fascism and totalitarianism, the breaking of such codes as the Nazi's Enigma and the Japanese's Purple were at least as important to the war and especially the post-war world. And for his most recent works, the three volume of *The Baroque Cycle*, Stephenson continues his exploration of, among seemingly dozens of other topics and themes, the use of encryption techniques to hide and exploit information in war, commerce, and science.

*Quicksilver: Volume One of the Baroque Cycle*, was published in September 2003; the second and third volumes, *The Confusion* and *The System of the World*, were published in April and October of 2004, respectively. Each novel is nearly as long as *Cryptonomicon* and includes detailed maps of many of the settings; *Quicksilver* also includes the family trees of the Houses of Stuart, Orange-Nassau, Bourbon, Welf, and Hohenzollern, as well as a Dramatis Personae noting fictional and historical characters. The project is immense in scope and ambition; there can be no claims of incompleteness against the *Cycle*. Thus far, it stands as Stephenson's grandest achievement, though one could argue that *Snow Crash* will likely remain the most accessible and taught text, much in the way that *The Crying of Lot-49* remains Pynchon's most taught work

despite the greater achievements and reputation of *Gravity's Rainbow* (1973) or *Mason & Dixon* (1997).

The *Cycle* opens in 1713 with a state-of-the-art transfer of information: Enoch Root has carried a letter across Europe and the Atlantic to Colonial Boston in hopes of delivering it to Daniel Waterhouse. The letter was written by Princess Caroline of Hanover nearly a year earlier and urges Daniel to return to Europe and mend the rift between his old friends Sir Isaac Newton and Gottfried von Leibniz. While his readers may not be able to conceive of non-instantaneous communication, Stephenson is able to illustrate that the timely exchange of information was no less a part of Enlightenment life than today. Further, the novel examines the Age of Reason origins of many economic and state protocols that we take for granted today including the exchange of stock, laws of credit, and solid currencies that were in large part created by the kinds of people, if not the actual historical figures, who appear in *The Baroque Cycle*.

At the same time, Stephenson also demonstrates that as the scientific and economic revolutions that essentially established Western modernity were being unleashed by savants like Leibniz and Newton (and Christopher Wren, Robert Hooke, and Christiaan Huygens among others who appear in the *Cycle*), there were also forces battling for political control of Europe and the new colonies across the New World, Africa, and Asia. For monarchs and other leaders like Louis XIV, William of Orange, and Peter the Great who appear in the *Cycle*, such natural philosophers as Newton and Leibniz and their works were only tools of state, to be used when deemed useful, but otherwise largely ignored. The creation of new ideas, concepts, or technologies can unleash terrors that must be met by those Stephenson identifies as "Athenians:" the Waterhouses and Shaftoes, and Hiro, Nell, and Hackworth. In such moments, modernity's progress can halt or continue, be shattered or extend in new and interesting ways.

In the end, the contributors hope that all of the essays in this collection will open dialogue on the works and give readers a richer reading experience, teachers additional sources and ideas for their classrooms, and critics further contexts useful for pushing forward Stephenson studies. I certainly hope that Louisville marked the first series of panels dedicated to Stephenson and that more scholars examine his works in the larger contexts of American literature.

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## Notes

[i] The phrase "relentlessly loud" comes from the "About the Author" blurb in *Snow Crash*; one could make the argument that it describes Stephenson's prose style in many sections of his work, though Neal appears to be mortified by the blurb—see interview below. In particular, his openings often throw readers into a maelstrom of ideas that the remainder of the work relentlessly interrogates and explores.

[ii] See Marleen S. Barr's "Introduction: Textism—An Emancipation Proclamation" (*PMLA*. 119.3 (May 2004): 429-42) for a recent discussion of the field of science fiction studies and the reluctance of many scholars and writers of works that fit the genre of SF to take it seriously.

[iii] Sterling's essay appears on many websites and is generally marked "not for commercial distribution." As with open-source software, many early cyberpunk writers gave away their works; there are many essays such as "Cyberpunk in the Nineties" that exist online in efforts to make such information freely available to as many people as possible.

[iv] "Cyberpunk's one-page propaganda organ, *Cheap Truth* was given away free to anyone who asked for it" (Sterling n.p.). This 'zine was "killed off," Sterling reports, by its creators in 1986.

[v] The first editions of *Snow Crash* began with three definitions: "snow," "crash," and "virus." The definition of crash is drawn from *The American Heritage Dictionary* and reads, "v. … —intr. … 5. To fail suddenly, as a business or an economy." This meaning

is used to establish the mood and circumstances of Hiro and Y.T.'s present. Strangely, these definitions have been removed from recent editions, a grave loss.

[vi] As Sterling says in "Cyberpunk in the Nineties," "the dreaded C-Word will surely be chiselled [sic] into our . . . tombstones."

[vii] Neal's site on the Well, <www.well.com/user/neal>, is out of date, but it does have some information that has not been ported to <www.NealStephenson.com>.

[viii] For example, some gambling sites, capitalizing on poker's recent popularity, have been creating look-alike avatars, as yet not fully expressive, for their professionals and awarding similar avatars to successful amateurs; see <www.FullTiltPoker.com> for example. The avatar economy based upon mass-produced "Brandies and Clints" in *Snow Crash* may not be far behind.

[ix] As of this writing, a data haven does exist in the sovereign principality of "Sealand" located on an abandoned oilrig in the North Sea; see <www.sealandgov.com>. However, in June of 2006, Sealand suffered a devastating fire; it remains to be seen if it will survive. The company that created the data haven is called "Havenco" and their web-address is <www.havenco.com>.

# CHAPTER ONE

# INTERDISCIPLINARY SAGE: READING STEPHENSON ACROSS THE CURRICULUM

GRAY SCOTT

The question I will attempt to answer here is simple and relatively unambitious: How do economists, geographers, molecular scientists, engineers, and other non-literary scholars or specialists respond to the writing of Neal Stephenson in their own work? Simple though it may be, it is not an idle question. The fate of a literary work is necessarily tied to the ways that readers use it. When imagining such readers, it is easy to focus on the casual fan, the literary scholar, or the cultural critic. But stakeholders in the fields, industries, and disciplines under discussion are also a key part of the audience, and the ways that they react to or use a literary work can be seen as an accidental, but important, type of literary criticism. Such a study seems particularly appropriate to Stephenson, whose novels keep shifting the cyberpunk paradigm by borrowing from diverse fields.

The paper that follows belongs, then, to the same general phylum as a literature review—except that, rather than focus on what has been said about Stephenson by literary and cultural critics, I have focused on references in unexpected places. For example:

- When a geographer recommends making Stephenson's *The Diamond Age: Or, a Young Lady's Illustrated Primer* a key text in a graduate seminar (Wall 389-391),
- Or when a past director of the Central Intelligence Agency spends part of a speech talking about *Snow Crash* (Derian para. 38),
- Or when a hedge fund guru names Stephenson's *Quicksilver* the best business book of the year (Kessler, quoted. in Budman 70).

In many cases, scholars and other experts seem to be drawing on Stephenson, not for the usual literary allusions or critical ammunition, but for ideas, insights,

foresight, and inspiration. If so, it is a trend worth describing. This is, however, merely an exploratory survey. It will be light on theory and other sorts of literary review, to afford more space for cataloguing of Stephenson usages. I do not claim that this catalogue of uses is comprehensive or complete–merely that it is indicative. I have organized my findings by discipline. Stephenson's treatment by the nanotech and genetics crowd provides us with a nice baseline for comparison with other fields, so I will start there.

## Small-Scale Fields

Along with K. Eric Drexler's *Engines of Creation* (1986)—a work of non-fiction that has helped to rally support for nanotechnology research by describing its promises—Stephenson's *The Diamond Age* appears to be one of the more reliably cited sources regarding untapped small-scale possibilities. The novel paints a sometimes stark, sometimes inspirational picture of a future in which molecular engineering has made diamondoid construction commonplace. Just as mastery of stone, iron, and bronze led to their respective ages, so does mastery of the carbon atom's diamond configuration. With its careful explorations of social and technical trends (particularly nanotechnology) taken to extremes, the novel seems to have attracted attention from experts with their eyes on the horizon.

It would be a mistake, though, to assume from the above comments that discussions of the novel abound in technical or experimental reports. The novel is, to be sure, cited in these genres, but seldom ostentatiously. When novels are invoked in technical literature, the usual approach is to make a quick reference to possibilities hitherto unexplored in the real world, with a footnote or endnote that lists some appropriate novel, and this is essentially what we see with Stephenson's *The Diamond Age*. For instance, chemists Michael Sailor and Jamie Link describe three modes of mobility for nano-sized devices in an article on smart dust. The first of these modes is autonomous motion. The authors note that while "there are many examples from cellular biology, examples of autonomous motion of artificial nanostructures tend to be found only in the science fiction literature at present," a comment for which the endnotes obligingly list *Fantastic Voyage* (1966)*, The Diamond Age,* Michael Crichton's *Prey* (2002)—and *The Cat in the Hat* (1957) (Sailor and Link 1380).[i] Like most science-fiction novels in most technical reports, Stephenson's earns a quick tip-of-the-hat in an endnote, sans elaboration.

The practice is, of course, completely understandable, though not for the reasons one might initially suspect (say, that science journals are too stuffy and serious to bother with novels). Novel citations, though uncommon, are frequent enough in technical literature that a bias against fiction is a dubious

explanation. Indeed, because space is at a premium in such reports, most *nonfiction* sources receive a similar treatment. Furthermore, experimental and technical research reports are, rhetorically speaking, *forensic* documents, designed to establish a point of researched or laboratory fact. Because of this, they dwell primarily in the present and immediate past. Not belonging to the *epideictic* or *deliberative* branches of rhetoric, they have little interest in discussing a text that deals with future possibilities, except perhaps in conclusion sections, where ramifications of the just-reported research are briefly touched upon. In short, the treatment of science-fiction works described above should not be taken as a slight on the genre, or even as a sign of embarrassment. In Sailor and Link's article, for instance, the cited science fiction works play an important if subdued and fleeting role: They describe points on a map of progress, points we have not yet reached, but which, according to the context of the citation, are viable, anticipated points nonetheless. However, since we have not yet reached them, they merit little discussion in an article about research that *has* been completed. For the most part, sustained discussion of future possibilities, or of literary inspiration, belongs not in the experimental or research report but in other scientific genres.

Nevertheless, there are signs that those who walk in technical circles find Stephenson unusually interesting, if one looks to oral presentations and organizational Web sites grappling with small-scale technology. For instance, erstwhile computer science professor and Microsoft researcher Turner Whitted includes not one but two Stephenson allusions in the title of a talk recently delivered at the Symposium on Information Processing in Sensor Networks. The title of his talk, "Snow Crashing the Diamond Age: Mobile Devices meet Sensor Networks," invokes two of Stephenson's better-known cyberpunk novels: *Snow Crash* and *The Diamond Age*. Their casual use in the title suggests that the writer feels safe assuming most audience members will be at least passingly familiar with Stephenson's work, implying that Stephenson is probably widely read in the field, and discussed enough that mutual awareness of that familiarity has set in. Moreover, the fact that a professional feels comfortable invoking them in a title, and having his book judged by that cover, hints that perhaps Stephenson's work is taken at least somewhat seriously. This interpretation might seem to be a stretch, if one imagines that references to non-serious works like *Flash Gordon* or *Star Wars* might just as easily be made in a conference proceeding without observers necessarily assuming anything about the speaker's sensibilities. But in many ways non-serious, pulp works are safer to invoke than works like *Prey* and *The Diamond Age*, which clearly take their observations seriously. If a climatologist makes headline reference to Crichton's environmentally skeptical novel *State of Fear* (2004) without clearly setting up the novel as a target for rebuttal, it will not be terribly surprising if

members of the audience assume he agrees with Crichton's argument. Similarly, to invoke the seemingly authoritative *Diamond Age* is likely to be taken as tantamount to a kind of endorsement, and the speaker is likely to know this.

Some confirmation of this general endorsement appears in places like the Web pages of the Foresight Nanotechnology Institute (see, for instance, "Media Watch" para. 11). Another, better indicator appears in a *Science* article that describes Michael Crow—then Columbia University's science policy expert, now president of the nanotech-focused Arizona State University—asking an audience of researchers and government leaders at a nanotechnology conference, "How many of you have read *The Diamond Age?*" (Service 1524). Had the question pertained to something like Michael Crichton's *Prey*, which outlines a horrific scenario of nanotech run amok, the question might have been defensive, a set-up for a ritual debunking of fears and worries. Crow, however, claims his purpose in asking about *The Diamond Age* was to "encourage researchers to think about their unique position at the dawn of a field that most in the room agreed will be a force in the coming century" (1524). That is, although expressly not citing *The Diamond Age* as "prophecy" (1524), Crow sees the text as useful for launching discussions of the future roles of practitioners in the field.

Such discussions necessitate a shift in rhetorical branch, from the forensic to the deliberative, and this is where discussions of Stephenson's novels (while still on the subject of small-scale research) become interesting—on the peripheries of nanotechnology and genetics, where commentators lurk and the questions deal with policy, ethics, and philosophy. Some of these discussions, meanwhile, imply that Stephenson's writing is having a more pronounced effect on nanotech research than is indicated by overt citations. In one such instance, science philosopher Joachim Schummer argues that nanotech research is presently *multidisciplinary*, rather than *interdisciplinary*. Nanotech researchers in fields as diverse as chemistry, physics, and engineering are using incompatible terms, definitions, and paradigms, and thus are not as well equipped to collaborate as practitioners might like. Schummer cites, by way of example, the mechanical paradigm invoked by Drexler to describe atomic manipulation. Drexler posits a "universal assembler," a paradigm derived from mechanical engineering, where precision manufacturing is the norm. Stephenson, however, assigns a "matter compiler" to this same purpose, a paradigm which Schummer notes is drawn from computer science (19). Schummer suggests that these and other paradigms are not always compatible. One result of this paradigm-mixing is that nanotech research is as balkanized and insular as the American landscape in *Snow Crash*.

That Stephenson's paradigm warrants a mention in Schummer's discussion is intriguing, for it suggests that, whether researchers intend it to do so or not, or indicate it in citations, Stephenson's compiler paradigm might be haunting the ways that they are approaching the problem. Media scholar Robert Hassan makes a similar point when he argues—after noting the subtle effects of William Gibson and Stephenson on thinking about the World Wide Web and other new media—that "the use of conceptual categories emerging from sub-genres of literature as a way to articulate the new technotemporal 'zeitgeist' can skew our perspective if we take them too literally" (232).

Nevertheless, Schummer later argues, in a collaboration with Rosalyn Berne for the *Bulletin of Science, Technology and Society*, that science-fiction works like *The Diamond Age* are well-suited for teaching ethics to engineering students. The core of their argument is based on the long-standing, indeed ancient, use of literature to teach moral and ethical responsibility. Berne and Schummer contend that science fiction literature has the potential to serve the same purpose for future nanotechnology specialists that classic literature once served in the raising of aristocrats and princes. The key point to their argument, however (and what makes this particularly interesting to Stephenson readers) is that not just any science fiction work will do. Many seemingly eligible works, such as *Frankenstein* (1818, 1831), have an unfortunate side effect in that they serve to widen the two-cultures divide through arguments that are largely anti-science. These sorts of books are rejected by Berne and Schummer, who contend that stories used in teaching engineering ethics "need to raise moral issues that are considered both important and realistic, in the sense that they are sufficiently complex and that similar scientific and technological capacities are likely to come in the near future" (461-62). Carefully selected works of science fiction can engage tomorrow's engineers in discussions of future dilemmas that are both alien and plausible, hence instructive.[ii] Based on the principle of avoiding *Frankenstein*-type novels, Berne and Schummer end up drawing an interesting distinction between *The Diamond Age* and Michael Crichton's *Prey*. Even though the latter is clearly well researched and includes a bibliography lauded by technical professionals, and even though much of it is thereby plausible, it is passed over because the authors believe it is not subtle enough.[iii] For the class in question, Berne and Schummer favor works that "bring to light the ambiguities and complexities of future social and moral life" (463).

The works that meet all the outlined criteria (ethical topics, plausible future, subtlety, complexity) are Flynn's *Nanotech Chronicles* (1991) and Stephenson's *The Diamond Age* (463-66). For the latter novel, Berne and Schummer make a number of points that, they suggest, might be suitable springboards for fruitful discussions, including the interesting observation that mastery over matter in the world described by the novel does not eliminate the

conflicts often ascribed to material shortages. That is, in *The Diamond Age*, we have eliminated resource shortages but *not* conflict, even though many discussions of politics and national interest hinge on the assumption that conflicts arise because of shortages. Clearly, in *The Diamond Age* universe, conflict emerges from something far more primal and less pragmatic. A second observation relates to privacy, as concerns over security (when threats can be microscopic) have trumped concerns over surveillance, so that when one visits even a close friend, one can expect to spend some time sitting in the foyer sipping tea while being discreetly checked out by security systems (466).

In another article, also on ethics, Berne compares the importance of works like *The Diamond Age* in discussions of nanotechnology to that of the film *Gattaca* in early genetics discussions, which were reportedly shaken up by the movie ("Tiny Ethics" 16). The comparison is an apt one. Nanotechnology has almost from inception faced ethical questions inherited from earlier controversies over genetic engineering, and discussions of social responsibility in the newer field frequently make reference to the earlier public relations disaster faced by those working in genetics. As James Wilsdon notes, molecular engineering and other nanoscale research are now under fire from the very organizations that rallied to oppose genetically modified food research more than a decade ago (17-18).

It is interesting, in light of this connection, to note that Stephenson, in an entirely different novel, appears to have contributed to the vocabulary of discourse surrounding scientific public-relations challenges. Nancy King, writing to the *Journal of Law, Medicine & Ethics,* credits her use of two terms to Stephenson's early novel *Zodiac*, in which his eco-warrior narrator describes corporate publicity as either *mediagenic* or *mediapathic*. His goal for much of the book is to ensure that toxic waste abuses are prominently and gloriously mediapathic. The first of these words is, of course, not original to Stephenson. *Mediagenic* has been around since at least 1973, according to the OED. However, Stephenson seems to get some credit from writers and bloggers (see, for instance, message board comments by ahpook) for popularizing its use. *Mediapathic*, its antonym, appears to be a Stephensonian neologism, on the other hand. King, citing Stephenson, argues that gene transfer research has a high public profile "for both good and ill," and is thus both mediagenic and mediapathic (383). This observation becomes the basis for her recommendations about oversight of the field.

## *Snow Crash* and Computer Science

Stephenson's contributions to vocabulary offer a fitting transition to a discussion of the ways computer scientists use his work, for it is difficult in

those pages to avoid references to the *Metaverse* or, particularly, *avatars*, both of which were introduced in Stephenson's most popular novel, *Snow Crash*. In computer science articles, first instances of these terms are often credited to Stephenson's hand, though Gerhard, Moore, and Hobbs do better digging than most. They note that use of the term *avatar* to indicate a virtual incarnation of a computer user dates back to the Habitat system of the 1980s, but give Stephenson credit for popularizing the term (457).

Regardless of the origins of his terminology, Stephenson's novel is obviously a celebrated one in the field, and his novel often appears to fire the imaginations of researchers. For instance, in an article simply titled "Avatars *a la* Snow Crash," Jan M. Allbeck and Norman I. Badler of the Center for Human Modeling and Simulation carefully deduce the required specs for Stephenson's avatars and plot our progress toward achieving them.

Glen D. Fraser, a software engineer, instead sets his sights on the central MacGuffin of *The Diamond Age*, a highly complex and interactive book called *The Primer*. He writes:

> I'd love to see storytelling become more realtime, as it is when one makes up a story for a child. The author may *have* had an ending in mind before beginning to recount the story, but the storyteller is flexible enough to change it dynamically as the story unfolds and the child's responses give him new ideas. One of my favorite visions of a futuristic storytelling device of this kind is the 'Young Lady's Illustrated Primer,' described in Neal Stephenson's novel *The Diamond Age*. (An interesting and relevant note: even that technological marvel of a book—the Primer—required significant realtime human input on the storytelling end!) Working towards such a device that can entertain, teach and enrich people's lives is, to me, a very noble pursuit. (15-16)

To fully understand Fraser's reactions to the fictitious Primer, a quick plot summary is helpful. In the novel, a street urchin named Nell finds a prototype for an interactive Primer (designed by a nanotech engineer named John Percival Hackworth for his daughter, but lost in a mugging), which after bonding with her quickly deduces she is illiterate and starts to teach her to read. It later teaches her self-defense, programming, and problem solving, and in the process helps her to become quite self-reliant. Much of the instruction is in the form of interactive storytelling: Nell answers a question or makes a comment, and the story changes before her eyes, incorporating the new information.

As will be made clear below, Fraser is far from alone in drawing inspiration from the novel, but he does seem to be unusual in making the observation that the most effective version of the Primer—Nell's—has a very human element: the vocal, real-time performances of a remote actress named Miranda, who develops a very real maternal bond with the girl she is speaking to through the book. True, Miranda's lines are scripted, and the brains of the

operation are located in the Primer, not the actress. Yet Miranda wields great power in her delivery, even when it is not always intended.

In one pivotal scene, Nell reveals to the book that her mother's boyfriend, Burt, has beat her so badly that she is now peeing blood. Though she and Miranda have never met in person (indeed, Nell has little idea that there a real woman is supplying the voice of the book, and certainly little idea that the woman on the other end is developing real, maternal interest in her) Nell immediately notices that the book's voice has changed slightly: "After a long silence, the Primer began to speak again, but the lovely voice of the Vicky woman who told the story sounded thick and hoarse all of a sudden and would stumble in the middle of sentences" (200). The book, meanwhile, has decided that Nell is no longer safe at home. In the parallel story that the Primer is telling, about a princess also named Nell, a character suddenly urges the princess to escape while her captor is passed out drunk:

> Miranda, sitting in her stage at the Parnasse, felt an overwhelming sense of relief as her next line appeared on the prompter. She took a deep breath before she delivered it, closed her eyes, settled her mind, tried to put herself there in the Dark Castle. She looked deep into Princess Nell's eyes and sold the line with every scrap of talent and technique she had. [….] *Please get out of there. Please run away. Get out of that chamber of horrors where you've been living, Nell, and get to an orphanage or a police station or something, and I will find you. No matter where you are, I'll find you.* (202, italics in original)

Setting aside Stephenson's clear conclusion that the Primer, though beneficial, performs best when it incorporates a human element, technical minds the world over are enthusiastically trying to do what Hackworth does: create interactive texts that can diagnose and respond to a child's real needs. Participants at the St. Thomas Common Sense Symposium on artificial intelligence (including artificial intelligence guru Marvin Minsky) report, in a discussion about the need to create AI systems capable of human-like "common sense," that:

> Several of the participants felt that such a project would not receive substantial support unless it proposed an application that clearly would benefit much of the world. Not just an improvement to something existing, it would need to be one that could not be built without being capable of human-level commonsense reasoning.
>
> After a good deal of argument, several participants converged upon a vision from *The Diamond Age*, a novel by Neil [sic] Stephenson. [….] This suggested that we could try to build a *personalized teaching machine* that would adapt itself to someone's particular circumstances, difficulties, and needs. The system would carry out a conversation with you, to help you understand a problem or achieve some goal. (122, emphasis in original)

Such an accomplishment is, of course, not only dependent on software and hardware, but on the pedagogical programming that goes into it. (Much of the story material in the Primer could be discussed in an education seminar drawing on child psychologist Bruno Bettelheim, for instance.) If the artificial-intelligence and nanotech crowd is going to make such a book, it might be worthwhile to put them in touch with colleagues in educational and psychological fields.

## Education, Psychology, and Other Behavioral Sciences

Judging from the reception that *The Diamond Age* has already received from educators, Minsky's group might not be far off the mark, for the *Illustrated Primer* is a popular vision in such circles as well. Michael McKenna encapsulates the educational view nicely. After describing the Primer and treating the reader to lengthy excerpts from Stephenson's novel, he writes that "This combination of interactivity, artificial intelligence, electronic scaffolding, and convenience, if realized, would unquestionably transform the roles of teachers and would render much of the present-day debate over instructional methods pedagogically pointless and transparently partisan" (383). Similarly open sentiments toward The Primer have been echoed in various forms by scholars such as Mark Goddard and Geneva Henry, the director of Rice University's Digital Library Initiative. Writing to the *Journal of Research on Technology in Education*, Goddard argues for better integration of technology in the classroom, in ways that "support" rather than "carry" the educational process (19). *The Diamond Age* appears in his argument as a model of such balance. The novel, he writes, "though science fiction, vividly imagines a world where a nearly seamless integration of technology guides the educational and experiential life of children" (21). Henry, in an opinion piece in *D-Lib Magazine*, challenges 20th century publishing models that have been imposed on new electronic infrastructure, arguing that new models of publishing and knowledge exchange are needed, models that enable better, fast-paced, mutually beneficial collaboration. *The Diamond Age* serves Henry here as a source of epigraphs and illustrative excerpts. She opens and closes her discussion with passages from the novel, and inserts several more in the main text, homing in for the most part on passages that demonstrate or explain the capabilities of the Primer, or that reveal its interactive nature. Although Henry does not explicitly talk about these passages in her main text (they seem to serve largely as decoration, at first glance), taken together they seem to support one of her primary reasons for wanting a more fluid, free, and collaborative online publication process: "Learning can occur more effectively and efficiently when knowledge is tailored to the needs of the consumer" ("Conclusion" section,

para. 1). In short, *The Diamond Age* serves in Henry's hands as a key part of an argument that our long-term goal for media should be media that better serves its end-users.

At the same time, educators draw on other aspects of Stephenson's work to illustrate principles already in play in present-day classrooms. For instance, Denner, Rickards, and Albanese's study of story-impression preview strategies (or SI strategies), appearing in *The Journal of Experimental Education,* notes that the use of detailed preview headings helps improve reading comprehension of textbooks. *The Diamond Age* is then brought on board as a lone example of this technique applied to novel-writing. The authors' observation helps underscore a fact about *The Diamond Age's* full title (*The Diamond Age: Or, a Young Lady's Illustrated Primer*) that is easy to overlook at first glance: The novel, like the book described *within* it, bills itself as a *Primer*–it, too, is in some ways an experiment in pedagogical technique.

Lest one receive the impression, however, that the only Stephenson novel being cited in educational discussions is *The Diamond Age,* I will cap this section with an exception to that general rule. Anthropologist David Price's "Outcome-Based Tyranny" draws instead on a scene in *Cryptonomicon* in which the math-geek protagonist Lawrence Waterhouse takes a Navy IQ test in 1940 and flubs it because he over-analyzes the question. Although Waterhouse fills up several sheets of paper solving a new theorem, and eventually publishes it, he doesn't meet the expectations of the exam, so the Navy assigns him to play glockenspiel in a military band, "thereby loosing [sic] a mathematician on par with Turing" (720). Price argues that "standardized tests are notorious for punishing individuals with specialized knowledge of topics," adding that "Stephenson's fictionalized scenario […] accurately summarizes the type of outcome produced by such nonstandard responses—the brilliance of the insight is secondary to its alignment with the legible, preordained answer" (720).

Price's invocation of *Cryptonomicon* provides us with a useful point of comparison for the earlier citations of *The Diamond Age*. Like the opening citation by Sailor and Link, Price's use of the novel is reasonably conventional–it serves him simply as an example, albeit a fictitious one, in the same way that business managers might talk about *King Lear* as an illustration of unwise executive decision-making. Such usages are an ancient tradition, dating back to at least Aristotle's *Rhetoric*, which counts references to fables and illustrative parallels as two types of invented examples useful in argument (222). The fourth book of *Rhetorica ad Herennium* (ca. 84 BCE) opens with a discussion of such examples, challenging what it describes as the Greek notion that it is better to take examples from "poets of highest reputation" than to invent examples for the occasion (243). The Denner, Rickards, and Albanese article simply follows the old tradition of borrowing from poets for examples. In contrast, many of the

foregoing citations of *The Diamond Age* go beyond this approach, drawing on Stephenson not only for illustration, but, apparently, for vision.

## Business and Behavioral Sciences

Price's article, published in *Anthropological Quarterly* and dealing with issues of human behavior, provides as good a transition as any to other behavioral fields, such as business, economics, and political science.

Of these, the business arena—and particularly the business community proper–seems most intrigued by Stephenson's fiction. Netscape founder Mark Andreessen, for instance, has raved about the future possibilities of nanotechnology to *Fortune*, indicating his interest in developing the fledgling industry—and citing *The Diamond Age* in the same breath as one of his favorite novels. "So many of the things that people do," he tells reporter Rick Tetzeli, "are going to be unnecessary when matter can be rearranged arbitrarily" (para. 47).

Meanwhile, hedge fund manager and finance author Andy Kessler named Stephenson's *Quicksilver* the best business book of 2004 in an interview with *Across the Board* magazine. He explains:

> I've been going back in time, reading about the history of innovation and markets and looking for patterns that I might recognize today […T]he best business book I've read is a historical novel from, oddly, a sci-fi writer. Neal Stephenson's *Quicksilver* contains wonderful descriptions of early scientific discovery, markets, money, and innovation in the seventeenth and eighteenth centuries. (70)

Business, international trade, and economics scholars are perhaps more subdued than the businessmen are, but they still draw on the author when writing articles, and often for similar reasons. Jonathan D. Aronson, writing in *International Affairs*, explains the appeal of science-fiction work to the business-minded, observing that, "no futurist has presented an integrated, comprehensive picture of the future. Pieces of the landscape are projected, but the magnitude of the change is too large for the vista as a whole to be attempted," adding in a footnote that "science-fiction efforts are often more satisfying" and there listing several recommendations along these lines, including *Snow Crash* and *The Diamond Age* (311). By way of illustration, an article by Stephen J. Kobrin titled "Electronic cash and the end of national markets" pits two anecdotes against each other, one factual, involving the smuggling of cash in an airplane; the other fictitious, drawn from a scene in *Snow Crash* in which Stephenson shows how a form of electronic currency called the hypercard works by narrating an exchange between a mafia boss and a hacker-slash-pizza-deliverer

named Hiro. The airplane scenario, Kobrin argues, is an anachronism, "among the last surviving examples of the physical transfer of large amounts of money across physical borders," while several types of once-fictitious hypercard have entered the market, showing that what was once fiction is rapidly becoming reality (66).

Michael C. Munger, writing to the *American Journal of Economics and Sociology*, draws on a different discussion between Hiro and the mafia boss, Uncle Enzo, in his introduction to an article on public choice. He borrows from *Snow Crash* to explain the role of deep linguistic structures in the brain, and, curiously, cites no additional sources to establish their existence (149). In this instance, *Snow Crash* is being treated not so much as science fiction but as popular science, in the same way that a sociologist might cite pop-science books on tangent-but-foreign disciplines, books like *Blink* (2005) or *Chaos* (1987) or *Sync* (2003).

In a similar sort of reference, Michael C. Wolfson, writing for the *Canadian Journal of Economics*, draws on *The Diamond Age* to explain a key point about his model. Wolfson's article describes an experimental economic model that he hopes will help show why economic growth appears to be falling in advanced economies. One theory is that the apparently falling growth rate is an artifact of an outdated statistical system that does not know how to properly cope with today's new informational and entertainment products, which are playing increasingly important roles in the economy. His model boils the entire market down into three sets of commodities: food and two types (or degrees) of entertainment product. In an endnote to this simplification, he offers no explanation except to quote from *The Diamond Age.* The quote forms the entirety of the endnote:

> "There are only two industries. This has always been true," said Madame Ping … "There is the industry of things, and the industry of entertainment. The industry of things comes first. It keeps us alive … But making things is easy now … This is not a very interesting business anymore. After people have the things they need to live, everything else is entertainment. Everything." (372)

In this manner, Madame Ping ends up explaining the rationale for a key decision in the building of Wolfson's economic model. While Wolfson—no slouch—is careful to back up his *analysis* and his *model* with facts and theories drawn from serious scholarship, he calls on Stephenson for explanatory power, perhaps because Madame Ping succinctly sums up something that scholars either do not think to say, or do not say particularly well. Curiously, there is nothing in Wolfson's text to indicate or acknowledge that his source here is a science-fiction novel.

In political discussions, Stephenson's work has also attracted attention from some heavy-hitters. *Washington Quarterly* has documented a speech by former CIA director James Woolsey in which the spy chief invoked *Snow Crash* "to make the point that people were coming to prefer the cyberspatial order of the 'Metaverse' to the chaos and instability of the real world"–adding, "The Internet may be anarchic—but then we look at Bosnia" (Derian, para. 38). Moreover, renowned political scientist Francis Fukuyama, author of *The End of History* (1992), chastises an academic book on "political science-fiction" in his review, lamenting that it "completely ignores [the genre's] most important new writer, Neal Stephenson. The latter has gone much further than fellow cyberpunkers William Gibson or Bruce Sterling in dealing with the moral breakdowns of future societies" (153). In his own writing, Fukuyama proves he is no hypocrite. He summons *The Diamond Age* to his article on "How to Re-Moralize America" and makes it testify for him:

> [R]e-moralization for many will mean dropping out of mainstream society—for example, by home-schooling one's children, withdrawing into an ethnic neighborhood or enclave, or creating one's own patch of social order.[iv] […] Stephenson envisions a future world in which a group of computer programmers, realizing the importance of moral values for economic success, create a small community called New Atlantis. […] The "Vickies" of New Atlantis do well for themselves but have nothing to say to the poor, disorganized communities that surround them. Re-moralization may thus go hand in hand with a sort of miniaturization of community […] (44)

At the opening of this article, I argued that the ways in which nonliterary scholars invoke a novel serve as a subtle but important type of literary criticism. Fukuyama's observation that Stephenson's novels have something valuable to say about the "moral breakdowns of future societies," and his clear belief that Stephenson's fiction is worth discussing in current political contexts, should serve as sterling examples of this point. That he is joined by the likes of Andreessen, Woolsey, Kessler, Schummer, and Minsky should tell us something about the potential significance of the growing Stephensonian canon.

## 'Claves, Phyles, and Other Geographic Trends

The issue of enclave formation brings us, finally, to the geographers, whom I have saved for last for good reason. Although he started off in physics, Stephenson graduated from Boston University as a geography major, and while it is easy to miss this influence as a casual reader, it seems to jump off the page to geographers, who, of all the nonliterary specialists discussed here, are the most likely to engage in serious analysis of his work.[v] Consider, for instance,

David Wall, who suggests that *The Diamond Age* would make a good companion piece to Knox and Taylor's geographical anthology *World Cities in a World System* (1995) in a graduate seminar. He says so explicitly, in his review of *World Cities*, which quickly turns into a review and comparison of both novel and textbook (390-391). Shortly after noting in his introduction paragraph that *World Cities* "offers something to most of the major subfields of human geography," Wall digresses, mentioning that he just finished a novel (*The Diamond Age*) that "touches on many of these same issues," listing, by way of example, "labor markets, information technology, international migration, cultural studies, city building processes, industrial location, social class formation, and massive disempowerment" (390). Both books discuss the emerging formation of an "archipelago of world cities," and Wall sees *The Diamond Age* as an apt illustration of Knox's forecast that, "in the future, the main sources of conflict will not be ideological or economic, but cultural" (390). Wall admits to finding the last half of *The Diamond Age* "a bit dull," but this does not deter him from suggesting it as a possible complement to the text under review (390).

Meanwhile, *Snow Crash* has received considerable attention from geographers who have attempted to extend their discipline to virtual space. Noteworthy examples appear in the April 1997 issue of *Geographical Review,* which, being devoted to the geography of cyberspace, includes at least two articles that draw on Stephenson: Jonathan Taylor's "The Emerging Geographies of Virtual Worlds," and Paul F. Starrs' "The Sacred, the Regional, and the Digital." Though, like everyone else, they use Gibson's term for the virtual world of information, *cyberspace*, geographers often seem to prefer Stephenson's vision as a depiction of the way that space is actually developing, one dubbing *Snow Crash* "the most idea-rich cyberpunk novel yet written" (Starrs 198). Nigel Thrift, in a 1996 article for *Urban Studies*, may grumble a bit about the virtual-world focus, but somehow he still comes back to Stephenson: "As other new technologies proceed, I believe that the current obsession with electronic spaces may well diminish. See for example, Stephenson's (1995) remarkable move into nanotechnology" (1489).

As it happens, both Stephenson and geographically-minded scholars who cite him have focused plenty on non-virtual trends. They have converged, for instance, on real trends in urbanization that have been projected out to extreme degrees in Stephenson's novels. Tim Oakes draws heavily on *The Diamond Age's* projections of provincial identities in China for *The Journal of Asian Studies*, discussing the novel's insights for the first two full pages of his article. George Ritzer, in an article titled "Islands of the Living Dead: The Social Geography of McDonaldization," draws both on George Romero and on *Snow Crash*, the latter for its depiction of a "bewildering variety of

McDonaldized franchise systems" that includes even prisons and churches, and for its argument that franchises work on the same principle as viruses (122). Michael Dear and Stephen Flusty contend that few people outside of science-fiction authors like William Gibson and Neal Stephenson have suitably explored what recent technological trends mean for cities, designating as a rare "pioneering" exception William J. Mitchell's *City of Bits* (1996) (67). Their article is obviously and perhaps consciously compatible with Stephenson's descriptions in its rejection of the Chicago school of urban structure theory, which Dear and Flusty (drawing in part on the aforementioned Knox and Taylor's *World Cities*) see as outdated and wish to replace with a postmodern Los Angeles school that features concepts like *keno capitalism*. The latter term seems to home in on the way that urban trends have produced an apparently random "mosaic of variegated monocultures" resembling a keno gamecard, on which some spots in the landscape have gotten lucky while those next-door have not–a trend that "renders discussion of 'the city' increasingly reductionist" (63). This same trend appears to be the subject of Fukuyama's political observations, also citing Stephenson.

## Conclusion

At times, in fact, it is difficult to see how the Dear-Flusty model differs from Stephenson's satirical vision, a point that brings me to my conclusion. I wish close with two simple observations:

- First—English departments are becoming increasingly interested in space theory, philosophy, urban studies, and geography, even as these departments are starting to act increasingly like literature departments through their invocation and analysis of novels in scholarly work. All appear to be drawing, for instance, on texts like Stephenson's as a common hinge point. A disciplinary singularity may be in our future. However, Schummer's observation about the multidisciplinarity of nanotechnology may apply equally well to these issues—that is, these discussions seem to be *multi*disciplinary rather than interdisciplinary, but would probably benefit from a transition to the latter stage. Stephenson's prose might provide a useful common reference point for such a transition.
- Second—It may be too early to judge whether Stephenson's later works like *The Baroque Cycle* will measure up to *The Diamond Age* in terms of broad academic utility, since many of these references emerged earlier in Stephenson's career. Nevertheless, *The Diamond Age* appears to have a great deal of cross-disciplinary appeal, more than

the popular *Snow Crash,* and as such, might generate a lot of productive and interested discussion in a general-education literature class, particularly if used to unpack some of the issues and arguments identified earlier. Like the Primer it describes, *The Diamond Age* seems able to customize itself to a diverse array of reader needs and interests. That phenomenon alone is worthy of a literature class.

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## Notes

[i] The reference to *Prey*—another well-researched novel on nanotechnology that is, in fact, cited more often that Stephenson's *The Diamond Age*, judging from Web of Science cited reference counts—raises the question of whether Stephenson is treated in any way that's truly unusual. Certainly his citation counts, while impressive, are not wildly better than those of comparable writers. Looking at Web of Science tallies, and excepting citations from the Humanities and Social Science indices, *Snow Crash* is Stephenson's most cited novel (63 citations since 1994), followed by *The Diamond Age* (25 citations since 1997). Compare these numbers with 28 citations for Crichton's far more recent *Prey* (all since 2003) and 57 for Kurt Vonnegut's far less recent *Cat's Cradle* (1963) (a novel often cited in nanotech discussions because Ice-Nine compares well with so-called "gray goo" scenarios, in which self-replicating nanobots get carried away and turn *everything* into nanomachines). In short, Stephenson isn't about to win any "most-cited" contests. However, the vast bulk of the references to *Prey* are quasi-defensive ones, in which the writer attempts to deal with the public-relations issues that a skeptical, scary, straightforward potboiler like *Prey* might engender (for examples, see Berne and Schummer; Dyson; Cobb and Macoubrie). This circling-the-wagons reaction to *Prey* is a rather different sort of usage than we see with Stephenson, for whom the citations are generally more complicated, and more associated with ideas or inspiration. Any differences in the treatment of Stephenson's novels are ones of quality or tenor, rather than volume.

[ii] Science fiction should not be used alone, they note, but in conjunction with key nonfiction texts (462-463)—a point that we will see again later when we look at David Wall's recommendations for a graduate seminar on geography that would also use *The Diamond Age.*

[iii] Terry Bollinger's review of *Prey* begins: "True confessions: I am impressed when a best-selling popular novel includes references to 43 highly technical books and conference proceedings. Not since Jean Auel quoted an obscure paleontology paper as her inspiration for *The Mammoth Hunters* have I seen a popular writer give such credit to mainstream (well, mostly mainstream) scientific publications" (81). For a cutting review of *Prey's* inaccuracies, see Freeman Dyson. "The Future Needs Us!" Rev. of *Prey*, by Michael Crichton. *New York Review of Books* 50.2 (13 February 2003). 1 May 2006 <http://www.nybooks.com/articles/16053>. As the title indicates, the review is also a reply to Bill Joy's "Why the Future Doesn't Need Us" (*Wired* 8.04 [April 2000]. 1 May 2006. <http://www.wired.com/wired/archive/ 8.04/joy.html>). Joy's famously pessimistic article—made particularly persuasive by the fact that the writer is Co-Founder and Chief Scientist of Sun Microsystems—argues that many new technologies,

including genetics and nanotechnology, are developing so quickly that we cannot hope to keep up with them or anticipate their problems. Dyson agrees with Joy that dangers exist, but drawing on historical evidence, gives his reasons for being more optimistic about self-regulation, and ends his argument with reference to Milton's *Areopagitica*, suggesting that Joy's "solutions" amount to censorship of scientific inquiry and that an attitude similar to Milton's is needed.

[iv] This enclave-formation is precisely what happens in two of Stephenson's novels: *Snow Crash* and *The Diamond Age*.

[v] See, for example, page 198 of Paul Starrs' "The Sacred, the Regional, and the Digital."

# CHAPTER TWO

# BIG U(TOPIA): NEAL STEPHENSON'S ACADEMIC NOVEL

PETER S. SANDS

> Two epidemic illnesses of out time—upon both of which virtual industries of cures have been founded—are the disintegration of communities and the disintegration of persons.
> —Wendell Berry

> If the book were judged on its own [intrinsic] merits, it would not attract such a high price or engender such curiosity. *The Big U* is what it is: a first novel written in a hurry by a young man a long time ago.
> —Neal Stephenson

Neal Stephenson's satiric first novel, *The Big U*, presents early versions of the motley people populating his better-known works, such as his breakout novel, *Snow Crash.* American Megaversity, the Big U of the title, is a sort of ur-university of the late twentieth century in middle America: part shopping mall, part towering enclave of misguided youth, part full-employment program for otherwise dubiously useful faculty members.[vi] In many ways *The Big U* is a dated, rambling assault on political correctness and directionless youth misled by careerist intellectuals. But it is also a commentary on the division of rational and irrational and between the sciences and humanities that remains timely. In the age of globalization, if it truly is jihad v. McWorld, or a clash of civilizations, *The Big U* retains some relevance.[vii] When both sides fail to see the reasons and purposes of the other, only a commitment to plurality based on reason—a "reality-based community"—holds hope.[viii]

Stephenson's campus novel slots roughly into the genre's continuum with David Lodge's several sendups of red brick universities in England and Jane Smiley's *Moo* (1995) and James Hynes' *The Lecturer's Tale* (2001), about similarly thinly veiled Midwestern universities of a certain cast and time: our own.[ix] Where the academic novel of the fifties and sixties focused on political and sexual upheavals changing lives and attitudes, Stephenson's 1980s novel

both reflects the unfortunate groupthink of the Reagan Era and presciently points toward the consequences of its choices, as well as to his continuing engagement with pluralism, reason, and irrationality.[x] Stephenson uses the conventions of the utopian novel and the campus novel to tease out the limits of satirical treatment of the corporatized university, but if *The Big U* has a theme, it is more the irreconcilability of rational humanism with irrationality in the modern university, or the Sciences versus the Arts, the Chemistry Department versus the English.

*The Big U* presents several themes that return in Stephenson's more mature work: separation of and blurring between science and superstition or magic; the nature of consciousness, particularly Jaynesian bicameralism; languages generally and computer languages and their analogs in human language specifically; commodification; technology generally and interesting kluges specifically. Out of print until a 2001 reprint edition, it has made almost no appearances in scholarly treatments of Stephenson, other than asides such as Mark McGurl's brief reading in his discussion of Stephenson's attentiveness to pluralism and the bifurcation/reintroduction of the Two Cultures, pace C. P. Snow.[xi] McGurl is mainly interested in the interpenetration of science and superstition in the novel, and in Stephenson's focus on the immorality of weapons research in higher education. Other than that, the novel's main notice has come among fans online who either revere Stephenson's every word because they are Stephenson's Words, or who are critical of *Big U* because it simply is not as good/interesting/entertaining/rewarding/[blank] as the rest of his novels.[xii] One fan reviewing the book in 2001 notes, without irony, "how well the academic stereotypes have aged."[xiii] On Slashdot, the *locus nerdius* of commodified hacker culture, the book gets a fairly lengthy and favorable treatment.[xiv] Stephenson is more dismissive:

> The fact that virtually all of the first edition ended up getting pulped created an unnatural scarcity of the printed book, which is only now being alleviated by a new edition from HarperCollins. This scarcity caused the price of the first edition to become ridiculously high, and led to bootleg editions being posted on the Web. If the book were judged on its own intrinisic [sic] merits, it would not attract such a high price or engender such curiosity. *The Big U* is what it is: a first novel written in a hurry by a young man a long time ago.[xv]

Like Stephenson's later works, *The Big U* resists plot summary, despite its being considerably shorter than, say *Cryptonomicon* (308 pages vs. 1152). There are scenes of classrooms gone awry in a frenzy of postmodernist illogic; violent dormitory parties attended by stupefyingly moronic fraternities, sororities and clubs; drug-and-alcohol experimentation leading to violence and attempted rape; an illegal toxic-waste dump being operated at the university;

radiation-mutated giant rats; a brilliant student science project to create a rail gun turned toward weapons research by the prostitution of the university to private interests; a labor strike which highlights and tests the differences between the theoretical unionization of faculty members and the practical unionization of workers; a massive food fight; a running gun battle between the university president, students, and mercenary janitors (featuring a vehicle specially modified for combat in dormitories), and a cataclysmic ending in which the whole American Megaversity Megaplex is destroyed by the vibrations of low C played on an organ.[xvi] Its characters are thinly delineated, nearly to the point of being Types in an allegory: a newly minted professor named Bud, who serves as narrator; the anti-hero Casimir Radon, a hapless science nerd and nontraditional student; Ephraim Klein, a classical-music lover in a sonic duel to the death with his rock-loving roommate; Virgil Gabrielson, a computer programmer with a photographic memory; Fred Fine, the public persona of a bifurcated personality (both of whom are insane); and Sarah Jane Johnson, the female hero, English major, and rational thinker.

## Utopia and Academic Novels

The conventions of the utopian novel are familiar. The popular use of the term denotes "ideal" and connotes "impossible." But that hardly does justice to the genre. Utopias are critiques of the author's society; they present not necessarily ideal or even idealized social organization, but alternative organization. They are "social dreaming," in Lyman Sargent's cogent definition.[xvii] Utopias that present visibly improved societies—or improved from the author's point of view—are termed such; utopias that present a visibly negative extrapolation from present conditions and trends are termed dystopias. Stephenson's *The Big U* is a dystopian vision of the near-future university.

The conventional utopian novel is intended to teach the reader alternative ideas approved by the author. A traveler, either from the utopian place or from the author's (and reader's) contemporary society, engages with the other—either the utopians or the author's own society. Through conversations or reported experiences, the traveler compares the two social models. For example, in William Dean Howells' *A Traveler from Altruria* (1894), a visitor from that fictional place comes to the United States and exposes the plainly evident social inequities that people choose not to see in our "classless" culture—the Altrurian holds the artist, poet, inventor and physician in highest regard; the American the millionaire. In another nineteenth-century utopian novel, Edward Bellamy's *Looking Backward* (1888), a young man from Bellamy's time is transported to the future Boston of the year 2000, where, in a series of exchanges with his host family, he explains the economic conditions of

the United States in the 1880s and is in turn educated in the rational, industrialized socialism Bellamy thought would be an improvement. In the twentieth century, the dystopias *We* (1920), *Brave New World* (1932), and *1984* (1948) explored the frightening ends to which complacency, incautious scientific progress, and political bankruptcy can lead. The later twentieth century saw more unclassifiable works such as Ursula K. LeGuin's *The Dispossessed* (1974, subtitled "an Ambiguous Utopia") and Marge Piercy's *Woman on the Edge of Time* (1976). These authors took ambivalent stances, refusing to play a game of blacks-and-whites in a world where so many intellectual disciplines were embracing gray shades of modernity and postmodernity. Typically, the utopia, from Thomas More's sixteenth century work to the present day is didactic rather than aesthetic, political rather than artistic, and tied to contemporary events and situations to such an extent that it is more interesting for its historical valences than anything else. The utopia teaches and the dystopia warns.

Much current academic and intellectual energy is directed at utopianism, however. Utopianism, distinguished from the utopian novel, might be defined as a principle of hope, following Ernst Bloch.[xviii] The utopian impulse is teleological: it drives toward an improved future. But it must not achieve telos, as that would be stasis, the death of hope. In this sense, education, even higher education, is fundamentally utopian: it reaches for the possible. Indeed, conventional utopias almost always include discussions of education-in-utopia; the relationship of education to the state is intimate and necessary. Plato's *Republic*, More's *Utopia*, Bellamy's *Looking Backward*, Charlotte Perkins Gilman's *Herland* (1916), and Piercy's *Woman on the Edge of Time*, all include details of how the populace is educated in their utopias. Today, as Russell Jacoby and others have argued, the utopian impulse is ripe for recuperation.[xix] In that line of argument, the usual misapprehension of utopia needs to be countered with a fuller, better explication of the term as presenting necessary principles of hope—the resurrection of Ernst Bloch. Others have argued that the term has lost its valence and power, and that a "mutopian" impulse more sensitive to the proteanness, the mutability of postmodernity needs cultivation, but that is a debate about terms and nuances more than about the utility of utopia.[xx]

Academia is a real-world example of utopianism: education is a social dream by which a society both preserves its past and shapes its future. The tension between conservatism or nostalgia on the one hand and progressivism or change on the other manifests itself in the very idea of a university as both repository of learning and site of experimentation. Likewise, academic novels have many affinities with utopias. Where the utopian usually involves travel in space and sometimes time, the university is a space apart within the society. It

may be either so conservative as to present a trip back in time or so radically different as to represent a trip forward in time or to an alternative time and social structure. But the modern university is so interwoven, so implicated in social and economic life in the United States and the Commonwealth that it is hardly separable except as a space within. Still, the academic universe is generally held separate, else why the continuing valence of the contrasting concepts of "ivory tower" and "real life"? As a separate space with its own conventions and social organization, it is amenable to analysis as utopian. Utopia resolves the binary between conservatism and change by privileging neither; Stephenson resists the attractions of simple binaries in *The Big U* by placing Reason and Unreason in conflict but placing the avatars of each in ostensibly opposing camps: Sarah is the rational English major and Fred Fine is the irrational scientist.

Where strictly utopian novels critique contemporary societies through the convention of a narrative that presents alternative norms, the academic novel can similarly critique its author's society, but is usually a more focused satirical investigation of the foibles of the university: its corruption, its silliness, its intransigent politics. In its better-known iterations, such as Amis' *Lucky Jim* (1954) or David Lodge's serial sendup of British redbrick universities, the campus novel shows both the high intellectual aspirations and the relentlessly normal actual lives of most academics. Universities in the campus novel frequently have a synechdocic relationship with the larger society; Lodge, for instance, lampoons sexual and intellectual politics generally by exploring their iteration in the university.

In Stephenson's campus novel, though, the dystopian dominates, from megadorms that recall Soviet-era block housing for hapless proles, to caricatures of varieties of Identity Studies, and the unlikely transformation of the university from a place of contemplation and production to one of surveillance and consumption, much the same way that the artisanal and even manufacturing economy, and the commons, have been supplanted by the consumer economy and the suburban enclave. *The Big U* presents a university where commodification has become completely naturalized. While American Megaversity has no logo or brand identity, it is proximate to "the Big Wheel sign," a gigantic, neon remnant of the former presence in town of the Big Wheel Petroleum Corporation that illuminates the Eastern side of the campus every night. "Art students do studies of it, a group of students calling themselves 'The Terrorists' use it as a icon, and "even during the worst years of the energy crisis, practically no one at AM had protested against the idea of nightly beaming thousands of red-white-and-blue kilowatt-hours out into deep space while a hundred feet below derelicts lost their limbs to the cold" (196).

Narrator Bud is a traveler to this utopian space within. And it *is* within: within the greater society, the American Megaversity is largely self-contained in its own Megaplex, a building that rises on a:

> three-by-three block base [with] six stories above ground and three below. Atop it sat eight 25-story towers where lived the 40,000 students of the university. Each tower had four wings 160 feet long, thrown out at right angles to make a Swiss cross. These towers sat at the four corners and four sides of the base. The open space between them was a huge expanse called Tar City, inhabited by great machines, crushed furniture thrown from above, rats, roaches, students out on dares, and the decaying corpses of various things that had ventured out on hot summer days and become mired in the tar. All we could see were the neutral light brown towers and their thousands and thousands of identical windows reaching into the heavens. Even for a city person it was awesome. (23)

Surrounding this tower is the "Death Vortex," a highway project that had first surrounded and killed off the life of an older brownstone neighborhood, ultimately replaced by the Megaversity building/campus.

Bud comes to the Megaversity from the ordinary world and ordinary academia (Ohio State)—where he has recently received in his degree in Remote Sensing. He represents "our" world encountering the otherness of a large, non-Ivy university in the 1980s. Each of the novel's episodes, as with Gulliver's episodic encounters with otherness, presents a different constituency of this strange land: the administration, in the person of President Septimius Severus Krupp; the students, in the persons of Casimir Radon, Virgil, Sarah, Hyacinth, and Fred Fine, and a cast of unnamed representative examples; the social structures represented by fraternities, sororities and fantasy role-playing game clubs, the support staff, and the B-Men, refugees-cum-mercenaries from the imaginary land of Crotobaltislavonia.

Stephenson's narrator presents one of the structural failings of the novel. Bud is an opportunity to explore the utopian conceit undergirding the novel by making much more of the narrator's position as an outsider. As a black, male, tenure-track scientist, the narrator could hardly be more marginal—consider that in 1997, 83,570 whites were employed as academic scientists, but only 3,270 blacks held comparable positions. Going back to the time of *The Big U's* composition and publication, between 1977 and 1998 underrepresented minorities consistently received fewer than 5,000 Master's Degrees in the sciences, compared to significantly higher numbers of whites.[xxi] For doctoral degrees, the numbers are even worse. The National Science Foundation, speaking of a 1990s-era pickup in doctoral degrees among minorities, reported: "increases were from such a low base, however, that the number of doctoral degrees awarded to underrepresented minorities is barely visible on a graph that compares S&E [science and engineering] degrees earned by various groups."[xxii]

Not only, in other words, is there ample material for exploring Bud's minority racial status, but also his minority status as a rational thinker. Rather than pursuing Bud's status as a racial outsider, though, the novel focuses on the student players and their various marginal positions within what is clearly a very white university setting a choice which Mark McGurl identifies as a nod to the novel's "cultural pluralism" (123).

The plot and action of *The Big U* is fairly straightforward: the young and new professor observes and socializes with several students, both first year and upper division. The key players do usual college-student things: learn to deal with an irrational and perhaps mean-spirited bureaucracy; learn to deal with professors—some competent but unfortunately killed during the term, others incompetent and probably insane; protest—some over serious issues and some over absurdist identity politics; and attend overwrought parties. Key students experience an ever-greater division of their rational and irrational selves (in an extrapolation of Julian Jaynes' theory of the bicameral mind), the discoveries of a brilliant student are surreptitiously turned to weapons research by private and government investors with the complicity of the university, and the university's illicit acceptance of toxic waste for storage and disposal results in the creation and discovery of an unusually large and aggressive species of killer rat in the steam tunnels under the building. Naturally, that is also where the key players gravitate for a more realistic version of the role-playing game they, like so many nerds in the 1980s, play.

As Marc McGurl has observed, *The Big U* is connected with the genre of campus novel, too, by Stephenson's very biography, in which he delineates his academic family's genealogy. McGurl reads Stephenson as "a writer with declared connections to the university who has increasingly alienated himself from the regnant ideologies of literary academia" (122). In particular, McGurl's Stephenson rejects ignorance of science and embrace of magical thinking. He speaks "for white male Nerd Americans" as a "quasi-ethnic" group. Accordingly, Stephenson's fiction explores "the awkward cohabitation of literature and science in proximate institutional spaces" (122). McGurl notes with approval *The Big U*'s embrace of pluralism, particularly in a long speech given by Sarah, in which she rails at the pressure to conform exerted on her by dormmates (123, citing *Big U* 73). Sarah's speech is the most cogent statement of pluralist ethics in the novel:

> "The whole purpose of a fucking university is not so that you can come and be just like everyone else. I'm not equal to you people, never will be, don't want to be, I don't want to be anyone's sister, I don't want your activities, all I want is a decent place to live where I can be Sarah Jane Johnson and *not be equalized . . . by a mob . . of little powderpuff terrorists . . . who just can't stand differentness because they're too stupid to understand it!*" (73, emphasis in original)

Her speech is bolstered by an earlier exchange with Sarah's friend and lover-to-be Hyacinth, who identifies her friend Lucy and herself as affirmative action outsiders: "'Tokenism. They have to have tokens. Lucy is their token black, I'm their token individual. They love having a loudmouth around to disagree with them—makes them feel diverse'" (41). Sarah's impassioned cry for pluralist ethics is presented in ironic juxtaposition to a faculty statement of similar import but with completely different valence (the rational and the irrational speaking the same tongue):

> "Though a pattern of socio-heterodox behaviors has been exhibited by individuals associated with E13S [a dormitory floor], we find it preferable to keep them within the system and counsel them constructively rather than turn them over to damaging outside legal interference which would hinder resocialization. The Megaversity is a free community of individuals seeking to grow together toward a more harmonious and enlightened future, and introduction of external coercion merely stifles academic freedom—" (64)

The university is a bastion of irrationality, which Stephenson links to an infantile fantasy-life understanding of the world. Casimir Radon, the anti-hero of the novel, who has spent "ten years saving up money to attend this school," about which he has "[u]nfortunately . . . imagined quiet talks over brunch with old professors, profound discussions in the bathrooms, and dazzling, sensitive people everywhere just waiting to make new friends. What he had found, of course, was American Megaversity," where, he concludes, the people are "for amusement . . . acting out a *parody* of the squalor of high school life" (13). Later, somewhat more acclimated to university life, Casimir is reported by the narrator to have decided that "no one here had the least consideration for others, or the least ability to think for themselves, and this combination was hard to take after having been an adult" (42). To Sarah, the female hero, "the people who ran this place didn't have a clue as to how reality worked" (15). Inside the walls of the Plex, geopolitical conflicts (the Crotobaltislavonians, warring professors), and ordinary sexual politics (fraternities and sororities; a drug-facilitated, attempted rape of Sarah by a group of fraternity boys who call themselves "Terrorists"), take on exaggerated tones of irrationality as they play out to logical consequences that in the "real world" are more frequently contained before consummation.

The Megaplex dormitory is so *inside* and so *contained*, that Sarah, to spite the decision of her floormates to create a fantasy-castle-in-the-air motif on their wall and in their rooms, paints her room as realistically as possible as a forest scene: "'I'm making it look like the outside. So I don't forget'" (77). She describes herself as "'something natural, in a place that is sub-natural'" (76). Sarah's battle with the destabilizing Megaplex itself is the battle not just of Reason against irrationality but unreasonableness, against incivility. Physically,

the university is not unlike the factory in Fritz Lang's *Metropolis*; Bud describes it as "an unnatural environment, a work of the human mind" which can be seen as "an immense vending machine" programmed to reject the unusual, and "[m]eanwhile, brightly colored graduates with attractively packaged degrees where dispensed out front every June, swept up by traffic on the Parkway and carried away for leisurely consumption" (22). He observes elsewhere the "orifices of the Plex where food and supplies were ingested and trash discharged" (23). The inversion of organic and inorganic mirrors the inversion of rational and irrational that leads to the novel's climax, in which a chiastic reversal of the Jaynesian breakdown of the bicameral mind leads to disaster.

## Law, Laws, and Utopia

To the university president S. S. Krupp, "autonomy" means "to be self-ruling, to exercise a respect for the Law . . . which in this case means not the law of a society or political system but rather the Law imposed by a rational man on his own actions" (116). In the American Megaversity, a near-complete breakdown in the rule of law accompanies the convergence of illicit military research, the mental breakdown of a central character, and the devolution of virtually every student over the semester, culminating in scenes of violence, sexual assault, and, ultimately, catastrophic disintegration of the Multiplex. Where the central figures—Sarah, Bud, Casimir, even Fred Fine, cooperate with one another, they maintain individual identities. Against this Stephenson contrasts the groupthink of fraternities and sororities, beginning with initiation activities and shared dress and culminating in drug-stupefied makeshift cults worshipping televisions and the neon Big Wheel sign. The band of protagonists act to preserve some order in their world, the vast middle range of students create their own rules (see, e.g., pages 193-200), and the administration promulgates its own understandings. In the real world, courts have been historically reluctant to intrude upon the administratively promulgated rules governing universities, but that is largely because those rules *are rules*, with attendant policies and procedures for enforcement.[xxiii] In some sense, universities and the civil legal system are like two circles in a Venn diagram, with some overlap and some complete separation; in *The Big U*, the physical *presence* of the Megaversity tower and its *separation from* the physical world of the city, located as it is inside a freeway loop and on the outskirts of the city, symbolized as well by the strict control exercised over access routes in and out of the building (metaphors abound: admissions and expulsions, e.g.), is likewise a mirror of the real world. Within these walls, a law peculiar to the institution governs. While computer-programmer Virgil, privy to the Code underlying the mainframe/brain, believes that while there is an operating system of laws (a

familiar trope to readers of Stephenson) operating in the Megaversity, it is not the rules-based, consequentialist law of the external world, it is a law which rewards the imposition of structure on the irrational—as in the manipulation of budgets by which he maintains his Science Shop (64-68). It is a utopianism made actual: the imposition of an imagined alternative. Bud, for his part as professor and RA in charge of a section of the dorms, stops a feud between students by typing up a set of "Rules" to mediate their endless dueling stereos, including a "Rule saying that these were merely typed representations of abstract Rules that were applicable no matter where the typed representations were displayed" (83). A law is an abstraction represented by the actual words of the statute, but the physical statute is not the law. To get to that concept, the subjects of a law have to be able to think abstractly; here, as elsewhere in the novel, Stephenson critiques the literalist and irrationalist students who cannot or will not instead extrapolate from the evidence of their senses abstract representations of the "rules" of the world. Bud's imposition of the Rules is backed by the presence of an angry, violent student named Angel, who is a boxer. A perfect parody of lawmaking in the external world: arbitrary rules, codified but representing abstractions, backed by the threat of violence: unreason bolstering reason.

## The Megaversity as Parody

Academic novels are notoriously trenchant, whether written by and from the point of view of students (Richard Fariña, *Been Down So Long It Looks Like Up to Me* (1966)) or by and from the point of view of faculty members (throw a dart) or by and from the point of view of writers who moonlight as faculty members (David Lodge, Jane Smiley). Readers with insider views enjoy the snarkiness and the fun of trying to identify characters with Known Colleagues. Readers with outside views have their presumptions and assumptions about the worst traits of academe gloriously confirmed. Stephenson's campus novel is mostly satire, but it operates through parody rather than serious critique.

The Megaversity, appropriately enough for a post-liberal, postindustrial, postmodern, commodified, bankrupt, and unstable institution, goes awry simply everywhere. The administration is morally and intellectually bankrupt, ensconced in quarters redolent of wealth and nostalgia (106-7). The students are morally and intellectually infantile. The support staff are unionized but not collectivized. The building which houses the Megaversity is a single monolith, a tower of Babel reaching nowhere. Inside its walls the architecture frustrates most, but empowers those few who understand and embrace it—or who have the blueprints. It is an *irrational* space in the sense that the great

tragedies of the twentieth century, highlighting a universe that resists logic and explanation. Casimir Radon's mentor, an aging physicist named Sharon, tells him that the dormitory section of the Megaplex reminds him of "certain, er, locations during the occupation of the Sudetenland" (44). He informs Radon that "[e]ven speech today has become a form of violence—even in the university" (44-45). Moments later he is rendered comatose by a piano that students upstairs (in the aforementioned E13S) were using in a prank—the irrational striking back at the rational. Over the next several pages, Radon encounters an "Emergency Services desk" that "can't leave our posts. What would happen if there was an emergency while were gone?" and the local Tiresias—Bert Nix, an apparently insane former student who declaims a Stephenson adaptation of Blake. Naturally, during the conflagration which comes after the crashing piano and the introduction of an oxygen tank and the professor's smoldering pipe, the forms necessary to exempt Radon from elementary classes he has already taken are destroyed, along with any chance that he can begin to consort with serious students. Later, Radon finds out that the culprits are easily discoverable, but in "decisions are made by a committee of tenured faculty," the pranksters are deemed too vulnerable to stifling from "damaging outside legal interference" should they ever be prosecuted for this or their prior bad acts (64). The irrational strikes the rational, hard.

In the "October" chapter, five hundred students sit rapt in a first year English class, watching the professor on television monitors as he lectures unintelligibly about grammar and rhetoric, closing with a student-pandering jibe at the university president. Sarah is taking the class because the university has decided that, as her mother is from Wales, she is a child "of one or more foreign nationals" and thus "gifted with Special Challenges" (52). Although she was exempted from the course by high test scores, her mother's nationality allowed the university to have "retroactively waived" her score. Although she petitions to have her placement overturned, her score is incorrectly reported *by a computer error* and her petition is denied. The correct score arrives from ETS (external to the Megaversity, rationality *may* prevail) too late in the semester for her to change courses. She is an "English major with a 3.7 average" and a "660 on her SATs" who is in remedial English because human administrators won't make a rational override of an irrational rule that depends on geographic and linguistic ignorance *on their part* and an apparently unassailable assessment of her ability by a computer *that has made an error in reasoning*. When Sarah questions her "Learning Facilitator of Freshman English G Group" about her grade on a paper that meets the terms of the assignment and has no errors, she and he compare the performance of another student who scored higher but whose paper is riddled with barbarisms, solecisms, and illogic. Her attitude that a flawless performance is to be rewarded more than a flawed one turns out to be

"a kind of absolutism which is very disturbing in a temple of academic freedom" and which impinges on the "poetry" the instructor is expressing in one-letter grades. She is chastised for still "struggling to break free of grammatical rules systems," unlike her peers, who are "highly advanced wordsmiths" who have "escaped orthodoxy to be truly creative" (55-56). When Sarah responds, "so we're just floating around without any standards at all," she is in turn told, "Look, there is no absolute reality, right? We can't force everyone to express themselves through the same absolute rules." This is, of course, a relativistic position often adopted in the humanities, and sometimes carried to the extreme of asserting that scientific "fact" is merely the "belief" of a given scientist, which Stephenson offers as the apotheosis of irrationality. That the irrationality is suffered by a humanist—who happens to be a competent, rational English major—only serves to bolster the reading that a shared pluralism grounded in empirical reason is the only way out of the morass of the modern university education. For his part, Casimir Radon encounters an irrational bureaucracy that on one level functions with budgets and rules, but on another level operates in a secret barter economy for which the budgets are covering formalities that facilitate the real work. To Radon, all of this signifies that "law doesn't exist here, you can do what you please" (64). But to Virgil, a computer hacker with a photographic memory who is single-handedly combating a malicious virus planted in the mainframe computer by an erstwhile employee of the Megaversity, "law is just the opinion of the guy with the biggest gun," and the surreptitious abuse of budgets is a way of making laws that function in the irrational social space of the university (66-68).

Such a coexistence is not without its dangers, however. Apparently science-oriented and rational, Fred Fine is the key problem, made real, of Stephenson's imagined academy: the rational and the irrational coexist. Both sides believe they are the rational one, and that the other does not really exist. Fred appears early in the novel as the curiously militaristic commander of a fantasy war-gaming group, and is soon revealed to be leading complex role-playing games in the steam tunnels under the Megaplex. These games, controlled by a compatriot using a homegrown mapping system and game program on the school's mainframe, bring the rational and empirical (the actual steam tunnels, the human players, the computer-programmed game framework, the *rules* of the game) into direct interaction with the irrational (the fantasy elements of the game, the improbably large and dangerous mutated rats, the mercenary janitor B-Men, and *magic*).

Fred Fine is the adopted name of a bifurcated personality. On the one hand there is Chris, a systems programmer who believes he lives on the science-oriented world of Plexor in the "Technological Universe" (182). On the other hand, there is Klystron the Impaler, a "hero-swordsman-magician" of the

magical universe. Two personalities are aware of themselves as being at the nexus of the "Leakage," the "*Breakdown*" (183, emphasis in original) between the two—a chiastic reversal of the Jaynes bicameral-mind's melding. He is an avatar of both worlds—an intellect that tries to be both empirical or rational and intuitive or irrational. Fred Fine, is, in short, insane: "Then came again the creeping sense of Leakage, impossible to ignore; his head snapped up and to the right, and, speaking across the dimensional barrier, Klystron the Impaler told him to go to dinner" (182). Sarah, the rationalist believes that the Megaplex "'divorce(s people) from reality so they don't know what to do,'" and that it is an "'other-world scenario,'" while Fine believes that she is "'wrong. This is reality. It is a self-sustaining ecosociosystem powered by inter-universe warp generators'" (204-5).

## Wither the University?

Today's university is global, networked, connected. It is online and international in ways that even twenty years ago was difficult to imagine. American Megaversity is, as its name suggests, an *American* university. Many of its problems stem from the commodification of education and the consumerist mentality of students and faculty. American Megaversity literally implodes from the unique correspondence of its architecture with the vibrations of low C, but it figuratively implodes under the weight of the disconnect between the two worlds of science and the humanities. Stephenson sets this event in motion in the first section of the novel, as the dueling roommate battle with their stereos; one student's preferred piece is a Bach fugue that drops to low C at the end of phrases, causing the entire building to vibrate in concert with the speakers. Structurally, *The Big U* thus demands rules and closure, consequences for the actions of its players. The consequences are social dislocation, sublimation of independent thought to the group, and the physical dissolution of the university. In its architectural and social fissures can be glimpsed what was in the 1980s the next problem for university planners: the shrinking world of global modernization.

The administration despises the students and "that parody of a democratic institution that we call a [student] government because we are all so idealistic in a university" (109). But there is incipient globalization too. Faculty members engage in pissing matches and internecine squabbles that boil over during a strike: "A monetarist from Connecticut finally came to blows with an Algerian Maoist with whom he'd been trading scathing articles ever since they had shared an office as grad students" (213). The strikers include "Crotobaltislavonians [the mercenary janitors], . . . some black and Hispanic workers" and the faculty. Among the faculty, only Bud has an ethnicity

identified as other than white; among the principle characters, only Lucy is identified as other than white. But the few set pieces involving minor-character faculty members demonstrate their learned uselessness via their allusions to geography or world history. Thus, among the various student complaints and demands (from a group that has stolen the card catalog from the library) are that:

> (4) the Megaversity must withdraw all investments in firms doing business in South Africa, firms doing business with firms doing business in South Africa and firms doing business with firms doing business with firms doing business in South Africa; (5) recognize the PLO and the baby seals. (171)

*Semper idem*: ever the same.

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## Notes

[vi] Stephenson was a student at Boston University while writing the novel; its architecture apparently inspired the Megaplex.

[vii] See Benjamin Barber, *Jihad Vs. McWorld: How Globalism and Tribalism Are Reshaping the World* (1996); Samuel Huntington, *The Clash of Civilizations and the Remaking of World Order* (1997).

[viii] A White House aide described the writer Ron Suskind and other critics of the 43rd President of the United States:

> The aide said that guys like me were "in what we call the reality-based community," which he defined as people who "believe that solutions emerge from your judicious study of discernible reality." I nodded and murmured something about enlightenment principles and empiricism. He cut me off. "That's not the way the world really works anymore," he continued. "We're an empire now, and when we act, we create our own reality.

Ron Suskind, "Faith, Certainty and the Presidency of George W. Bush," *New York Times* 17 October 2004, 20 June 2006.

[ix] Smiley is famously associated with Iowa State; Hynes with the University of Michigan.

[x] To cover a tiny sample: Mary McCarthy's *The Groves of Academe* (1951) takes on McCarthyism; Malcolm Bradbury's *Eating People is Wrong* (1959) and D. J. Enright's *Academic Year* (1955) take on cultural clashes between Westerners and Others; David Lodge's *The British Museum is Falling Down* (1965) takes on sixties politics and the sexual revolution.

[xi] Mark McGurl, "The Program Era: Pluralisms of Postwar American Fiction," *Critical Inquiry* 32 (Autumn 2005): 102-29. See also F. R. Leavis, *Two Cultures? The Significance of C. P. Snow* (1962); C. P. Snow, *The Two Cultures* (1959).

[xii] One fan, Evan van Emden, has posted a complete copy of the book on her website, at <http://www.vanemden.com/books/neals/bigu/bigu.html>, although she urges readers to buy a copy of the reissued novel.

[xiii] http://www.steelypips.or/librargy/BigU.html

[xiv] http://slashdot.org/books/99/10/02/1228218.shtml

[xv] http://www.well.com/~neal/

[xvi] Of these, the rail gun is a real object, whose proponents hope to be able to use it to launch objects into low orbit, or for lunar mining. See: http://www.powerlabs.org/railgun.htm, and *Amateur Railgun Production Journal* at http://www.railgun.org/. The later import of the vibrations set up by low C is set up by Bud's observation that the Megaplex's architecture is symmetrical and precisely divided such that the entire tower vibrates in concert with low C.

[xvii] Lyman Tower Sargent, "The Three Faces of Utopianism Revisited," *Utopian Studies* 5.1 (1994): 1-37.

[xviii] Ernst Bloch, *The Utopian Function of Art and Literature: Selected Essays*, trans. Jack Zipes and Frank Mecklenburg, Studies in Contemporary German Thought (1988); Ernst Bloch, *The Spirit of Utopia (Geist der Utopie)* (2000).

[xix] See, e.g., to name just the obvious, Russell Jacoby, *The End of Utopia: Politics and Culture in an Age of Apathy* (1999); Immanuel Wallerstein, *Utopistics: Or, Historical Choices of the Twenty-First Century* (1998).

[xx] See N. Katherine Hayles, "Is Utopia Obsolete," *Peace Review* 14.2 (2002): 133-39. Hayles cites Istvan Csicsery-Ronay, "Notes on Mutopia," *Postmodern Culture* 8.1 (1997), 1997, 20 June 2006.

[xxi] http://www.nsf.gov/statistics/seind02/c2/fig02-16.htm

[xxii] http://www.nsf.gov/statistics/seind02/c2/c2s3.htm

[xxiii] This has a great deal to do with the academic freedom debate which has shaped higher education law in fundamental ways. I do not claim that there is no case or statutory law governing universities, but only that courts have found in the First Amendment protections of academic freedom that have been interpreted fairly broadly in ways that militate against legal oversight that would be expected in other walks of life. As Justice Brennan has put it:

> Our Nation is deeply committed to safeguarding academic freedom, which is of transcendent value to all of us and not merely to the teachers concerned. That freedom is therefore a special concern of the First Amendment, which does not tolerate laws that cast a pall of orthodoxy over the classroom.

Keyishian v. Board of Regents, 385 U.S. 589, 603 (1967).

# CHAPTER THREE

# ECOSOPHICAL STRUGGLE IN NEAL STEPHENSON'S *ZODIAC*

NICHOLAS P. SPENCER

Literary depictions of the natural environment are rarely just a matter of matter. It is more usual for such textualizations to be infused with assumptions about the nature of human subjectivity and social life and their connections with other aspects of the physical world. In *Zodiac: The Eco-Thriller*, Neal Stephenson portrays the environment in ways that are interwoven with subjective and social concerns. As a means of both drawing out the significance of the novel's environmental conjunctions and assessing connections between *Zodiac*'s preoccupations and those of other forms of cultural discourse, the following analysis relates Stephenson's novel to Félix Guattari's writings on "ecosophy." Best known for his collaborations with Gilles Deleuze, Guattari wrote several texts toward the end of his life, such as *The Three Ecologies* and *Chaosmosis*, in which he theorizes ecosophy as a struggle to create new models of "the three ecologies"—subjectivity, social arrangements, and the environment—in the context of capitalism's deleterious impact on these areas of material life. In Guattari's terms, *Zodiac* evokes the activist struggle against capitalism's destruction of the environment as a paradigm of heterogeneous redefinitions of subjectivity and social life. Environmental struggle attains this paradigmatic status because it foregrounds the principle of ecology, or the notion of the cyclical interdependence of disparate phenomena, which, for both Stephenson and Guattari, informs each of the three ecologies and the ecosophical "transversality" among them (Guattari, *Molecular* 17).[xxiv] Moreover, the texts of Stephenson and Guattari themselves form a cultural ecology in which environmental activism and what might be called a chemical imagination function as a context for perspectives on media, terrorism, art, democratic politics, and other issues.

The narrative of *Zodiac* is centered on the character of Sangamon Taylor. Formerly an employee of Massachusetts Analytical Chemical Systems, Sangamon works as the Northeast Toxics Coordinator for the Group of

Environmental Extremists (GEE). Along with other activists, Sangamon illicitly sabotages and publicly exposes illegal toxic dumping undertaken by various corporations. *Zodiac* is set primarily in the area of Boston Harbor, and the title of the novel refers to the fast and nimble means of transportation used by Sangamon to manoeuvre across the water. The novel's primary narrative sequence involves Sangamon's engagement with Basco, a powerful chemicals corporation run by the influential Pleshy family. In 1956 Basco purchased huge electrical transformers to produce chemicals, including Agent Orange deployed by the United States in the Vietnam War. Basco's old transformers were buried in the local environs of Spectacle Island, but in the 1980s, the time in which the narrative is set, a recent hurricane causes a derelict barge to rupture the transformers and release vast amounts of polychlorinated biphenyls (or PCBs) into Boston Harbor. Concerned about the potential hazards represented by the buried transformers, Basco buys Biotronics, a bioengineering firm, so that it can develop a genetically modified "PCB-eating bug" (216). Once it realizes the harbor is flooded with PCBs, Basco releases the bug. However, the company accidentally releases another genetically modified bug that has the opposite effect of producing PCBs. In order to mask its activities, Basco frames Dolmacher, one of its employees, and Sangamon. The enraged Dolmacher tries to assassinate Alvin Pleshy, a Democratic candidate for the President of the United States and corporate leader of Basco. Sangamon, whose group prevents the assassination of Pleshy, is forced into hiding. By the later stages of the novel, Sangamon and his associates are fully aware of Basco's actions and plans to poison the harbor and therefore destroy all evidence of its dealings. In the final scenes, Sangamon successfully hijacks the *Basco Explorer*, the boat that is being used to pour the poisonous waste into the water. Basco's plans are foiled and they are exposed in the media and "kicked out of civilized society" (307).

By emphasizing the impact of toxic waste on the environment, Stephenson foregrounds a chemical language that forges connections among what Guattari names "the three ecological registers (the environment, social relations and human subjectivity)" (*Three* 28). Stephenson and Guattari establish a continuum among these registers by breaking each of them down into their molecular components and identifying their common ground of molecularity. The molecular discourse of Guattari's texts also reflects the primacy of subjectivity, or what he terms "mental ecosophy," within the three ecologies (*Three* 35). Guattari insists that social struggle must be accompanied by transformations in "ways of living" that involve "molecular domains of sensibility, intelligence and desire" (*Three* 28). In *A Thousand Plateaus* Deleuze and Guattari elaborate the principle of molecular subjectivity through a discussion of "becoming-molecular" (272). For Deleuze and Guattari, becoming-molecular breaks down the "molar" or large-scale subject via the

emission of "particles" of creative subjectivity (275, 272). Such a process occurs when emitted particles form a "zone of proximity" with an external entity (273). Deleuze and Guattari discuss "becoming-animal" as a definitive form of becoming-molecular because in this experience particles of human subjectivity "enter the relation of movement and rest of the animal particles" in external milieus (274). The trajectory of becoming-molecular leads to the "cosmic formula" of "becoming-imperceptible" (279). Imperceptibility is associated with movements and affects that escape molar subjectivity and thus evade perception. At the same time, becoming-imperceptible facilitates the perception of otherwise unseen molecular "microoperations" (283). Subjectivity in this form includes the additional dynamic of "becoming-minoritarian," where "major identity" and "macropolitics" are both rejected in favor of an affiliation with subordinate social groups (but not necessarily groups who form a statistical minority) and their micropolitical struggles (291). Becoming-minoritarian is one of the many instances in which mental and social ecology are closely linked in Guattari's writings.

Guattari's elaboration of mental ecology sharply distinguishes between the individual and the subject. Whereas the individual is a whole, separate, and ultimately competitive entity, the molecular subject is both a "crossroads of multiple components" and a "singularity" that rejects the yoke of comparative, standardized, and routinized behaviors (*Three* 36, 31). The molecular subject of mental ecology is "autopoietic": it undergoes a continual act of self-production that has "two modalities" and thus a "double articulation" (*Chaosmosis* 111, 110).[xxv] In the "initial chaosmic folding" the subject "div[es]" into a chaotic miasma where "extrinsic references and coordinates" are absent and then folds this experience into a relatively stable subjectivity (*Chaosmosis* 110, 111). Guattari indicates that a "second autopoietic folding" is necessary to enhance stability and prevent the subject from "being swallowed up by chaos" (*Chaosmosis* 111). In general terms the first folding entails a "negotiation between complexity and chaos" and the second folding stabilizes the complex subject with the "finitude" of "limits and extrinsic coordinates and . . . particularized points of view," but Guattari insists that in practice these processes are interwoven with and not rigidly subsequent to each other (*Chaosmosis* 111, 112). Just as the bird refrains mentioned in *A Thousand Plateaus* demarcate a subjective territory, so too the "existential refrains" of autopoiesis redefine the spatiality and temporality of subjectivity (*Three* 46). Moreover, the two foldings produce two different types of spatiality for the subject: the initial folding involves "an intensive ordination coupled . . . to these existential Territories" and the second folding produces "the domains of Fluxes and machinic Phylums" from "coordinates embedded in the world" (*Chaosmosis* 28).[xxvi] As a means of "keeping time," the refrain also ensures that

"time ceases to be exterior in order to become an intensive nucleus of temporalisation. From this perspective, universal time seems to be no more than a hypothetical projection, a time of generalized equivalence, a 'flattened' capitalistic time" (*Chaosmosis* 15, 16). Unlike psychoanalysis and its obsession with the individualized past, the new temporality of mental ecosophy is oriented toward an autopoietic future of "irreversible durations" and "an awareness of finitude, precariousness, destruction and death" (*Three* 44; *Chaosmosis* 58).

All these attributes of mental ecology are evident to varying degrees in Stephenson's characterization of Sangamon Taylor. Sangamon's becoming-molecular is evident in his immersion in the environmental significance of molecular chemistry. He "can turn any topic into a toxic horror story" and can even smell toxins in the air (10). The identification of Sangamon with becoming-molecular is condensed in "Sangamon's Principle," which states that simple molecules are "better" than complex ones and reflects a commitment to the molecularity of the molecular (2). Sangamon's Principle is a theorization of his capacity to perceive molecular transversality, or the common ground of and causal relations between the molecular components of different phenomena. Sangamon's awareness of the underlying similarity of the structure and effects of Agent Orange and PCBs, a similarity to which other characters are oblivious, exemplifies his responsiveness to molecular transversality. He is suspicious of the large molecules produced by genetic engineering because their unknown consequences undermine his ability to trace chemical transformations back to illegal corporate activities. "Chemical reactions have inputs and outputs and there's no way to make those outputs disappear," claims Sangamon, but the causal consequences of molar molecules can be difficult to discern (57). Through its connection to drugs in the novel, Sangamon's Principle also informs Stephenson's textualization of subjectivity. Sangamon justifies his regular inhalation of nitrous oxide because it contains only three atoms; in contrast, he is wary of psychedelic drugs such as LSD because they are based on large-scale and therefore untrustworthy molecular combinations. As a mechanism for the attainment of an alternative state of mind and the fragmentation of his identity, Sangamon's taste for nitrous oxide exemplifies the molecularization of his subjectivity. Along with the suggestion that an "Evil Twin" is following him and the new identity he takes on in order to evade his pursuers, Sangamon's different names, such as Toxic Spiderman and the Granola James Bond, reinforce the sense of a subjectivity "deterritorialized" into numerous components (Stephenson 127; Deleuze and Guattari 142).[xxvii]

As in Deleuze and Guattari's analysis, Sangamon's becoming-molecular is also a becoming-animal. One of the chapters in *A Thousand Plateaus* commences with the image of a lobster and the words "Double Articulation" (39). Referring to Louis Hjelmslev's linguistic theories, Deleuze

and Guattari define double articulation in this context as the conjunction of "content" or "the regime of bodies" and "expression" or "the regime of signs" (108). In addition to Brian Massumi's claim that in Deleuze and Guattari's theory "CONTENT is what is overpowered, EXPRESSION what overpowers," Deleuze and Guattari's references to the zoological bases of Hjelmslev's theories foreground the non-linguistic conception of double articulation (Massumi 152; Deleuze and Guattari 108, 528n). *Zodiac* literalizes Deleuze and Guattari's identification of double articulation with a lobster's two claws by presenting Sangamon's becoming-animal as a double articulation that includes an encounter with the lobsters in Boston Harbor. Sangamon measures pollution levels in the water by dissecting lobsters discarded by local lobster catchers. Sangamon enters into a relation with the poisoned livers of the lobsters because they indicate the toxicity to which he and others are exposed. When he escapes his Basco pursuers, Sangamon loses his molar identity and concomitantly becomes-animal as he takes on the toxicity of the affected lobsters: "My identity may have died, swept overboard into the Atlantic, but my body lived on, tied to Boston, to Biotronics and Dolmacher and Pleshy by a toxic chain" (210). For Deleuze and Guattari becoming-animal is further doubly articulated because it involves both "mass contagion and preferential alliance" (244). Sangamon's interaction with the "pack mode" of the lobsters reflects both versions of double articulation because it is characterized by contagion and the overpowered content of the regime of bodies (Deleuze and Guattari 239). The other plane of becoming-animal's double-articulation is evidenced in Sangamon's relation to the killing of a stray cat, Scrounger, which is carried out by Basco employees. When Sangamon finds Scrounger's corpse tied to his front door, he becomes determined to fight and expose Basco. The "preferential alliance" with Scrounger is therefore a sign that realizes the overpowering function of expression as a struggle against corporate actions. For Deleuze and Guattari it is the "sorcerer" who is engaged in becoming-animal (237). Speaking of himself as an "exorcist" who "stood in front of TV cameras and called out the names of corporations," Sangamon similarly extends the overpowering expression of becoming-animal into the realm of demonic invocation (267).

Sangamon's tendency toward imperceptibility is associated with molecular struggle and thus represents the convergence of the already-mentioned aspects of his mental ecology. Riding his bicycle through a "guerilla route" in the streets of Boston, Sangamon strives for invisibility because he assumes that anyone who can see him may try to attack him (45). Imperceptibility guarantees safety during all his subversive struggles and, as in Deleuze and Guattari's formulation, makes visible the unseen molecular world of chemical pollution. Sangamon's becoming-imperceptible, which is further illustrated by the fact that nobody knows his telephone number, also clearly

leads into the experience of becoming-minoritarian. After successfully using his zodiac to escape a helicopter gunship's sightlines, Sangamon awakes to find himself in a Native American community that includes his friend, Jim Grandfather. Additionally, Sangamon's reaction to a meeting with corporate executives in the boardroom of Boner Chemical, a corporation based in Buffalo, highlights the ethnic component of his becoming-minor: "There were a dozen rich white guys and one of me. Actually, I'm a white guy too, but somehow I keep forgetting" (153). It would be inaccurate to say that Stephenson accords non-white experience or identity to Sangamon, but he does suggest that Sangamon's actions subvert any normative or molar identity he might have and place him in close relation to subordinate social groups: he looks like one of "the panhandlers on the Common" and undergoes a "transformation into a derelict" (6, 247). Yet at this point Sangamon's mental ecology undertakes a departure from Guattari's theoretical trajectory. Deleuze and Guattari state that "all becomings begin with and pass through becoming-woman" and emphasize the "necessary condition [of] the becoming-woman of the warrior, or his alliance with the girl, his contagion with her" (277, 278). Sangamon's ecosophical struggle involves several female characters, but he frequently distinguishes himself from the women around him. His house contains a separate area "where women lived and bathrooms were clean," and he dislikes having "duck-squeezer sex" with Debbie: "slow, frustrating, in tune with nature" (2, 92). Such instances represent a general blockage within the process of becoming. When Sangamon bemoans the fact that he will not be recognized as a heroic "ecoprophet" because his friend, Kelvin, is the one to take crucial decisions in the struggle against Basco, he reveals that the subject of becoming has been "reterritorializ[ed]" as a competitive individual (Stephenson 251; Deleuze and Guattari 143). Rather than illustrating Deleuze and Guattari's conception of warrior identity as a function of becoming-woman, Sangamon embodies a division between a macho warrior identity and a collective identity with women, which interrupts the becomings of mental ecology.

The reterritorialization of Sangamon's individuality is never absolute because he constantly returns to what Guattari describes as the double articulation of the autopoietic folding of subjectivity. Sangamon's activism always requires a phase of diving into water or underground sewers; for example, he sabotages an underwater toxic diffuser pipe, collects toxic samples from Boston Harbor and from the city's sewer system, pours concrete into a sewer containing toxic waste in Buffalo, and removes mines attached to the hull of the *Basco Explorer*. Like the scenes where Sangamon laboriously measures samples taken from lobsters or hauls a seemingly endless amount of rope to attach the *Basco Explorer* to a tugboat, all these acts of diving exemplify processes of autopoietic folding in which refrains of slow, repetitive behavior

produce altered subjective experiences of spatial territories and temporal durations. His two acts of diving—underwater and underground—can be linked to the two moments of autopoietic folding described by Guattari. The fear and disorientation Sangamon experiences when he dives underwater link these instances of the refrain to Guattari's first autopoietic folding. That Sangamon feels it is "[i]mpossible to tell direction" as he works to remove the mines from the *Basco Explorer* indicates that being underwater is a chaotic experience for him (296). For Guattari, the refrain of the first autopoietic folding is an "intensive ordination" that engenders an apprehension of "the sensible finitude of existential Territories" (Guattari, *Chaosmosis* 111). The outcome of Guattari's model of a first autopoietic folding—the apprehension of territorial space in terms of the characteristics of existential subjectivity—is also apparent in Sangamon's perception of Boston Harbor. As he emerges from the "intensive ordination" of underwater diving, he views the harbor in terms that derive from his subjective experiences and thus exemplify the formation of "existential Territories." Just as his identification of the harbor with "[t]he real distance, the distance of nature" reflects his zodiac-based experience of a holistic and integrated locale, so too his appreciation of the harbor's "fractal coastline" is an extension of his preoccupation with molecular complexity (30). Sangamon's second autopoietic folding emerges through the refrains of the sewer and produces an experience of spatiality based more on the tracking of land-based coordinates than a sense of the open fractal complexity of Boston Harbor. He is afraid of being underwater, but in the sewers, where he feels "in my element," Sangamon is able to traverse the coordinates of what Deleuze and Guattari name a "machinic phylum," a "matter-flow [that] can only be *followed*" (Stephenson 185; Deleuze and Guattari 410). Like the "itinerant" or "ambulant" artisan who, according to Deleuze and Guattari, follows the "metallurgical" machinic phylum and in so doing occupies the "holey space" of underground lairs, Sangamon pursues the chemical and metallurgical flows in Boston's sewer system and further stabilizes his subjectivity in the act of ecosophical struggle (Deleuze and Guattari 411, 413). The second folding is illustrated, for instance, as Sangamon tracks the phylum of Dolmacher's movements through New Hampshire woodlands. As it creates a modified sense of duration in Sangamon, this scene also exemplifies the new experience of temporality associated with the interweaving of the two foldings. The media spread rumors that Sangamon's activism can be explained in psychoanalytic terms as a result of childhood rebellion against authority, but in reality his commitments are due to a concern with the ecosophical future not the individualized past. Along with his use of bottles of putrescine to incapacitate Basco guards, Sangamon's acute sensitivity to the irreversibility of environmental destruction offers further evidence that he shares the characteristics of Guattari's autopoietic temporality.

The transversality of subjectivity in Guattari's writing means that mental and social ecology are mutually defining and inseparable in principle. In *The Three Ecologies* Guattari defines social ecology in terms of "affective and pragmatic cathexis in human groups of differing sizes" and "collective assemblages of enunciation, which conjoin pre-personal traits with social systems" (60, 60-61). According to Guattari, subjectivity is founded on "pre-personal" affective states that are attached and open out to two aspects of the socius (other human subjects and "non-human" phenomena, such as language, media, and technology [*Chaosmosis* 9]). Since the reterritorialization of the individual blocks these pre-personal affective attachments and assemblages, the persistence of social ecology is reliant on molecular subjectivity: in Guattari's nondialectical thinking, increases in singularity or molecularity are also increases in collectivity. The new "modalities of 'group-being'" sought by Guattari involve transformations of family, domesticity, friendship, work, and other areas of everyday life (*Three* 34). As well as being a rejection of models of subjective temporality rooted in the past, Guattari's critique of psychoanalysis is a negation of the frozen nuclear family with which psychoanalysis is obsessed. Guattari claims to write at the time of the "postmodern impasse," a moment associated with a "glaciation . . . in social relations," the end of the Cold War, the triumph of neoconservatism, and an apparent demise of engaged politics ("Postmodern" 109). Rather than promoting the generalized molar politics of class struggle, he seeks to renew social relations and political struggle in terms of decentralized, flexible, and modular assemblages. The new politics of social ecology involves the provisional co-articulation of various heterogeneous struggles. Sometimes, Guattari writes, groups across different struggles will work together, "[b]ut there will simultaneously be periods in which individual and collective subjectivities will 'pull out' without a thought for collective aims" (*Three* 52). He disdains terrorism's "molar terrain of confrontation" because it mirrors the state power that he also rejects (Guattari and Negri 87). Guattari continually attacks mass media for creating a "sedative discourse" that simultaneously disregards the erosion of the three ecologies and "divid[es] the Real into a number of discrete domains" (*Three* 41). In response Guattari advocates a "post-media age, in which the media will be reappropriated by a multitude of subject-groups capable of directing its resingularization" (*Three* 61). Guattari critiques media so frequently because he sees it as an essential component of what he terms "Integrated World Capitalism," a hierarchical structure of production, the market, and the state that is defined by a principle of "production for production's sake" (Guattari and Alliez 284, 285).

While analyses of mental and social ecology dominate Guattari's treatment of the three ecologies, his treatment of environmental ecology is a

pivotal aspect of his theoretical project. As Gary Genosko narrates, Guattari "stood for office in the regional elections under the banner of a Green politics that saw him move between two parties: Les Verts and Génération Ecologie. Both . . . and beyond: that was the point of Guattari's unheard-of 'double membership' in both parties" (*Party* 15). Guattari's political stance reflects his belief that ecological activism is and ought to be paradigmatic of the new politics of social ecology. Yet his oscillation between two French Green parties indicates his commitment to the decentralization and transversality of social struggles. These two perspectives define Guattari's environmental ecology. For Guattari, ecological crises such as Chernobyl are the most pressing and most global of political concerns and they highlight the "nagging paradox" of the relation between the technological capacity to resolve global problems and the inability of social groups to take advantage of such capacity (*Three* 31). Amid "the multiplication of antagonisms and processes of singularization" that characterize the postmodern impasse, ecological activism makes apparent the possibility of new types of political co-articulation (*Three* 33). In particular, Guattari notes the "nationalitary claims" that are frequently conjoined with ecological initiatives (*Three* 31). Ecological struggle also provides a language of pollution, extinction, and processuality that Guattari uses to understand issues such as the deadening effects of mass media and the relationship between real estate development and homelessness. However, the translatability of ecological discourse often serves to minimize the significance of environmentalism. As illustrated by his discussion of a "mechanosphere" of nature and culture, Guattari at times utilizes the language of ecosystems to suggest that nature cannot be considered a distinct phenomenon (*Three* 43). Also, he responds to the inability of technology to solve ecological problems by promoting an "aesthetic paradigm" of "virtual ecology" at the expense of scientific discourse (*Chaosmosis* 91). Guattari's prioritization of the "ethico-aesthetic" and cultural meanings of ecology is consistent with his fear that the "technical and associative" aspects of French environmentalism will cause its demise and his sense that "the overall ecosophical question is too important to be left to some of its usual archaizers and folklorists" (*Chaosmosis* 129; *Three* 52). Environmental ecology shapes Guattari's ecosophical thinking but it is ultimately subordinate to his rendering of mental and social ecology.

The connections between the narrative of *Zodiac* and Guattari's conception of social and environmental ecology are numerous and complex. Social relationships in *Zodiac* share many aspects of Guattari's social ecology: "Atoms are like people," claims Sangamon. "Get lots of them together, never know what they'll do" (2). As well as extending the chemical discourse of the novel into the terrain of social ecology, these comments highlight the variability and unpredictability of social groupings. When Sangamon and Debbie stay in

the "honeymoon suite" at a Buffalo hotel, they momentarily participate in the nuclear family structure that Guattari derides (152). Yet it is more common for the narrative to redefine group behaviors and relationships and present a social ecology that disrupts normative conventions regarding the structure of everyday life. At the novel's opening, Sangamon awakes at dawn at the same time as his landlord, Roscommon, "passes out" (1). Along with Bart, his roommate, Sangamon inhales nitrous oxide and watches rock music videos before eating breakfast and he plays with "model trains after bedtime" (157). As Sangamon's musings indicate, the social definition of his domestic space is left in a virtual state: "Should we call this place a 'co-op' or a 'commune'? How about calling it a 'house'?" (156). That the house is a social version of a virtual existential territory is suggested by the description of the garden as being "tucked away in kind of a space warp caused by Brighton's irrational street pattern" (3). This description evokes the house as a social and not simply a physical environment and thus resonates with Guattari's description of the fluid interactions, functions, and group configurations of "the institutional sub-ensemble that constitutes the kitchen at La Borde Clinic" (*Chaosmosis* 69). Sangamon's social interactions beyond the domestic sphere, such as those with Rory Gallagher and the other lobster catchers, Jim Grandfather, Hoa the Vietnamese restaurant owner, and his old college friend Kelvin, are both provisional and productive. The narrative suggests that these fluid and open-ended social arrangements are complemented rather than subverted by the affective desires that motivate Sangamon's singular behavior. As illustrated by the fact that Sangamon chooses to go to a "[c]haracter-free" bar in the shopping mall and orders domestic as opposed to imported Asian beer at the Vietnamese restaurant, the affective desires that are co-articulated with collective cohesion also subvert claims to an identity of authentic cultural alterity (40). These cultural preferences reflect a subjectivity that restlessly strives to remain open to various social interactions and to avoid a fixed and limited cultural identity.

In Stephenson's novel, the act of activist struggle, or, in Guattari's terms, enunciation, gives form and meaning to social relationships. The interpenetration of Sangamon's social network and activist milieu echoes certain aspects of Guattari's conception of social ecology, such as the blurring of work and social life, but it also suggests an important difference between *Zodiac* and Guattari's theories. Whereas Guattari denies the exclusivity of the natural world and subordinates environmental ecology to other forms of ecosophy, *Zodiac* collapses the principles of Guattarian social ecology into environmental struggle. The novel co-articulates different types of social struggle, but these are variations among the different forms of environmental ecology. There are three environmentalist concerns mentioned in Stephenson's text: toxic pollution, animal exploitation, and nuclear energy. Of course Sangamon's actions against

toxic pollution form the core of the narrative, but these other areas of environmentalist concern are significant because they illustrate forms of activist co-articulation. Sangamon's disposition toward animals offers especial insight into the dynamics of environmentalism in the novel. He identifies with the technical skills that enable GEE to "com[e] to the rescue of innocent marine mammals," but he is unmoved by the presence of a dying dolphin because he lacks the technical expertise to respond to the situation (8). Both his connection to and separation from animal rights activism are therefore a function of technical ability. However, other factors strengthen the dis-articulation of Sangamon's own activism and animal rights actions. As Sangamon enters the GEE office, he feels "fully indoctrinated" by the stickers that say "SAVE THE WHALES and something about the BABY SEALS" (7). Such a response is typical of Sangamon's attribution of sentimentality and ideology to animal rights activists. His willingness to appeal to the sporting interests of hunting and fishing in order to protect marine areas demonstrates his disregard for the ideologies of animal rights. Also, Sangamon is perturbed when he is regarded as "an over-anxious duck-squeezer" because he feels that in such instances his "manhood" is challenged (45). As when he submits to eating "birdseed and tofu" with a female newspaper reporter and describes Tanya, a fellow activist, as a "born vegetarian," Sangamon in this instance associates vegetarianism and animal rights with the feminine traits that he abhors (20, 113). These textual moments suggest that the co-articulations of Sangamon's environmental ecology are influenced by the absence of becoming-woman in his mental ecology and that he is consequently unable to transfer the principle of becoming-animal to the realms of social and environmental ecology. Just as Guattari translates ecological issues into ethico-aesthetic terms, so too Sangamon's frequent use of animal imagery, such as his description of Alvin Pleshy as a "tin duck," displaces a commitment to animal rights ecology (243). (Along with the narrative's other nuclear tropes, Sangamon's claim that "Basco's dropping the bomb" on Boston Harbor reflects an equivalent aestheticization of anti-nuclear activism [274].) These aesthetic displacements enable the ecosophical priorities of Guattari's social ecology and Sangamon's struggle against toxic pollution to be foregrounded.

The heterogeneous forms of environmentalism in *Zodiac* are linked to different tactical initiatives. By presenting various methods for active struggle, Stephenson's novel subverts the hegemony of democratic politics. "A certain type of 'politics for politicians,'" writes Guattari, "seems destined to be eclipsed by a new type of social practice better suited both to issues of a very local nature and to the global problems of our era" (*Chaosmosis* 121).[xxviii] Sangamon's localized actions that strive to affect the global environment realize Guattari's model of political activism as social practice. Further, Stephenson's novel

reiterates the critique of molar state politics that Guattari articulates. Through the character of Alvin Pleshy, the narrative suggests that democratic state politics are but a mask for corporate interests. Also, Sangamon attacks the Environmental Protection Agency as a political and therefore ineffective body, and he has no time for politically-motivated anti-pollution endeavors. As exemplified by his repeated references to the absence of a plan, the combination of various tactical components in his subversive actions, and his temporary affiliations with characters such as Tom Akers and Hank Boone, Sangamon adheres to flexible tactics rather than state politics. Despite such flexibility Sangamon's actions are consistent and coherent, and he is primarily committed to a type of stealthy direct action that is solely identified with anti-pollution activism: "There's no direct action to stop nuclear proliferation," he notes, "and direct action to save mammals is just too fucking nasty" (48-49). Sangamon's tactical distinctions often lead to conflict with the views of other activists. He respects the bravery of the crew of the *Blowfish*, but he complains that these nature-loving vegetarians lack a "technical background" and "'military precision'" (49). Such tensions are linked to Sangamon's contempt for Dan Smirnoff's eco-terrorism. Sangamon may be "militaristic" in his planning and organization, but, like Guattari, he regards violent terrorism as counter-productive in that it causes anti-capitalist activists to be demonized and discredited (77). The narrative justifies Sangamon's views as Smirnoff's terroristic group tries to bomb the *Basco Explorer* and thus destroy the evidence of pollution that it contains, and the media erroneously constructs Sangamon as a "fugitive terrorist" in order to vilify him (197). Associated with a form of militarism that attempts to avoid violence and illegality, the tactical operations in which Sangamon participates exemplify what Deleuze and Guattari name the "war machine" (351). For Deleuze and Guattari, the war machine is a form of militarism that seeks to hold and occupy social space rather than attacking opponents for political gain. While the war machine is external to state power, it can be appropriated by the state in military-political assaults. In *Zodiac*, the war machine of Sangamon's operations traverses and strives to protect large areas of environmental space, but terrorism activities involve concentrated confrontations that, as in Guattari's writing, mirror the capture of the war machine by the molar politics of state power. Sangamon's tactics are undoubtedly effective, but the flexible arrangements of social and environmental ecology in the novel are vulnerable to divisiveness and the seductiveness of molar confrontation.

Sangamon's tactics comprise a double articulation of stealthy subversion and media exposure. His use of the media can be regarded in terms of Guattari's concept of post-media because it entails an act of appropriation that takes control of media content: "one is forced to admit that there are very

few objective indications of a shift away from oppressive mass-media modernity toward some kind of more liberating post-media era in which subjective assemblages of self-reference might come into their own" (*Soft* 117). The fact that in *Zodiac* there are numerous examples of such media appropriations suggests that Stephenson's novel provides an imaginary realization of Guattari's ideals. Guattari warns against "media fatalism" because he suggests that post-media appropriations are means by which subjectivity can be reinvented and art forms can be renewed (*Three* 62). In scenes such as those in which Sangamon appears as "the ringmaster of a full-scale media circus" or as Santa Claus distributing GEE leaflets at a state office building before television cameras, the act of media appropriation brings with it a ludic transformation in subjective identity (79). Along with self-created leaflets and publicity materials, Sangamon and his social group utilize the mobile and flexible "miniaturized systems" of hand-held cameras that Guattari advocates in his discussion of "popular free radio" as a form of post-media (*Soft* 73, 74). Most importantly, the appropriation of media in *Zodiac* is an effective means of promoting environmental ecology. Instead of terroristic confrontations, Sangamon stages successful media events, such as his manipulation of "mediapathic" and "mediagenic" images and his destabilization of the form of the press conference held by a polluting corporation: "You have to attack on two levels—challenging what the PR flacks are saying, and at the same time challenging the conference itself, shattering the TV spell" (59, 275, 81). For Guattari, the political struggles of social ecology should be nonrepresentational and nonhierarchical and thus must not utilize the reductive "order-words" that "lead to the promotion of charismatic leaders" (*Three* 34). As Genosko observes, Guattari's critique of the order-word reflects his disdain for the "sound-bite" of the "media-friendly leader" (Guattari *Three* 77). The media confrontation between Boone and Pleshy constitutes an expansive dialogue that undermines the authoritarian monologic of the media-friendly politician's charismatic order-words. By positing media intervention as an environmentalist tactic, *Zodiac* creates bonds between post-media and the three ecologies that are stronger than in Guattari's texts. For example, Sangamon and Bart watch "Deep Cable" television, a phrase that evokes a parallel with deep ecology and thus alludes to the non-metaphorical meaning of "media ecology" that permeates the narrative (2). The bonds between media and ecology mean that acts of appropriation are real and effective, but they also highlight a media pervasiveness akin to Guattari's description of the media version of the Gulf War as a "total intrusion" that was "within ourselves" (*Soft* 139).

The engagement with media is so sustained in *Zodiac* because it is a central component of larger capitalist enterprises. In his writing with Eric Alliez, Guattari evokes Integrated World Capitalism (IWC) as a "semiotic of

capitalistic valorization," a "structure of segmentation," and a set of productive processes (273). Since information is a major factor of production in this model of capitalism, semiotic valorization, or the codification of meaning and value, is embedded in systems of production. Concomitantly, production dominates IWC "at the world level and at the molecular level" and the power of the state and the market are of subordinate importance (Guattari and Alliez 284). As well as being characterized by the "mobile factory," the "'mobile' State," and a highly flexible "restructuration of productive space," IWC requires the existence of fringe or protest groups that it can absorb, but it fears "authentic 'molecular revolutions'" that might subvert its authority (Guattari and Alliez 285, 286; Guattari, *Molecular* 269). In *Zodiac*, capitalism appears in the guise of transnational corporations, such as the "Swiss Bastards," who pursue industrial production at global and molecular levels without ostensible considerations of the market, the state, or environmental law (12). In his investigations of Biotronics, Sangamon is repeatedly surprised by the restructured spatial organization of industrial production. Rather than having a "consolidated facility," Biotronics is made up of numerous "scattered" components (163). At the same time, many of the buildings in "TechDale," a "high-tech industrial park," bear the name of Biotronics (190). Mobile and omnipresent, Biotronics is also associated with the "formal equivalence" or homogeneous interchangeability that Guattari and Alliez attribute to segmented social space under IWC (276). In its identification of the vulnerabilities of capitalist production, *Zodiac* uses the same terminology as Guattari. After his attempted assassination of Pleshy, Dolmacher is described as being in a state of psychotic "[l]eaking" (248). Guattari states that economic systems such as capitalism decline because they "leak from the inside" and that "[s]chizophrenia is indissociable from the capitalist system, itself conceived as primary leakage" (*Chaosophy* 47, 72). Dolmacher's experience illustrates a weakness or internal erosion of capitalist power, but, more substantively, Sangamon's social group participates in an economic system of gifts and recycled materials that serves as an alternative to capitalist exchange. Yet the exclusive focus of Sangamon's actions on environmental ecology limits their revolutionary molecularity. His allusion to Garrett Hardin's "The Tragedy of the Commons" and his desire to chart a fishing boat to unpolluted areas of the "blue unspoiled ocean" are reminiscent of the dreams of "ecological niches" and "islands of fresh air" that Guattari criticizes because of their lack of connection to "large social collectivities" (*Zodiac* 88; *Chaosophy* 47). Moreover, Sangamon's identification of pure streams with the qualities of the United States and his criticisms of Boone's hideout in "some weepy European social democracy" charge his activism with insular and nationalistic qualities (24). Whereas Guattari advocates the co-articulation of environmental and nationalitarian

demands, Sangamon's nationalism, like his macho posturing, restricts the range and qualifies the coherence of his ecosophical struggles.[xxix]

Both *Zodiac* and Guattari's theoretical texts can be viewed as cultural reassessments of political activism at the end of the Cold War's molar politics. These texts abandon and critique the procedures of democratic politics, yet they are strongly opposed to capitalist practices and seek to imagine new forms of political engagement. The commitments of these writings discredit those who claim that postmodern and poststructuralist culture is devoid of tangible political goals and tactics. From the perspective of the sentiments expressed in the texts of Stephenson and Guattari, it is those who adhere to the democratic politics of neoliberal societies who have capitulated to extant corporate power. Reading Stephenson and Guattari gives us a sense not only of the power and effectiveness of direct action and the need to avoid terrorism and promote flexible arrangements in new models of activism, but also of the ways in which the political assessments undertaken by both authors involve the reimaginings of models of subjectivity and everyday social life. While Stephenson and Guattari both announce the foundational role of ecological activism in ecosophical struggle, they have different ideas about the relation between environmentalism and other aspects of ecosophy. For Stephenson, mental and social ecology facilitate ecological struggle and are homologous with it, but ecological activism is essentially an end in itself. The focus on environmentalism in *Zodiac* at times weakens other ecosophical perspectives and, as a result, reterritorialized forms of egotism and nationalism emerge in the narrative. Guattari regards environmentalism as a powerful model for new political struggle but, in contrast to Stephenson, he is primarily committed to reinventing subjectivity, social life, and the general struggle against capitalism. He mistrusts environmentalism and, as a result, occasionally reinforces derogatory images of ecological activists. But the differences between Stephenson and Guattari need not amount to divisions. It is possible to regard the texts of these authors transversally as participants in a wider cultural ecology of interdependent elements, including American fiction and French critical theory. Such a perspective has the benefit of recognizing and advocating a broad cultural coalition of ecosophical critiques and avoiding the internecine demonizations that often characterize critical discourses on ecology and anti-capitalism.

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## Notes

[xxiv] Gary Genosko explains that in Guattari's later writings the concept of transversality denotes how a "subjectivity [that] is both collective and auto-producing" is formed through its relation to external "partial-object-enunciators" ("Life"146). This process of subject formation is, Genosko continues, functionally related to "the militant's ability to modify the institutional objects and conditions" ("Life" 148). Since, for Guattari, subjectivity is formed across the "universes" of mental, social, and environmental ecology, transversal subjectivity and ecosophical struggle engender each other.

[xxv] For a summary of Guattari's appropriation of the notion of "autopoiesis" from the writings of Francisco Varela, see Genosko's notes in Guattari's *The Three Ecologies* (100-102).

[xxvi] Connections among "the four functors and the domains proper to each" constitute one of the most elusive and complex elements in Guattari's thought (Genosko, *Félix* 203). The four functors of Fluxes, Phylums, Territories, and Universes are significant means by which Guattari articulates the heterogeneous dimensions of subject formation and their transversal relations to extra-subjective phenomena. Genosko's analysis of Flux as "actual real," the Phylum as "actual possible," the Territory as "virtual real," and the Universe as "virtual possible" illuminates the meaning of these terms (*Félix* 204). Whereas Flux refers to "real" flows of energy or unformed matter, the Phylum is associated with the "possible" series or chains of transformation that such "actual" matter and energy can become. Unlike Flux and Phylum, the Territory is "virtual" because it is centered on the subjective construction of "real" social and material space. Somewhat reminiscent of Pierre Teilhard de Chardin's concept of the "noosphere," the Universe is a domain of subjective aesthetic or intellectual experience (Guattari's favorite example is the aesthetic Universe of Debussy's music). As is discussed below, Sangamon's transversal experiences primarily involve the Phylums and Territories of Guattari's four functors.

[xxvii] The discourse of deterritorialization and reterritorialization is a crucial dimension of Deleuze and Guattari's *A Thousand Plateaus*. In many respects deterritorialization is a process of the molecularization and reterritorialization of the molarization of subjectivity and other phenomena. Yet Deleuze and Guattari always problematize their conceptual schemas in ways that preclude binary oppositions or even distinctions. While there is an undoubted attraction toward "absolute deterritorialization" in their writing, phenomena such as "symbols" can be associated with "relative or negative deterritorialization" (143, 142). Similarly, Guattari's individually-authored writings rail against the "molecular fascism" that accompanies certain forms of social deterritorialization (*Chaosophy* 244).

[xxviii] Verena Andermatt Conley notes that Guattari's wariness about the primacy of environmental ecology translates into the "problematic" nature of "matters global and local" in *The Three Ecologies* (97). "The bumper sticker of Guattari's program would probably read," writes Conley, "in black (not green) upper-case, sans-serif bold type, 'ACT GLOBALLY, THINK GLOBALLY,' contrary to the Sierra Club and Audubon Society, which encourage us to 'ACT LOCALLY, THINK GLOBALLY'" (97). Conley accurately surmises the chasm that exists between Guattari's (black) anarchist politics and the genteel world of environmental preservation, but it must be added that Guattari's global perspective is combined with an anarchist version of local direct politics. Also, the local aspects of Guattari's work are extensions of his commitment to molecular revolution. *Zodiac* is similarly invested in local activism, the anarchist tactics of direct action, and Guattari's global-molecular axis.

[xxix] "Nationalitary demands are not to be confused with national demands," writes Genosko, "for the latter arise from a majority, whereas the former arise from a minority that is often in conflict with the majority" (Guattari, *Three* 74). References to the Boston

Tea Party Ship as "[t]he birthplace of the direct-action campaign" may link ecosophical struggle in *Zodiac* to American radical traditions, but Sangamon's references to the values of the United States are nationalist rather than nationalitarian because they assert dominance and competitiveness (227).

# CHAPTER FOUR

# TONGUE-TIED IN AMERICA'S METAVERSE: THE NATION AS META-LANGUAGE AND THE MYTH OF CONSENSUS IN NEAL STEPHENSON'S *SNOW CRASH*

SHANE A. SHUKIS

Neal Stephenson's 1992 novel *Snow Crash* is often lauded for its ground-breaking qualities. It presciently articulated the Metaverse, a virtual-world of avatars that very closely predicted the actual expansion of the Internet as a space for virtual identity and interaction (see any myspace.com account). It also predicted a decentralized American future in which the federal government largely ceded social policy and civic organization to corporations. For these reasons, *Snow Crash* is widely considered a fine science fiction novel based on the strength of its speculation.

However, there is also a case to be made that *Snow Crash* deserves consideration in the regular canon of American novels precisely because, in addition to looking forward, it also resonates historically with one of the longest obsessions of America's collective unconscious. Despite being set in the future, in a radically-conceived alternative reality, *Snow Crash* performs a cultural intervention in the single most important and immediate historical discourse about American identity, both public and private.

Carl Jung's idea of the collective unconscious posited that there were certain conceptual archetypes, and these archetypes were inherited, whether through deep biological structures or accumulated cultural accumulation. However, archetypes in this sense are more recognizable through their symptomatic resurfacing across broad cross-sections of the American intellectual landscape.

To illustrate how *Snow Crash* intervenes in this unconscious American obsession, I will begin with a very recent public statement by Idaho Senator Larry Craig. On 19 May 2006, his office released a document titled "The Tie

that Binds." Craig begins by asking, "What defines America and makes it what it is?" He answers, "Certainly the Constitution," and "Our culture is another big part." However, these matters are not the most important foundations for American identity for Craig. Overlooking the Constitution or culture as issues worth analyzing, he posits that "there is one particular issue I would like to discuss today, and that is our common language: English."

Craig's statement comes in the context of Senate Amendment S.2611 submitted by Senator Inhofe on 18 May 2006. This Amendment proposed to make English the official language of the United States. This Amendment is part of a growing national debate in America about immigration reform and national security. The country has experienced a sense of vulnerability and threat since 9/11, and another sense of impotency and lack of American exceptionalism in the wake of the Iraq invasion and rising threats from North Korea and Lebanon. Historically, the idea of a single, unifying national linguistic standard, similar to Craig's "The Tie that Binds," has surfaced during such times of perceived outer threats and inner destabilization. During the American Revolution, the call came out to define the new country as distinct from its British parent, and in the late 19th and middle 20th centuries, it became prominent again in response to influxes of immigrant populations and foreign-derived ideas. Inhofe's resolution, and Craig's endorsement of it, to officially designate a specific linguistic *form* as the *norm* of America's civic identity constitutes a symptomatic resurfacing of this foundational issue that has existed since even before America's official birth.

I will argue that the specific historical manifestations of this discourse that I call *The State of the Language/Language of the State* resonate with *Snow Crash*'s analysis of a universal tongue based in the deep-structure of the brain, which Stephenson names both glossolalia and falabala. As a brief introduction to the topic before I specifically analyze scenes from *Snow Crash* and compare them to Puritan and Revolutionary discourses over the centrality of English as the foundation of American identity, I will introduce an exemplary but not exhaustive example of how early American authors conjoined the idea of speech, a discernable linguistic form, with national identity.

Instances of the linguistically-divergent, dialects or forms of speech that do not adhere to the accepted, or in Inhofe and Craig's case mandated, standard always been part of the larger cultural conversation over the role of language and social-identity since the foundation of Nation. From the very early days of the American experiment, critics argued over language in ways that reveal a larger concern with the idea of community at the national level. For this reason, the idea of a national tongue becomes a synecdoche for social unity, as evidenced in this 1791 article published in *The Universal Asylum and Columbian* entitled "On the Use and Abuse of Speech":

> Bleft with the powers of fpeech, men at very early periods formed themfelves into focieties, and, in confequence therof, civilization was introduced and is gradually extending its benign influence over the most remote regions of the globe. (anonymous, 229)

This discourse over the foundational role of speech in the formation of Nation informs all instances of the linguistically-divergent to such a predominant degree that it can be called a pre-text that is in play when any image of a broken-tongue is used.

The conflation of a single linguistic standard and national unity and purity is best understood through Linda Hutcheon's theorization of what can be called the Center/margins matrix. The Center/margins matrix operates in texts that she defines as ex-centric (off-center), texts that work to displace the supremacy and transparency of a stable and homogenous literary or cultural tradition (narrative, genre, convention) that centralizes/totalizes/homogenizes social experience. Ex-centric texts operate to question, or at least generate questions about, the normalcy and adequacy of any single/central form or tradition to represent all forms of experience in a given moment:

> The move to rethink margins and borders is clearly a move away from centralization with its associated concerns of origin, oneness (Said 1975a; Rajchman 1985) and monumentality (Nietzsche 1957, 10) that work to link the concept of center to those of the eternal and universal. The *local*, the *regional*, the non-totalizing (Foucault 1977, 208) are reasserted as the center becomes a fiction—necessary, desired, but a fiction nonetheless. (Hutcheon, emphasis mine 58)

Hutcheon's formulation posits that appeals to a Center, whether conceived as an archetype, genre, or even unitary-language, are nothing more than a fiction that dissimulates its history as a construct and presents itself as a natural norm. Although Hutcheon's analysis specifically analyses literary form, its emphasis on the constructed nature of central(ized) norms is similar to Jacques Derrida's critique of the ethnocentrism of the logos in the Western metaphysics of presence as it relates to ideas of a unitary speech and divergent forms of linguistic expression. This happens when the "phoneticization of writing must dissimulate its own history as it is produced" (Derrida 3). This ethnocentrism is part of "*the history of* (the only) *metaphysics*, which has . . . always assigned the origin of truth in general to the logos: The history of truth, of the truth of the truth, has always been . . . the debasement of writing, and its repression outside 'full' speech" (Ibid). In this tradition, linguistic style in written form supplements or approximates the immediacy of speech, which has been variously termed a plain, simple, or natural style. This belief in a plain style founded upon speech becomes the convention for talking about the act of

signification in general. According to Derrida, "the voice, producer of *the first symbols*, has a relationship of essential and immediate proximity with the mind" (10). This is important because "the feelings of the mind, expressing things naturally, constitute a sort of universal language which can then efface itself. It is the stage of transparence" (Ibid). For this reason, "the written signifier is always technical and representative. It has no constitutive meaning" (Ibid).

The discourse over the State of the Language/The Language of the State in America has always informed texts about American identity and exceptionalism. These texts have sought to investigate the boundaries and limitations of understanding America's historical place through its tongue, the particular use and status of language. And in this sense, Stephenson's *Snow Crash* is just as much a novel about America as it is a science fiction text about computer-generated realities and the powers of ancient languages and the human mind. While looking forward, it simultaneously echoes and engages the past.

It is not an original statement that Neal Stephenson's novel *Snow Crash* examines the power of language. Nor is it particularly groundbreaking to contend that science fiction novels have previously investigated the quasi-magical, or as Stephenson calls it, incantational power that texts composed of linguistic units of information exert on contemporary society. However, Stephenson does create an innovative if not coherent scenario that there are two types of language systems that operate in the human mind. As Hiro Protagonist explains it to Mafia kingpin Uncle Enzo and Burbclave magnate Mr. Lee towards the end the novel:

> "[W]e've got two kinds of languages in our heads. The kind we're using now is acquired. It patterns our brains as we're learning it. But there's also a tongue that's based in the deep structures of the brain, that everyone shares. These structures consist of basic neural circuits that have to exist in order to allow our brain to acquire higher languages." (394-95).

This dual-level linguistic system overcomes, or some might contend overlooks, the long-standing divide in linguistics between relativism and universalism. Does language naturally tend to converge toward greater uniformity and consensus, or does it naturally diverge into greater diversity and distance between multiple linguistic communities? At the end of the day, or the apocalypse in this case, is language a sufficient system for communicating information, or an obstacle between uniform understanding and social consensus? However, Stephenson's scenario does not seek to answer these questions, which some might find disappointing. Instead, his premise of dual-level linguistic structures powers his plot along and makes possible his larger analysis of not just the general power inherent in language itself, but also the place that language debates have historically had in American society. This

elision of the cognitive-linguistic elements of the dual-level proposition might not make for great science, but as a literary contrivance, it makes for great science fiction and cultural analysis precisely because it introduces a conundrum (which came first?) that leads to other questions and ideas beyond itself. Specifically, it begins with the relationship of language to the mind, and leads to questions of the relationship of language as a manifestation of social power to the institution of national forms as a primary means for constructing a truly American *subject*, in the sense of both content and citizenship.

The tongue that works within the deep infrastructure of the brain, the mother tongue as Stephenson calls it, is not merely a finite operating system of basic linguistic structures, an Ur-language that can only be accessed. As Hiro further explains it, there is an input side to this deep structure:

> "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 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 hacker 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." (369)

It is at this crux that Stephenson's examination of language in America has been most interesting but also confusing for science fiction enthusiasts. Science fiction as a genre has frequently envisioned utopian scenarios, alternative worlds that are better than the one we live in. One must wonder why Stephenson considers the universal tongue, glossolalia or falabala as it is described in the novel, to be a bad thing, something that Hiro and Y.T. must stop from spreading.

It is a question worth asking. Novels that have engaged the utopian and dystopian modes have often examined the social harm that a Babel-scape presents to humanity. In a universe defined by hundreds, thousands, even millions of different language systems, how can beings communicate and develop a larger, mutual understanding? How can they work towards consensus and co-existence if they struggle to understand one another? This question is even fore-grounded in *Snow Crash* by the early emphasis on division and language. Early on in the novel, we learn that America is divided into "franchulates" and "burbclaves" that often emphasize ethnic separation; for example, "White Columns" is "one of the Apartheid Burbclaves. Big ornate sign above the main gate: WHITE PEOPLE ONLY. NON-CAUCASIANS MUST BE PROCESSED" (Stephenson 30). Further, a language system known as "taxilinga" is a mishmash of many languages that is jarring and hard to decipher, but desperate to deliver a pizza on time, Hiro tries to extract a traffic report from "Taxiscan, which cruises all the taxi-driver frequencies listening for

interesting traffic. Can't understand fucking word. You could buy tapes, learn-while-you-drive, and learn to speak Taxilinga. It was essential, to get a job in that business" (11). Such examples beg a question in Stephenson's novel: Why is L. Bob Rife's quest to infect the world with the cult of Asherah's deep-structured universal language system an undesirable thing? Why is it less socially-desirable for there to be a single language that could potentially unite the world together and create a greater consensus of understanding? And finally, why must Babel be re-enacted, or more accurately, why must the world be re-infected with the Babel neurolinguistic virus again?

This question is answered by Stephenson's contention that there is an input side to the mother-tongue. His idea that the deep-linguistic structure buried within the brain has an input side as well as the more commonly accepted output side is his truly innovative, though scientifically-questionable, contribution to the analysis of the role of language debates in American society. By using the neurolinguistic virus Snow Crash to bypass the acquired modes and ideas found within acquired languages, L. Bob Rife seeks to monopolize his own control. Through this deep neurolinguistic infrastructure, he would implant recursive informational systems, executable programs called *me*, that the recipient humans would enact without reflection, just like computers: "'Rife can control two kinds of people,' Ng says. 'He can control Pentecostals by using *me* written in the mother tongue. And he can control hackers in a much more violent fashion by damaging their brains with binary viruses'" (379). For Rife wants to infect the world with the Snow Crash virus not to erase borders between people beyond social ideologies, but instead to establish absolute control for his own particular ideological beliefs. As Hiro explains to Enzo, Mr. Lee, and Mr. Ng, "'He wants to be Ozymandias, King of Kings. Look, it's simple: Once he converts you to his religion, he can control you with *me*. And he can convert millions of people to his religion because it spreads like a fucking virus—people have no resistance to it'" (379). In this infoscape, language is not just a system for the communication of information; it is also a site for the contestation of power. And it is at this juncture that Stephenson's novel resonates with the long historical record of language debates in the foundation of and struggle for an American identity.

*Snow Crash* is a book about American identity because its themes resonate with the very historic foundational discourses that inaugurated the country. Before the Puritans even reached America, John Cotton made his personal schism with the Anglican Church known through his language. Cotton, in accord with Puritan beliefs, had come to feel that the courtly or ornate style of the Anglican Church impeded the clear transmission of God's truth, and hence the one true *meaning* of ecumenical texts. A simplified style, comprised of a more common diction and restrained use of figurative language, was

considered to be more useful to God's plan. According to Larzer Ziff, Cotton made his stylistic belief known "that the plain style was the saving style, and he realized that he must abandon his elegant oratory" when he chose to preach in front of a congregation at St. Mary's who had come to hear his previously noted elegance: Ziff describes this oration thus: "Many of the listeners pulled their caps about their ears, astonished undergraduates looked in amazement at the fellows who had enthusiastically herded them to the church, and the hum of approval, the preacher's version of applause, did not break the silence after his conclusion" (32). In this famous oration, Cotton introduced new *me* into the system through his self-conscious use of language. He introduced a linguistic virus with new information and ideologies. William Bradford later formulated this new *me* as the conflation of a contracted linguistic style with purity of meaning as the very foundation of American society in his 1630 history *Of Plymouth Plantation*: "I shall endeavor to manifest in a plain *style*, with singular regard unto the *simple* truth in all things" (5). This viral *me* went on to infect a whole movement that led thousands to a distant land to found a utopia that they believed would be a brave new world. In essence, a belief in the primacy of a basic, deep language led to the foundation of a Nation.

American history is a long chronicle of this very process. Washington Irving even said of Americans that "their government is a pure unadulterated LOGOCRACY or *government of words*" (144). The idea of America has always been related to words and their ability to cohere vastly different people together into a common identity. However, beyond this utopian urge there is another history of attempts to regulate the American language into a single system that would control its citizens and create a single, homogenous identity. In *Snow Crash*, this is imagined as Rife's virus that would destroy the barriers of Babel and mandate one set of ideas that all citizens must conform to. Or, in other words, such an effort would introduce a set of recursive informational systems that agents, known as citizens, would execute and replicate without reflection or contestation.

This national linguistic history is exactly why Stephenson dismisses the utopian potential of Asherah's single mother language. America has always had L. Bob Rifes, some well-meaning, others malicious, who sought to enact a single language system as the one true American style. These movements always contained both the utopian intentions of human consensus and the realities of social control and coercion. The best example comes from the momentous time of the Constitutional Convention. When the Founding Fathers were debating the Constitution, America was still undecided whether to form a single national entity with shared institutions, or to remain a federation of individual groups that retained local autonomy. While the Founding Fathers were debating these issues, Noah Webster was in Philadelphia, trying to

galvanize the various regulatory impulses that began with the Puritans into a nationalized movement. In his 1786 letter to Timothy Pickering, Webster lists six advantages of adopting his proposed system for unifying the use of all American English into one standard, including uniform spelling, pronunciation, and signification. But Webster's final reason, and the one with the widest implications for the scope of his proposed discourse on the idea of the Language of America, is that "a national language is a national tie, and what country wants it more than America?" (Ford 157). This admission blatantly contradicts many of Webster's later justifications of his radical, purely phonetic respellings. Although he openly justified his proposed changes by claiming they more accurately reflected the actual use of the nation at that time, he admits here that the desire to "purify" the linguistic standard was more motivated to project a desired consensus of signification between speakers, to fill a perceived lack of unity with an effigy of consensus. This argument is virtually the same one Senator Craig has recently articulated. However, like Stephenson's L. Bob Rife, Webster was at least aware, at an unconscious level, that the control of language has powerful implications for the control of society.

During that decade, many other prominent voices had called out for similar codifying systems. On 5 September 1780, John Adams sent a letter to Congress recommending that they set up an academy for "correcting, improving and ascertaining the English language" (Mathews 41). Adams clearly sees the power that the control of language has over citizens, as well as the benefits this can bestow upon the government that exerts this power: "It is not to be disputed that the form of government has an influence upon language, and language in its turn influences not only the form of government, but the temper, the sentiments, and manners of the people" (Ibid). His justification for this action also invokes the broad social benefits that a unified system of speaking would have for all citizens. According to Adams, "It will have a happy effect upon the union of States to have a public standard for all persons in every part of the continent to appeal to, both for the signification and pronunciation of the language" (Ibid). The language debates of the latter 18th century often saw institutionalizing one single standard as a means for purifying the American populace of heterogeneous markers of cultural and ethnic differences, such as dialects and accents, as well as homogenizing the ideological framework of the ideal citizen to confirm the Anglo-Saxon beliefs of the ruling class of the time. Other notable figures were arguing the same idea, including Thomas Jefferson, Benjamin Franklin and the Reverend John Witherspoon, who promised "an enquiry into the way in which the standard of the language comes to be fixed" into a single mother tongue to be published in 1781. But beyond their Utopian ideals was the issue of exerting control, of monopolizing the virtual realm of the

young country, and the dissemination of their *me*, recursive informational systems, for individuals to be infected with and execute.

At this historical moment, Webster's ideas were disseminated via a process very similar to Stephenson's innovation of the Snow Crash virus. Webster himself created his famous blue-backed speller, or dictionary, that was designed to travel across the nexus of American schoolrooms to young children. Designed as a set of exercises that students would absorb through rote memorization and repetition, the blue-backed speller acted like a virus, implanting a set of recursive informational systems into young agents. And of course, it traveled widely. In 1871, the dialect writer Edward Eggleston testified to the power and breadth of Webster's linguistic virus:

> There is one branch [of education] diligently taught in the back-woods school. The public mind seems impressed with the difficulties of the English orthography, and there is a solemn conviction that the chief end of man is to learn to spell. "'Know Webster's Elementary' came down from heaven," would be the backwoods version of the Greek proverb, but that, unfortunately for the Greeks, their fame has not reached so far. (54)

In addition to Webster's speller, there is the celebrated example of the Federalist papers and pamphlets, small textual units of information, designed for easy dissemination, that traveled the country with their own *me* about the necessity of creating a single national entity and a single national language.

Where Stephenson's scenario truly engages America's struggle over creating and preserving a single national language is his linking of language to control, especially at the level of government. Rife wants to use Asherah's metalanguage to bypass the Babel-generated defenses of the multiple higher-languages that have evolved over time. Bypassing the heterogeneity of language and human experience is the most efficient way to monopolize the control of people. Hence, the monopolistic control of language is about governing. And Webster, for all his good intentions, saw this link clearly. In his 1789 book *Dissertations on the English Language*, Webster clearly linked the idea of language to the idea of consensus and the submission of the individual mind to the greater collective whole:

> [T]he unanimous consent of a nation, and a fixed principle interwoven with the very construction of a language, coeval and co-extensive with it, are like the common laws of a land, or the immutable rules of morality, the propriety of which every man, however refractory, is forced to acknowledge, and to which most men will readily submit. (29)

In this light, Webster is a type of early hacker, a programmer able to create executable systems of information. However, unlike Hiro and like Rife, he

desires to write and disseminate *me* that will bypass the ideas and experience of the diverse and heterogeneous systems of acquired languages that littered the American landscape of the time. He desires to monopolize linguistic expression in order to establish control over governing the American population, a situation Stephenson mirrors through Rife's plan to take over America through the release of the Snow Crash virus. In short, he desires to be the primary *en*, or priest, who dispenses the ideas and programs that define what an American is and is not, and therefore unify his people together in harmonious consensus.

As tempting as that utopian ideal can seem, there have always been American writers skeptical about the power granted by establishing one single language system; Stephenson may just be the latest. And they have acted as guerilla hackers, writing contra-*me* that sought to undermine those who wanted to monopolize American language and society. In Webster's time, Hugh Henry Brackenridge wrote his excellent serial novel *Modern Chivalry* (1792-1815) that parodied and subverted the very linguistic texts for purity that Webster and others wrote. During the time of the Puritans, specifically 1643, the less than orthodox Puritan Roger Williams published his groundbreaking study of the language of the Narragansett tribe of America, peculiarly titled (to modern ears) *A Key into the Language of America*. Williams offers his book to "*my Deare and Welbeloved* Friends *and* Countrey-men, in *old and new* England" with this purpose in mind: "I present you with a *Key*. . . . This *Key*, respects the *Native Language* of ['that mighty *Continent of America*'], and happily may unlocke some *Rarities* concerning the *Natives* themselves, not yet discovered" (emphasis mine 83). Although his book acts primarily in the form of a traditional dictionary, Williams emphasizes early on that his project has aims beyond merely providing Narragansett translations for English words. In an opening list of "Directions for the use of the Language" for the subsequent thematically (not alphabetically) divided chapters, Williams immediately states two key rules for using his particular text of Language: [1] "A *Dictionary* or *Grammar way* I had considerations of, but purposely avoided, as not so accomodate to the benefit of all, as I hope this *Forme* is;" [2] "A Dialogue also I had thoughts of, but avoided for brevities sake, and yet (with no small paines) I have so *framed* every Chapter and the *matter* of it, as I may call it an *Implicite Dialogue*" (90; emphasis in both quotes is mine).

Williams' apparent adoption of the dictionary or grammar literary *form*, followed immediately by a disruption of that very form's stylistic assumptions, signals another attitude concerning the force of language and style that is critically different than many of his fellow Puritans of the time. Williams's text clearly assumes that language does not naturally cohere; that ideas do not necessarily clarify in a traditional semiotic scheme of type/anti-type or signified/signifier; and that writing well is not merely imitation or Mastery of

recognized, fixed forms (grammar here acting as a synecdoche in which syntax signifies *la langue*, or traditional concepts of genre, and an individual sentence becomes a text, *la parole*). Williams' text also evinces an awareness of the way that considerations of "Forme," understood as a specific linguistic style, do not come as an after-thought, a complement, to content: His "*Dictionary* or *Grammar way*" was "not so accomodate [sic] to the benefit of all" (83). Hence his use of an "*Implicite Dialogue*" as a discourse upon the relationship between language-use and the idea of nation itself.

The significance of Williams' linguistic difference is the idea that discussion about language involves more than merely concerns about a *system* for the communication of information. Williams' text also implies that a particular language is not just a system, but also a *site*, a virtual space for the imbrication of a culture's heterogeneous detritus such as values, ideologies, social folkways, code-words of community identification, and other such institutional practices outside of traditional linguistic concerns.

In this regard, and quite similar to Stephenson's description of the mythological Sumerian figure Enki, Roger Williams was a proto-hacker, one of many, that understood the way arguments about language and national identity act as *me*, viral units of information that could program willing citizens with ideas. And in this way, he laid the groundwork for a character like Hiro Protagonist. Considering the current state of American debates about language and national identity, we are lucky today to have Stephenson's *Snow Crash*. Given that America has always had self-styled priests of language (consider George Will or William Safire in our own time), who disseminated texts designed to limit and control language in America to one single mother-tongue, Stephenson's clarion call for contra-hackers, individuals who do not simply execute received recursive information systems, is refreshing and necessary; as Hiro notes, "'Maybe Babel [and the subsequent scattering of languages] was the best thing that ever happened to us" (261). He calls for us not to be merely machines, but to be thoughtful, questioning humans. In fact, he calls for us all to be Enkis, autonomous agents who program our own codes and challenge the system around us. As Hiro explains to Enzo and Lee, "Enki was an en [a priest] who just happened to be especially good at his job. He had the unusual ability to write new *me*—he was a hacker. He was, actually, the first modern man, a fully-conscious human being" (397). And, he used his power of reflection and the manipulation of informational systems to create alternatives to the centralized powers of his time, refusing to settle for one particular group, and their ideologies, to go unchallenged.

In this time we currently live in, I sincerely hope that Enkis, Williamses, and Hiros rise up among us, write new *me*, and challenge the

current systems around us that have worked so hard to centralize their own power through the control of information and partisan policing of the language.

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# CHAPTER FIVE

# RECLAIMING THE SUBVERSIVE: VICTORIAN MORALITY IN NEAL STEPHENSON'S *THE DIAMOND AGE*

KATHLEEN MCCLANCY

Neal Stephenson's second successful novel, *The Diamond Age, or, a Young Lady's Illustrated Primer*, left many fans of his cyberpunk epic *Snow Crash* at something of a loss. Although set in the future and prominently featuring fantastic technology, *The Diamond Age* abandons the glitzy mirrorshades world of Hiro Protagonist and the Metaverse for a society that consciously reproduces Victorian England. On the surface, Stephenson's novel would appear to be a typical, albeit particularly well-crafted, late cyberpunk story which incorporates the Victorian only for the novelty; yet a closer examination of the text uncovers unexpected similarities between the concerns of Nell's tale and the perceived preoccupations of the original Victorians. In essence, *The Diamond Age* is an articulation of the battle against the erosion of Victorian values in the modern world. Written at the beginning of the Clinton presidency, when concerns about the Chief Executive's personal life were becoming questions about America's moral fiber, when the Culture Wars were in full force, and when immigration was again seen as an erosion of the American way of life, Stephenson's novel echoes the rhetoric of the nineties in calling for a return to a Victorian model of domestic values and hierarchical social structures.

The concerns of Stephenson's New Victoria and the obvious problems of the tribeless society existing on its fringes replicate the domestic situation of the United States in the early to mid-1990s, and the moral of Stephenson's story seems to come straight from late 20th century political commentary. American politics had taken a decided turn to the right with the Reagan presidency, putting an end to the distrust of Republicans inspired by the Watergate scandal. But Reagan's successor, George H. W. Bush, was not as popular as the former president, and in 1992 Bill Clinton reclaimed the White House for the

Democrats. Still, Clinton's success did not greatly change the political tenor of the country: his administration remained firmly centrist, and in 1994 Republicans regained control of Congress for the first time since 1946. These elections were considered a major victory for the Republican Party and their Contract with America, which outlined party goals for legislation and reform; they also reaffirmed the conservative drift of the country, as voters seemed to favor Republican appraisals of and responses to social concerns.

One major topic of the 1994 campaigns and the Contract with America was welfare reform. Reagan's "welfare queen" imagery, depicting welfare recipients as lazy women churning out children for extra benefits, remained predominant. Furthermore, conservative rhetoric emphasizing personal responsibility encouraged the idea that welfare was not only a reward for laziness, but was in fact morally damaging for its recipients. As Gertrude Himmelfarb writes in "A De-Moralized Society: The British/American Experience":

> In recent decades, we have so completely rejected any kind of moral calculus that we have deliberately, systematically divorced welfare from moral sanctions or incentives […]. Having made the most valiant attempt to "objectify" the problem of poverty, to see it as the product of impersonal economic and social forces, we are discovering that the economic and social aspects of that problem are inseparable from the moral and personal ones. And having made the most determined effort to devise social policies that are "value free," we find that these policies imperil both the moral and the material well-being of their intended beneficiaries. (Himmelfarb 423)

The problem was not only that some people took advantage of the welfare system; the problem was also that the welfare system encouraged people to take advantage, in fact creating lazy welfare queens. Welfare, particularly the Aid to Dependent Families with Children program, went from being viewed as a morally necessary program supporting widows and children to a morally undermining program encouraging the growth of single-parent families.[xxx]

Furthermore, single-parent families themselves came to be viewed as damaging to the country. The number of single-parent families in the U.S. climbed from 13.3 percent of all families to 21.9 percent between 1970 and 1990 (Peele 10); and there increasingly appeared to be a correlation between non-traditional families and juvenile delinquency. By the mid-1990s, most conservative pundits accepted as fact the idea that "the single parent family is the most important factor associated with the 'pathology of poverty'—welfare dependency, crime, drugs, illiteracy, homelessness" (Himmelfarb 418). The domestic problems of the country, in particular the problems of the inner city ghettos, were not considered to stem solely from the poverty of those ghettos;

rather, the breakdown of the traditional nuclear family and the increasing moral disintegration of the country created those ghettos and encouraged that poverty.

This shift in what was defined as "moral" or "deviant" behavior came to be the primary focus of the Culture Wars, a main topic of the 1992 and 1994 Republican Conventions. Vice-President Dan Quayle's famous diatribe against fictional single-mother Murphy Brown was ridiculed during his campaign in 1992, but by the middle of the decade Clinton seemed to have come to agree with him (Stacey 273). Taking a stance against non-traditional families began to be considered not as a reactionary response to evolving society but as a pragmatic response to an increase in social ills. In essence, conservatives argued that the new climate of moral relativism was itself responsible for most of the domestic problems afflicting the United States. In an oft-referenced article, "Defining Deviancy Down," Daniel Patrick Moynihan argues that American culture since the 1950s has been re-defining deviancy, reclassifying what once was considered deviant behavior as normal: behaviors such as divorce or cohabitation are now considered acceptable.[xxxi] But this redefining has also lead to other new trends, perhaps less benign, being tolerated, such as the rise in violent crime since the 1960s (Moynihan). In his response to Moynihan, "Defining Deviancy Up," conservative columnist Charles Krauthammer makes the point that as behavior that was once stigmatized has come to be seen as acceptable, other behavior, once considered the norm, is now being seen as deviant: holding to a strict moral code, as Quayle tried to encourage, is now worthy of ridicule. The atmosphere of moral relativism that was born in the 1960s had led to a culture bordering on moral anarchy; the fear was that this anarchy was rapidly becoming more than simply moral.

The legacy of the '60s counter-culture was not the only social change leading to this redefinition of morality. Conservatives also identified multiculturalism as a leading source for the dilution of traditional American values. Immigration increased dramatically after 1965, from a total of about 5 million legal immigrants between 1931 and 1965 to 9.1 million during the 90s alone. By 1990, foreign-born Americans were estimated to number 10.4 percent of the population, up from 1970's low of 4.7 percent (Patterson 294). Furthermore, these immigrants seemed to have no urge to dissolve in the melting pot; instead, calls for multiculturalism, for an expanding of U.S. values to include those of these entering immigrant cultures, replaced the notion that naturalized Americans would leave the morals of the Old Country (whichever country it might be) behind. Particularly in the academic fields, where multiculturalists insisted on a revamping of the Great Books canon, the tenets of Western Civilization seemed to be under attack.[xxxii]

In sum, by the mid-1990s a host of domestic problems came to be viewed as a result of the decline in moral virtues in the American populace.

Crime was often seen as stemming almost directly from the rise in broken homes and single motherhood; to stop crime, therefore, required a return to the domestic-centered mores of a previous era. Furthermore, this same relativism that produced a free-for-all in family structure was what allowed immigrants to retain their foreign cultures upon their arrival in the U.S., as it undermined the notion that American culture was somehow better than other cultures and left immigrants with no desire to assimilate. Moral license and moral relativism, because they bred crime and anarchy, were likely to undermine the very foundation of society itself.

Why did the 1990s see such an emphasis on morals, on culture? In *Restless Giant: The United States from Watergate to Bush v. Gore*, James T. Patterson outlines two possible reasons:

> One answer emphasizes that the passing of the Cold War, which until the early 1990s had helped to unite Americans, enabled people to drop their fears of Communism and to focus on domestic concerns and in many situations to reaffirm ethnic and religious identities. No longer caught up in patriotic crusades against Communists abroad, they fought more passionately than earlier over social and cultural concerns […]. A convincing second explanation—important in accounting for the force of cultural controversies after 1992—centers on Clinton's triumph in that year, which broke the twelve-year hold of the GOP on the White House. To deeply disappointed conservatives, who launched most of the culture wars, Clinton was the epitome of all that was wrong with his baby-boom generation—and with the elitist liberals, amoral Hollywood celebrities, and left-wing academics who supported him. (Patterson 260)

The lack of an obvious external threat led Americans to focus more on what was happening within their borders at the same time that the Republican Party gained determination after Clinton's ascent to the White House. Although many disturbing social trends, like the rises in violent crime, divorce, illegitimacy, and welfare recipients, had either stabilized or begun to fall off by the early 1990s, the increased attention paid to these domestic issues caused them to seem more threatening than before; revitalized Republicans capitalized on this domestic focus. Led by pundits like Himmelfarb, James Q. Wilson and William Kristol, and by the dogged House Speaker Newt Gingrich, conservatives firmly seated political debate in questions of morality. If America was to survive the New World Order, and not become itself a third-world country, it had to repair the damage done by moral laxity.

Much of this conservative rhetoric looked back to the 1950s as an idyll, with its low crime rates, low divorce rates, low immigration rates, and strong foreign policy. But some conservatives, predominantly Himmelfarb, searched even further in the past for a useful paradigm, and began to champion a

resurgence of the Victorian way of life. According to these thinkers, much of the twentieth century had been a slow erosion of morality; as Wilson writes:

> Modernity, as I have argued elsewhere, involves, at least in elite opinion, replacing the ethic of self-control with that of self-expression. Some great benefits have flowed from this change, including the liberation of youthful energies to pursue new ideas in art, music, literature, politics and economic enterprise. But the costs are just as real, at least for those young persons who have not already acquired a decent degree of self-restraint and other-regardingness. (301)

Instead, these writers urged a return to a Victorian ethos of "manners and morals;" not a replication of all of Victorian society, but a reclamation of those parts of the Victorian code which would counteract the culture of selfishness and moral laxity they saw as predominant. A new moral order had to be instituted if America was to survive, and the mores of the Victorian Era, at least as understood by late twentieth-century conservatives, seemed to be the best solution.

And Stephenson's novel essentially plays out this conservative fantasy of a return to the Victorian. In *The Diamond Age*, the predominant national/social group is the Neo-Victorians, a culture that intentionally patterns itself on Victorian England; life in their New Atlantis contrasts more than favorably with the frightening and chaotic world of the heroine Nell's lower-class youth. The novel dwells at great length on the effect of moral relativism on society, and seems to come down in favor of maintaining a hierarchical status quo, where the most important element of life is the family. The Primer, a tool formally occupied with the project of creating subversives out of young women, turns Nell into a Neo-Victorian heroine, not officially a part of the group but still a champion of the basic tenets of Neo-Victorian culture. Furthermore, the depiction of the Chinese revolutionaries who threaten New Atlantis' hold both on the Shanghai coast and on the global economy takes portrayals of immigrants to a paranoid extreme, reminiscent both of contemporary conservative rhetoric and of the original Victorians' fears of the colonized. In addition, Stephenson's reputation as a cyberpunk writer likely drew in a readership that consisted of those most at risk for moral collapse. *Snow Crash* may not always be considered a cyberpunk novel, but certainly its publisher marketed it as such, and *The Diamond Age*, a loose sequel, is often shelved in the same category. And the cyberpunk movement itself seemed to articulate an anarchic vision: its writers were revolting against the sci-fi mainstream just as its characters fought against monolithic politico-corporate entities. Cyberpunk seemed designed by subversives for subversives; Bruce Sterling, one of its heroes, explains the common trope of mirrored sunglasses: "By hiding the eyes, mirrorshades prevent the forces of normalcy from realizing that one is crazed and possibly

dangerous. They are the symbol of the sun-staring visionary, the biker, the rocker, the policeman, and similar outlaws" (Sterling 344). Although not always liberal in its politics, most cyberpunk certainly emphasizes the fight of the individual against The Man, the struggle to tear down hierarchical structures, to make information free for anyone cool enough to hack the net; Timothy Leary describes the cyberpunk code: "Think For Yourself, Question Authority" (Leary 257). *The Diamond Age* keeps to this code, giving us a heroine who does nothing but question what she's told for the entire length of the novel; however, the answers to which she comes are the same ones advocated by 20th century neo-conservatives. As a result, the novel teaches the New Age Mutant Ninja Hackers, to use Vivian Sobchack's term, who were major consumers of cyberpunk culture, that the individualistic ethos of cyberpunk inevitably results in a determination to reaffirm the monolithic politico-corporate entities that earlier cyberpunk worked to undermine. Through the seductive cyberpunk style, *The Diamond Age* reeducates alienated youth into productive members of society.

I am not attempting to argue that Neal Stephenson intended to write *The Diamond Age* as a propaganda tool for Neo-Conservatives pushing a neo-Victorian agenda.[xxxiii] Rather, I believe that Stephenson's novel is an almost uncanny reflection of the concerns of the time, and of popular ideas of how to combat those concerns. Although at first glance *The Diamond Age* may appear to present a fairly liberal (in the modern political sense) model of a culture, mostly lacking either sexism or racism and with a bald analysis of a ruling class' methods of maintaining political power, in fact it replicates a conservative response to fears about the fragmentation of the United States and the neo-conservative tendency to phrase those responses in pragmatic terms. *The Diamond Age* functions as an attempt to protect hegemonic American society from a new threat: the disintegration of traditional values in a modern, morally relativistic, culturally and ethnically diverse society. It repudiates the ideal of late twentieth-century youth culture, the subversive who challenges Victorian domestic values, by reincorporating that subversive as an essential member of normative society.

The setting of *The Diamond Age* is mid- to late-twenty-first century Shanghai, after the advent of nanotechnology. Machines known as matter compilers, which can create anything imaginable using individual atoms, have made the need for nations to control areas rich in natural resources obsolete; as a result, nation-states are no longer bounded geographically but ideologically. Society is now composed of geographically independent phyles made up of geographically disparate claves. The more technologically advanced a phyle is, the more political power it has; and control over a Source, or a machine that extracts individual atoms from seawater to provide raw material to matter

compilers, is the ultimate manifestation of that power. Nanotech has freed humanity from the tyranny of basic survival needs, but society remains hierarchical as that nanotech remains in the control of elites; the many who do not belong to a phyle still suffer.

In fact, the first character *The Diamond Age* presents is one of the phyleless: Nell's father Bud. His description, opening the novel, reads like a warped portrait of the stereotypical cyberpunk hero:

> The bells of St. Mark's were ringing changes up on the mountain when Bud skated over to the mod parlor to upgrade his skull gun. Bud had a nice new pair of blades with a top speed of anywhere from a hundred to a hundred and fifty kilometers, depending on how fat you were and whether or not you wore aero. Bud liked wearing skin-tight leather, to show off his muscles […]. But few people hassled Bud, even when he knocked them down in the street, and after today *no one* would hassle him *ever again*. (Stephenson 1)

Bud's penchant for leather, shades, and biotech, not to mention his existence on the borders of legality, firmly seat him in the cyberpunk category, but unlike William Gibson's heroes, Bud is almost unbelievably stupid. Stephenson's repetitive prose emphasizes this initial impression given by Bud's actions, as he blunders his macho way into an eventual death sentence by page 37. His attempts to make easy money meet with nothing but disappointment, and his downfall eventually stems from his refusal to join a tribe: he is hunted down by the fellow tribesmen of a family he mugged, and his solitary, individual status gives him no power in Shanghai's criminal justice system. And although he is Nell's biological father, he never meets her, only learning of her birth in court. Bud is the worst kind of delinquent father, and the society in which he moves has none of the hipness usually associated with underworlds in cyberpunk fiction. Instead, his character undercuts the attraction of that rebellious subculture, turning what was once seductive into the mundane.

Furthermore, the life Nell lives as a child holds little attraction. Her mother's boyfriends wander in and out of her life, and the most for which Nell can hope from them is that they won't abuse her too badly; her primary caretaker is not her mother but is rather her delinquent brother Harv, who has embarked on an armed robbery career of his own; and the pollution in the Leased Territories, the area of Shanghai reserved for the tribe-less, is so bad that she is occasionally forced to wear a respirator indoors. In fact, Nell rarely leaves her apartment building; as Harv explains, "'[T]here's bad people out there, and you shouldn't walk through the L.T. alone, ever'" (Stephenson 59). Life in Shanghai outside the protection of a tribe is a Hobbesian nightmare, and Nell's chances of survival seem to be slim.

On the other hand, life within a tribe seems to be significantly more bearable. As Bud realizes too late, belonging to a phyle confers a member with

some protection within the corrupt Shanghai legal system; furthermore, members of a phyle live within that phyle's gated community, away from the threats of the Leased Territories. In fact, belonging to a powerful tribe seems to be one of the few ways to advance in this society. One of the three strongest phyles is the Neo-Victorians, but their success is not guaranteed to last. The Vicky's phyle is threatened by a factor inherent in their worldview: stagnation. As the phyle has grown beyond its competition, it has become complacent; Neo-Victorian schools, teaching conformity to the strict moral codes that make the phyle so successful, do not seem to encourage the originality necessary for continual technological advancement. To understand what made the Neo-Victorians successful in the first place, Lord Alexander Chung-Sik Finkle-McGraw considers the most upstanding, important men in Neo-Victorian society and finds that they share one quality: subversiveness, which allows them to think outside the Victorian box. These subversives' innovations have caused the Neo-Victorian phyle to prosper through a virtual monopoly over new technologies. However, Neo-Victorian education does not encourage subversiveness; rather, it fosters a continuance of Victorian values, and Finkle-McGraw has seen his children's generation grow up without inspiration. He fears for the continued survival of the phyle, and so locks on to a new idea: if the phyle cannot allow a space for subversives to generate spontaneously, he will create his own subversives. To do so, he enlists nano-engineer John Percival Hackworth to create the Primer as an educational tool. He will give the Primer to his granddaughter Elizabeth, the heir to the Neo-Victorian throne, so that she will be able to reinvigorate her phyle with ideas broader than the strictly acceptable.

But Hackworth, acting out his own subversive tendencies, decides to make a pirated copy of the Primer for his daughter, a copy that ends up in the hands of a phyle-less, proletarian, abused child. Nell is not born a subversive; not until she obtains the Primer does she begin to question the justice of her fate; but the influence of the Primer is shown in short order. Not long after first finding the Primer, Nell acts out by defending herself against a bully and is brutally punished for this act of rebellion. Rather than simply bear this beating like she has done in the past, the Primer encourages Nell to revolt against this arbitrary and unjust power, and she attacks her pseudo-step-father and flees to the Neo-Victorians. Nell might not have begun life as a subversive, questioning the authority of those who controlled her existence, but Finkle-McGraw's plan has worked, and through the influence of the Primer, Nell begins to reject the cultural norms surrounding her. But these norms are not those of Neo-Victorian society, but of the non-nuclear, non-family-values-oriented, morally relativistic underclass.

Nell continues her education in New Atlantis, having been informally adopted by the ex-soldier Constable Moore, and attends Miss Matheson's Academy of the Three Graces. But there is always something different about Nell: unlike her compatriots, she retains her resistance to arbitrary authority instilled by the Primer. And one day, Nell revolts against the discipline imposed by her teacher, fighting back and disarming her when she hits Nell's hand with a ruler. But immediately after committing this minor act of rebellion, Nell regrets her show of temper:

> Thinking of her friend Dinosaur and her sensei, Dojo the Mouse [both characters in the Primer], she suddenly felt shame far deeper than anything Miss Stricken or her sniggering classmates could inflict. Miss Stricken was a stupid hag, and her classmates were snot-nosed clowns, but Dojo was her friend and her teacher, he had always respected her and given her his full attention, and he had carefully taught her the ways of humility and self-discipline. Now she had perverted his teachings by using her skill to take Miss Stricken's ruler. She could not have been more ashamed. (Stephenson 285-6)

The Primer is directly responsible for Nell's ability to critique and resist authority, not to mention having provided her with the physical tools to fight back. But at the same time, that Primer, as much as it was designed to create subversives, has instilled within Nell the qualities of humility and self-discipline, qualities which encourage her not to use that ability. Nell does not follow the precepts of Neo-Victorian society blindly, without any consideration; she follows them because the Primer has taught her to accept the interpretations behind those precepts. Nell might be a subversive in the sense that she questions the structures of society around her, but she still conforms to those structures, having learned from the Primer the values upon which those structures are based. She may question Authority, but the Primer has taught her to agree with Authority's reasoning.

Nell spends some years in New Atlantis, learning from her school, her father-substitute Constable Moore, and of course from the Primer, and is well on her way to becoming a Neo-Victorian lady, but instead decides to go out in the world to seek her fortune. But Nell's fortune, it would seem, does not consist in making money or in acquiring knowledge, but in finally discovering the one person her life has been missing: her mother. Nell is not an orphan, but her biological mother, appropriately named Tequila, is certainly far from the domestic ideal; and when Nell's life finally gains some modicum of stability under the protection of Moore, she is still denied that feminine center of domestic life. However, after some contemplation of the technology of the Primer, Nell begins to wonder if perhaps that center has been there all along:

> Could it be that the Primer was just a conduit, a technological system that mediated between Nell and some human being who really loved her? In the end, she knew, this was basically how all [inte]ractives worked. The idea was too alarming to consider at first, and so she circled around it cautiously, poking at it from different directions, like a cavewoman discovering fire for the first time. But as she settled in closer, she found that it warmed her and satisfied her, and by the time her mind wandered into sleep, she had become dependent upon it and would not consider going back into the cold and dark place where she had been traveling for so many years. (Stephenson 366-7)

From this moment on, Nell's quest no longer involves seeking her fortune, but becomes seeking the ractor on the other side of the Primer. Nell is subversive enough to refuse to become a naturalized member of New Atlantis solely because it is expected of her, and to go out and get a job at a brothel, but she has internalized Neo-Victorian ideals of the domestic enough that, as independent and capable as she is, she still wants her mommy. Even in the midst of the bloody revolution that breaks out shortly after this moment, even while at the head of the Mouse Army of thousands of inland Chinese girls who have been educated by copies of the Primer of their own, Nell thinks of nothing more than she thinks of finding her virtual mother.

Luckily for Nell's quest, that virtual mother has for some years thought of nothing but finding Nell. Miranda, the ractor who has been the voice of the Primer, once had a promising career in this modern form of acting, so much so that she berates her director, Carl Hollywood, when he tries to set her up on a date: "'I'm not going to become a housewife who acts in her spare time'" (Stephenson 271). But, in the end, that is exactly what she does become. Miranda grows determined to find Princess Nell, eventually abandoning her racting career entirely and going to live among the Drummers, a society capable of backtracing Nell through their ability to break impossible codes by exchanging nanotech information packets in bodily fluids. As Hollywood points out to Finkle-McGraw when he wonders how this ractor became so important to the goal of the Primer: "'She did it […] by sacrificing her career and much of her life. It is important for you to understand, Your Grace, that she was not merely Nell's tutor. She became Nell's mother'" (Stephenson 333). The Primer is an educational tool that almost defies imagining, certainly, but it doesn't display its full potential without that anchor of the domestic unit, of the nuclear family. And Miranda is such a good mother that she is not content with simply teaching her virtual daughter through the conduit of the Primer; she must find her in person and has devoted her life to this quest. Miranda has given up her subversive life as an artist for parenthood.

But the Drummers' society does not exist solely so that Miranda can find Nell: they have their own goals. Guided in some sense by Hackworth, the Drummers' collective mind has for more than ten years been working to

discover a new technology called the Seed. Whereas Neo-Victorian nanotech requires a Source, with a Feed from the ocean, to produce its abundance and is therefore almost intrinsically hierarchical, the Seed would allow anyone to grow whatever they wanted from the earth itself. And by the end of the novel, it would seem that Miranda has become the key for the development of this new technology. Escaping with many refugees from the Fists of Righteous Harmony into the tunnels of the Drummers, Hollywood finds himself in the midst of a giant orgy which resolves into some kind of ceremony, Miranda at the center of the group. Stephenson writes:

> He saw it all now: that the refugees had been gathered into the realm of the Drummers for the harvest of fresh data running in their bloodstreams, that this data had been infused into the wet Net in the course of the great orgy, and that all of it was now going to be dumped into Miranda, whose body would play host to the climax of some computation that would certainly burn her alive in the process. It was Hackworth's doing: this was the culmination of his effort to design the Seed, and in so doing to dissolve the foundations of New Atlantis and Nippon and all of the societies that had grown up around the concept of a centralized, hierarchical Feed. (Stephenson 454)

Miranda may have joined the Drummers to find her lost daughter, but she has become the culmination of their attempt to create a technology that would put an end to society as she knows it. Within her body is the beginning of a revolution much more basic than the one the Fists are conducting: this revolution would forever free mankind from the oppression of those who control natural resources. The Seed seems almost to require a sort of agrarian, Communistic fantasy in which no one would ever again hold power over another through the control of capital. But unfortunately, the realization of this utopia would not only induce the demise of New Atlantis, but also requires Miranda's death.

Nell finds this sacrifice to be unacceptable and steps in to rescue her mother. The Drummers' work to create the Seed is, in the process, set back by years. Nell's goal here was not to prevent the coming of the Age of the Seed, but rather was to protect her mother figure from spontaneous combustion; but her desire for some semblance of a nuclear family, her privileging of the Neo-Victorian ideal of domesticity, has been directly responsible for saving the entire Neo-Victorian culture. Through saving her family from destruction, Nell has also preserved the basis for hierarchical societies. And when she, Miranda, and Hollywood leave the Drummers' tunnels as a newly complete family unit, they return to a world where the status quo is unchanged.

Unchanged, but it is expanded. Let me back up a bit here to discuss the Mouse Army in more depth. Rescued from death by exposure by Dr. X, a man who is now one of the leaders of the Chinese Celestial Kingdom that is backing the Fist revolution, each of these girls, in place of a true domestic upbringing,

has been given a pirated copy of the Primer to assist in their education. As a result, each of these girls has had an upbringing strikingly similar to Nell's. But these girls' Primers have no ractors involved; the books themselves synthesize the voices of the Primers, and so there is no possibility for these girls to develop a domestic unit similar to the one formed by Miranda, Nell and Hollywood. Instead, they view themselves as Nell's little sisters, an undifferentiated mass of siblings who share that family unit by extension. Furthermore, they see Nell, not Dr. X, as their rightful leader. This outcome seems to stem from yet another mysterious plot of Hackworth's. When discussing the changes required in the Primer to make it able to be mass-produced, Hackworth says:

> "I can build in automatic voice-generation capabilities—not as good, but serviceable." At this point, John Percival Hackworth, almost without thinking about it and without appreciating the ramifications of what he was doing, devised a trick and slipped it in under the radar of the Judge and Dr. X and all of the other people in the theater […]. "While I'm at it, if it pleases the court, I can also," Hackworth said, most obsequiously, "make changes in the content so that it will be more suitable for the unique cultural requirements of the Han readership." (Stephenson 162)

These cultural requirements, it would appear, involve the need for a *gwailo* barbarian leader. Whereas Nell's copy of the Primer, along with the other two first-generation copies, makes the reader feel special, singled out, and unique, just as each Primer is itself tailored for one individual girl, the Mouse Army's copies teach their readers that they are members of a Mouse Army: one unit in an undifferentiated mass of beings, which alone can effect almost no change, but which, working together, can take over the world. Rather than creating subversives, these Primers have created soldiers, a mass of female Chinese subservient to Nell.

And even more irksome to the Celestial Kingdom authorities, these soldiers act like Neo-Victorians. Apparently, the changes Hackworth instituted in the Primer to fit it to "the unique cultural requirements of the Han readership" did not include changing the books' underlying philosophy from Victorian to Confucian. As a result, these girls no longer seem to identify with Chinese culture. Hollywood, in his role as Neo-Victorian ambassador to Queen Nell of the Mouse Army, forms his first impressions of her little sisters: "Carl Hollywood was surprised to hear them all speaking perfect English in a rather high Victorian style. They seemed to prefer it when discussing things in the abstract, but when it came to practical matters they reverted to Mandarin" (Stephenson 447). The Mouse Army's use of Mandarin shows that they have not yet entirely assimilated to Neo-Victorian culture, but their tendency to use English for abstract thought indicates that their underlying philosophies stem from the codes of New Atlantis. Much to the dismay of the Chinese leadership,

Nell has successfully colonized this chunk of the population and made them her own and, by extension, Neo-Victorian. In this world, territory no longer has any meaning, and so the loss of the Chinese coast to the rebels is not a particularly devastating defeat for the Neo-Victorians. Instead, nations are composed of people; Nell has colonized the Mouse Army, defeating China's bid for self-determination and again continuing the Vicky supremacy, this time culturally instead of economically. Rather than subverting New Atlantis, she has expanded it.

Of course, Nell is not the only subversive in the novel: the narrative is split between her tale and Hackworth's. Finkle-McGraw originally commissions Hackworth to design the Primer because he senses something of the subversive in Hackworth's knowledge of Romantic poetry, and all the remaining events of the novel stem from Hackworth's original decision to violate both the morals and laws of New Victoria by stealing a copy of the Primer. However, most of his subversive acts seem not to stem from rational thought but rather from Hackworth's subconscious. The narrator informs us: "Hackworth pondered his upcoming crime [of stealing the Primer's code]. It was entirely too late to go back now. It flustered him that he had unconsciously made up his mind months ago without marking the occasion" (Stephenson 55). This is not an example of thinking for yourself and questioning authority; this is an example of a father who wants the best for his daughter. His theft may motivate the rest of the novel, but it is certainly not part of a plan to undermine the workings of New Atlantis. In fact, Hackworth views himself as lacking subversiveness: he explains his inability to realize his best ideas into companies, unlike Finkle-McGraw himself, as stemming from this lack (Stephenson 72).

Still, throughout the novel Hackworth continues to be responsible for every truly subversive plot. Even his name identifies him with the hacker/trickster figure that both echoes the cyberpunk hero and upon which the Primer relies, and when Nell reaches the end of the Primer she discovers that King Coyote, who has been the most clever of her foes, wants her to "call [him] John" (Stephenson 405). And Hackworth's work designing the Seed seems to place him firmly on the side of the anti-hierarchical Drummers and CryptNet. But again, Hackworth's brilliant engineering here seems to come from an irrational place. In telling Fiona about the Seed, Hackworth reveals his conscious allegiance: "'Of course, it can't be allowed—the Feed is not a system of control and oppression, as CryptNet would maintain. It is the only way order can be maintained in modern society—if everyone possessed a Seed, anyone could produce weapons whose destructive power rivaled that of Elizabethan nuclear weapons'" (Stephenson 349). Hackworth's nature may be that of the hacker for whom "cleverness is its own end," as Dr. X points out, but his conscious mind rejects the subversive project; and when Hackworth finishes his

final conversation with Dr. X, who is exhorting him to finish his work on the Seed, he comments: "'You will understand that although I hold you in the highest personal esteem, I cannot earnestly wish you good fortune in your current endeavour'" (Stephenson 418). Hackworth may be a hacker, but he's no subversive, and he's not going to undermine the phyle he loves.

In the end, perhaps the best presentation of the novel's concern with the two themes of domestic values and hierarchical government comes in the histories of the three girls who are given the original copies of the Primer. Each girl was given the same computer; however, behind each computer was a different ractor speaking the interactive lines. Fiona Hackworth had her father as her book's narrator during his years with the Drummers and so was indoctrinated with his specific anti-nation, not to mention anti-domestic, thoughts. His work on the Seed, intended to break the power base of New Victoria and to allow for true individuality, has deeply affected her upbringing. And so rather than choose to join the phyle in which she was born, Fiona becomes a member of an acting troupe, entirely rejecting the values of domesticity. Elizabeth, the heir to the throne, has no one person interacting with her but an endless string of one-time performers. As a result, the Primer does not provide for her any kind of domestic stability. She chooses to run away from her inheritance to join CryptNet to work toward the destruction of the society that brought her into being. Through these two alternative paths, the fears of the book are interwoven, as a failure in one area produces a failure in another in what could easily be an infinite cycle ending in the utter collapse of New Victoria. Only Nell escapes both domestic chaos and social anarchy, outstripping the fates of both of her childhood friends by becoming a Queen.

So what does all this say about the fate of the subversive? Elizabeth and Fiona might both have been taught to be subversive by their Primers, and might in fact work in subversive fields, but the novel never portrays them actually subverting anything; once Elizabeth joins CryptNet and Fiona joins Dramatis Personae, they disappear from the novel. And Hackworth, the character who seems almost completely responsible for every subversive threat in the novel, is also in some way responsible for disarming those threats: at the very least, he designed the Primer which taught Nell how to save New Atlantis. Nell, the center of the book and the character whose adventures in the Primer we follow most closely, certainly refuses to conform simply for the sake of conformity, even refusing the easy path to New Atlantis citizenship open to her at the end of her time at the Academy. But at the same time, Nell does everything in her power to stop the subversion of Neo-Victorian society, intentionally or not, and in the end seems to personify Neo-Victorian ideals. It would seem that Finkle-McGraw's original plan to create subversives who were just subversive enough to forward Neo-Victorian society without actually

subverting it has succeeded in the extreme; Finkle-McGraw is even happy with his granddaughter's choice to defect to CryptNet:

> "But what does it really mean when such a young person moves to another phyle? It means that they have outgrown youthful credulity and no longer wish to belong to a tribe simply because it is the path of least resistance—they have developed principles, they are concerned with their personal integrity. It means, in short, that they are ripe to become members in good standing of New Atlantis—as soon as they develop the wisdom to see that it is, in the end, the best of all possible tribes." (Stephenson 332)

Finkle-McGraw wants subversives because he wants the innovation they will bring to his tribe, but at the same time he is not afraid that those subversives will go on to threaten that tribe because he believes they will see the tribe's inherent virtue. His love of New Atlantis does not stem from nationalism or patriotism; his adherence to its moral codes isn't a result of a religious conversion; rather, he is entirely pragmatic in his beliefs.

And finally, the lesson of *The Diamond Age* is itself a pragmatic one. The novel does not condemn moral relativism per se; rather, it argues that moral relativism is not the best of all possible philosophies. As Finkle-McGraw himself came to believe as a young man: "[W]hile people were not *genetically* different, they were *culturally* as different as they could possibly be, and […] some cultures were simply better than others. This was not a subjective value judgment, merely an observation that some cultures thrived and expanded while others failed" (Stephenson 17). Just as late 20th century neo-conservatives argued that Western or American Civilization needed to be preserved not because it was white or WASPy but because it was better, just as pundits argued that moral relativity was undermining the country not because it offended God but because it caused domestic crises, the appeal of the New Victorians is a logical, rational one. And perhaps by extension, those readers of Stephenson's novel who harbor subversive tendencies might be seduced both by the charm of its heroine and by the reason of her arguments into espousing her beliefs. In the end, the project of *The Diamond Age* seems to be eerily similar to that of the Primer it describes. The Primer is intended to create subversives, but specifically subversives who can be contained within Neo-Victorian society and who will further its growth and goals. *The Diamond Age* reaches out to those subversives who make up the core readership of cyberpunk novels and provides them with a text that subtly reinforces the conservative impulses of its moment. Whatever Stephenson's intention, his novel works to support the Victorian values that so many other cyberpunk novels explicitly reject and to re-inscribe hegemonic morals in a model at once both cutting-edge and nostalgic.

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## Notes

[xxx] In fact, in 1996 Clinton and the Republican Congress drastically cut back benefits from ADFC; for more on its restructuring, see Patterson, *Restless Giant* (2005); Lo and Schwartz ed., *Social Policy and the Conservative Agenda* (1998); Ansell ed., *Unraveling the Right* (2001).

[xxxi] Moynihan was in fact a long-standing member of the Democratic Party, serving four terms in the Senate, but many of his writings and theories were embraced by neo-conservative authors.

[xxxii] For further discussion of the relation between immigration and the Culture Wars, see Ansell, "The Color of America's Culture Wars."

[xxxiii] Although the following quote from Stephenson in an online chat with Club *Wired* is somewhat intriguing: "I'm pretty comfortable with moral relativism myself, as are most people of my generation, but it seems to be destroying the country and so it's hard not to find that thought-provoking."

# CHAPTER SIX

# "CONFOUND THE LANGUAGE OF ALL THE EARTH": USER FRIENDLY TRANSLATION AND THE TOWER OF BABEL IN *IN THE BEGINNING...WAS THE COMMAND LINE*

STEVEN J. ZANI

"...anything with metaphors in it is fair game."
— Neal Stephenson

Analyzing Neal Stephenson's writing demands that one covers a vast array of political, historical, and virtual realities. With that range of topics in mind, what are we to make of *In the Beginning ... Was the Command Line*, a non-fiction treatise on the nature of computer interfaces? How does such a piece fit in his oeuvre, and just what is it? Stephenson's own account of it is far from promising. In the "Juvenilia" section of his personal website, he laments how quickly antiquated it has become, "*In the Beginning...Was the Command Line* is now badly obsolete and probably needs a thorough revision." According to the book's own back cover marketing, it is a work for "Sociology/Business," and in terms of basic content it is essentially a long essay about the history of the creation of the "OS," a text about Operating Systems and who owns them. In that vein, the book is simply one of Stephenson's many forays into cheerful non-fiction ranting about computer topics, though certainly his longest piece of that nature.[xxxiv] However, within the work itself, Stephenson describes the text in somewhat different terms, as an essay "chiefly about aesthetic and cultural concerns," and with that in mind there are more serious issues in the piece worth investigating (20). Taking a critical approach informed loosely by Frankfurt School Marxist literary critic Walter Benjamin, I want to think about Stephenson's "essay" as something more substantial—a full blown aesthetic policy that informs us not only of his attitudes about computer operating

systems, but provides a key for thinking about his other works, and his methodological concerns for writing and thinking.

Walter Benjamin's famous essay in translation studies, "The Task of the Translator," asserts the opposite of common sense, that the successful transmission of information, or content, creates a bad translation, for "a transmitting function cannot transmit anything but information—hence, something inessential" (69). Naturally, for some translators Benjamin's methodology is not going to be useful. Someone translating directions to insert into his company's product package (how to assemble a vacuum cleaner in Spanish, French, et cetera), probably does not have the same ephemeral, academic concerns as Benjamin. But for those of us who don't have that specific job function, in fact for those of us who employ "translation" in a much more generalized sense (as I am about to argue, everyone), there is something more substantial at stake in Benjamin's assertion, and I would assert the same argument is at play in Stephenson's gesture towards operating systems. For Benjamin, the process of translating text is special; it allows for readers to get at something that lies beyond the mere content of language. In brief, the importance of translation is that it brings into focus something that is otherwise unavailable to a reader, the very limits of the language one inhabits. When one reads text in a familiar language, any content therein is simply that, content, and would never reveal the limits of the framework that delivers the message. In translation, however, which is the space where separate languages collide and intertwine, there is the possibility of seeing how certain words do not do justice to their content, to see something that lies outside of the transmission of basic information.

But instead of showing how Benjamin elaborates this concept, let us look to Stephenson's treatment of the same, from *In the Beginning*. An early anecdote of the book relates how Ronald Reagan gave radio broadcasts for baseball games he wasn't even attending, just by reading descriptions from the telegraph wire and reconstructing the scene for his listeners. This translation of content from one medium to another doesn't just happen with deceptive broadcasters, however and, as Stephenson relates, in the world of computer programming and processing the concept is particularly relevant:

> All that you see on your computer screen—your Tomb Raider, your digitized voice mail messages, faxes, and word processing documents written in thirty-seven different typefaces—is still, from the computer's point of view, just like telegrams, except much longer and more demanding and more arithmetic. (15)

Everything we see on our computer screen is some variation of content, i.e. code, that it has translated and that is being transmitted to us in a new form. At least one of the relevant lessons here is that raw data, the content of a computer

program or of a novel, isn't nearly as essential as the interpretive framework, the context, or the paradigm in which that content is understood.[xxxv] Take the following symbols: ((2 * B) || !(2 * B)). Only a very specialized subset of people on the planet, those who know programming languages like C or C++, can read those symbols and make meaning of them, unless such a person were to "translate" them into another language, such as "spoken English," to produce the phrase "to be or not to be."[xxxvi] As is fairly obvious in this case, the actual content of a given phrase, sentence, paragraph, or program, can be used for a great number of things, and in many cases content will actually be meaningless, or have a different meaning entirely, when viewed with a different interface, operating system, or translation.

An interesting example of just how important it is to keep in mind these questions of interface can be seen in the mental gymnastics involved in recent computerized readings of the Bible. Michael Drosnin's *The Bible Code* (1998) (which has spawned many books since, involving the same methodology) takes the Old Testament and reads it with an "equidistant lettering sequence" (ELS), effectively reading every fifth letter (or third, or sixth, or seventh, etc.) and creating an entirely new string of words to be read and interpreted. In doing so, Drosnin and others have found a cornucopia of "hidden" messages in the Bible, such as supposed predictions of former events and/or impending disasters. The beauty of Drosnin's method is that it takes "content" available to anyone who picks up the Bible. Never mind that along with such content is an enormous dump of gibberish—alongside every, say, prediction of the assassination of Yitzhak Rabin ("predicted" by the apparent proximity of Rabin's name to the word "assassin" in the new ELS text), is page upon page of letters that combine in no meaningful way whatsoever.[xxxvii] Ignoring those mountains of gibberish however, Drosnin's "code" work reminds us that when using a new interface new information can reveal itself, much the same way that "to be or not to be" can be either a string variables producing unintelligible software code in one place, or the launching point and centerpiece of an existential reading methodology for the entire oeuvre of Shakespeare.

The point is that content alone is inessential, as Benjamin says, particularly when one realizes that content is always dependent on the operating systems that arrange and organize it. Stephenson's *In the Beginning* consistently dwells on the importance of recognizing the relation between content and transmission, and it is the key insight of the book to realize that this question of transmission is responsible for economic interplay that has occurred between Apple, Microsoft, and the other companies that produce operating systems for the world's computers. The text of *In the Beginning*, however, isn't limited to an account of operating systems, and that's what makes it so applicable to understanding Stephenson's work as a whole. Another example of

how ubiquitous and useful this focus on transmission can be is found in Stephenson's "reading" of designer clothing and the illusions of Disney World:

> The richer tourists at Disney World wear t-shirts printed with the names of famous designers, because designs themselves can be bootlegged easily and with impunity. The only way to make clothing that cannot be legally bootlegged is to print copyrighted and trademarked words on it; once you have taken that step, the clothing itself doesn't really matter, and so a t-shirt is as good as anything else. T-shirts with expensive words on them are now the insignia of the upper class. T-shirts with cheap words, or no words at all, are for the commoners. (50)

One traditionally assumes that people wear designer clothes because they are made with a better "design." That is, people are willing to pay more for clothing produced by someone who has risen to the top of the design world. Clearly such clothing must be produced with a greater deal of intelligence and care—it looks better, it lasts longer, perhaps it even protects us more thoroughly from the elements. But the fact that people are willing to pay more for a plain t-shirt, with no difference from a cheaper version except that it bears a designer logo, reveals that such clothing is not worn for those practical purposes. The purpose, instead, is to deliver a message, essentially that of "I belong to this or that class of person." But, again, that's not something that could be learned by paying attention to the *content* of the message on the shirt, which may be something as banal as "Abercrombie." Stephenson's purpose in calling attention to the shirts is to reveal that one can only understand the meaning of such content by looking at the network in which it has been transmitted. To use another example from *In the Beginning*, "Abercrombie" does not actually *mean* Abercrombie, any more than the phrase "<HEAD> <TITLE>C R Y P T O N O M I C O N<TITLE> </HEAD>" (16), means anything that it is intended to mean to people who don't know the language (HTML) that is appropriate for reading it.

These examples of t-shirts and HTML are yet another way to expose what I would call the "meta-language" that informs the question of language in general. Like Benjamin in his essays, Stephenson has specifically taken up the question of knowledge and the means by which it is transmitted. Paying attention to transmission, to the operative systems that deliver the content of a message, can be far more revelatory than the message itself. Think outside the text of *In the Beginning* for a moment to look at Stephenson's other fiction, particularly his treatment of the Tower of Babel narrative in *Snow Crash*. Much of the plot *Snow Crash* revolves around the realization that the "Snow Crash virus" can only transmit itself in very particular forms of media; at least part of the argument of the novel is that difficulty in translation of languages may very well be a deliberate, useful effect of the difference between languages in general. To wit, Stephenson is arguing that multiplicity in language systems in

the world is not a flaw in language itself, rather that multiplicity could easily be an actual working feature—an aspect of its design—rather than a bug, or other arbitrary element of noise or error. Again, this insight can only be learned by looking at what happens when some particular content, such as a "Snow Crash virus," or an ideology like Fascism, is viewed by someone who can read it properly. The virus/idea is either a jumble of unintelligible nonsense, or a damaging meta-text that destroys the entire neural network, but the essential lesson is that content itself is inessential when compared to the networks that organize and process it. The virus doesn't affect someone who isn't a programmer, just as Fascism can only grow in communities that have the economic/social conditions necessary for its acceptance.

*In the Beginning* focuses on this question of networks and systems repetitively, and on more than one occasion Stephenson hammers home the point by displaying some of the content that we encounter in our everyday computer lives without knowing that we do, because it is almost always given to us pre-translated, such as the graffiti-esque jargon of Linux code interpreted by your home computer if it happens to run that particular OS, "**Dec 14 15:15 theRev syslogd 1.3-3#17: restart. Dec 14 15:04:15 theRev kernel: klogd 1.3-3, log source = /proc/kmsg started. Dec 14**" (99). What do we make of such code? Well, nothing, because we usually pay lots of money or devote lots of time to have operating systems in place to make something of that code for us, and turn it into digitized pictures of Tomb Raider, system clocks, and Graphical User Interface functions with which we're all becoming very familiar.

*In the Beginning...Was the Command Line*, however, is Stephenson's call to origins, a reminder for us to recognize the idea of content without the graphical interface that provides translation; though again, I'm inclined to argue that *In the Beginning* is representative of a theme you can find in any number of Stephenson's works, even those like his collaborative novel *Interface* that are not particularly central in his oeuvre.[xxxviii] The book may be a simple potboiler political intrigue in the style of Tom Clancy, but even so it is a meta-perspective of political intrigue in the style of Tom Clancy. While apparently not intended to be innovative for its fictional content—it's a story of an imaginary presidential candidate—nonetheless originality in the work lies in its observation of how political messages and platforms are translated from their basic "command line" imperatives and turned into manipulative strategic points in speeches and advertisements. For something more central to Stephenson's collected works, take *The Diamond Age*, a novel that reveals the infrastructure of 19th century Victorian culture as much as it constructs a traditional narrative. Compare the book for a moment to Michel Foucault's highly influential *History of Sexuality, Volume 1* (1976). Foucault made a decisive splash in historical studies by beginning his history of sexual behavior not with the ancient Greeks,

or with some even more pre-historic culture, but with the relatively contemporary Victorian era. The argumentative strategy is that we can only understand sexuality of the past by realizing just how much we *already* understand it from a Victorian perspective. If we want to know the "content" or meaning of sexuality, Foucault asserts that we need to look at the network that is already in place for viewing it, Victorian cultural morality. *The Diamond Age*, with its Victorian focus, similarly invokes the deliberate idea of its own influence; it is an ironic *bildungsroman*, an educational novel that also happens to be about a *bildungsroman*. It is an educational novel about an educational novel, the "Primer" that teaches its protagonist about life. Like *In the Beginning*, *The Diamond Age* is not as interested in such inessentials as "*what*" a person learns so much as *how* they learn it, the basic interface that determines what kind of content is appropriate or inappropriate to be given.[xxxix]

The focus on interface is revealed in the very title of *In the Beginning*. Most readers will recognize that the phrase *In the Beginning ... Was the Command Line* is taken from the King James version of the Bible, specifically the title is an alteration of the opening verse of the book of John, "In the beginning was the Word, and the word was with God, and the word was God." Stephenson's assertion with his title is that the advent of modern computing essentially began when people began to abandon using "batch processing" (giving instructions to the computer by inserting batches of cards with data encoded via holes in the cards) and instead switched to the use of a "teletype" procedure: "On the teletype…you could just type in a line and hit the return key. The teletype would send that line to the computer," a procedure which eventually became known as the "Command Line Interface" (13). One might assume that Stephenson is asserting the importance of the command line interface, and its influence over computer as a whole. However, in a Benjaminian move, Stephenson's call to the origins of computing offers a shift in focus. The change in the title from the original biblical text reveals that what is important for Stephenson is not the Word—the content—of a message, rather the method of interface—in this case "the command line." Before a "Word" becomes interpreted and understood by its reader/auditor there must be an operative network in which words are organized and given particular arranged meanings. It is worth mentioning that Stephenson's alteration of the Biblical passage may not be much of an alteration. The King James Bible, like many English translations of the Bible, uses "Word" as the translation of the term "Logos" from the original Greek. While "Word" is a passable translation, a more comprehensive term in English is "Reason" or "Rationality." Logos is the masculine version of the Greek feminine "Sophia," which in English is usually translated as "Wisdom." These words, Sophia and Logos, were practically interchangeable at the time of the writing of the book of John.[xl] The point is, the

original passage of the Bible doesn't so much assert that a single "Word" lies at the origin of all things, but rather some form of rationality or wisdom, what might very well be thought of as an operating system, a rational network in which content is to be interpreted, not simply "words," the content itself.

Very well then, if Stephenson's title points to the central agenda of his text, and perhaps to an agenda lying behind many other books that he's written, what are we to make of that agenda? For an answer to that question, let's look again to the text of *In the Beginning*, which reveals the advantages of paying attention to the command line interface. Stephenson notes a particular problem that has occurred to him, labeled "metaphor shear," which may be defined as the moment when "you realize that you've been living and thinking inside a metaphor that is essentially bogus" (64). He devotes an entire small chapter to the phenomena in the book (70-72), describing how the texts he transcribed and saved with a 1985 word processor were lost when he tried to open them later using the newest Word 6.0 model. I've always thought the best textual example of "metaphor shear" can be found in the movie *Apocalypse Now*, when Boat Chief Phillips is killed by a spear, just after the crew has expressed disdain for the native arrow attack launched against the boat. The Chief's confusion in the scene, as the spear pokes out of his chest, highlights the dangers of relying too heavily on one's metaphors. When Stephenson lost his files, he realized that competing OS models don't just have particular characteristics, they have advantages and flaws. Those OS advantages might be substantial—like playing music on your computer while simultaneously running a word processor on it, or the ability to produce automatic machine gun fire from your motorized boat rather than just throwing spears—but they also have flaws which can get you in trouble, such as when you don't yet realize that your Word documents can be "lost in translation," or when you don't realize that a flying spear can be just as dangerous as a modern bullet. This spear-chucking idea is one that Stephenson himself employs with characters in *Snow Crash*, where Raven's glass spears are not detectable as weapons to modern security devices. In that novel, Uncle Enzo ends up being one of the few people to survive a direct confrontation with Raven precisely because, unlike his lieutenant, he is capable of switching from one OS to another, recognizing that it isn't meaningless when his operatives are "Having a little radio trouble" (431). His lieutenant sees his operatives' failure to check in as little more than static, noise in the system, but Enzo correctly assumes it is a meaningful sign of an impending attack. Stephenson's *Cryptonomicon* stresses the same insight when Sergeant Shaftoe is interviewed by Ronald Reagan, whose metaphor blindness seems similar to Enzo's lieutenant. When Reagan asks Shaftoe for advice to give young Marines, he offers the following:

> "Just kill the one with the sword first."

> "Ah," Reagan says, raising his waxed and penciled eyebrows, and cocking his pompadour in Shaftoe's direction. "*Smarrrt* —you target them because they're the officers, right?"
> "No, fuckhead!" Shaftoe yells. "You kill 'em because they've got fucking swords! You ever had anyone running at you waving a *fucking sword*?" (109)

A final useful example can be found in *The System of the World*, the third volume of Stephenson's *Baroque Cycle*. Late in the novel, Daniel Waterhouse accompanies his friend Roger Comstock, the Marquis of Ravenscar, to a meeting with recently coronated King George I. Surrounded by the King's entourage, Daniel Waterhouse has the acumen to recognize that a metaphor gleaned elsewhere can help understand the immediate situation. When Roger thinks that the King's mistresses are staring at him in hatred, Daniel corrects him:

> "I think you altogether misinterpret their glaring . . . . A she-wolf in the Thüringerwald stares thus at her prey, before pouncing. But it is not out of *hate* that the feral bitch of the north does so, but rather a cool understanding that it's from the hapless rabbit, sheep, or what-have-you, that she is to derive her sustenance."
> "Oh, is *that* all they want? Money?"
> "In a word, yes." (701)

A change of interface—Daniel recognizing that stares of hatred can here be understood using knowledge gleaned from an equally savage situation encountered elsewhere—allows for a better perception of the circumstances. Arguably, *The Baroque Cycle* can be said to take on the question of world-wide operating systems even more substantively than the other novels I have addressed, but the point is that this theme is both pervasive in Stephenson's fiction, and is actively and explicitly addressed as a specific topic here in *In the Beginning*.

Given the dangers of our operating systems failing us, as Stephenson points out in both fiction and non-fiction, what metaphor works best? Is there a way to minimize our "metaphor shear" and maximize our happiness and potential for survivability in the world? It's not entirely clear whether Stephenson answers that question, and moreover if there is an answer it probably lies in being cautious about drawing too many rigid conclusions even from the question itself. Witness Stephenson's interpretation of Bill Gates from *In the Beginning*:

> Bill Gates has only one responsibility, which is to maximize return on investment. He has done this incredibly well. Any actions taken in the world by Microsoft—any software released by them, for example—are basically

> epiphenomena, which can't be interpreted or understood except insofar as they reflect Bill Gates's execution of his one and only responsibility. (24)

Herein lies a question of "interpretation" of Microsoft. How are we to understand Bill Gates? The answer is by looking at his performance, all of the direct and indirect actions taken by him, the phenomena that are clearly important and the "epiphenomena" that seem inessential or ambiguous, and organizing them around a central agenda that is the actual principle that informs any of his actions. It is my intention here that we understand *In the Beginning*, and ultimately all of Neal Stephenson's writing, in the same way, as phenomena or epiphenomena that are revelatory of a particular agenda. Whether or not I'm correct in my assumptions about the agenda of Stephenson is, perhaps, not so relevant as the fact that we can all use Stephenson's writing to allow us to tangle with the ideas his texts may offer, which bears useful fruit in allowing us to pull insights from his novels and other writings. Other than that basic utility, the metaphor can only go so far. In fact, I'm surely wrong about Stephenson. Just as any reading of Bill Gates, for example, is an overdetermination (he doesn't *just* do things to make money for Microsoft, he also does it because he's a megalomaniac, or because he's a Scientologist, or he's the reincarnation of the apostle Peter, etc., whatever models seem best to define his actions at the time), so too is any description of Neal Stephenson and his novels going to suffer the same overdetermination. To use Stephenson's own language, any metaphor we use to approach him is bound to fall prey to the possibility of metaphor shear, the eventual discovery that things aren't always what they seem.

Let us return again to the metaphors employed by the writer(s) of the Tower of Babel narrative, who asserted that we live in a world where "the Lord did there confound the language of all the earth" (Genesis 11:9). The origins of our universe, and of the Language we use to interpret it, are confounded in interpretation by their very nature. Perhaps this is why Stephenson ends his book as he does, with an anecdote about Lee Smolin's *The Life of the Cosmos* (1997). His conclusions are that the big Operating System that we all want to run, the kind that could solve all our problems, allow us the simplicity of default lives, happy marriages and sizable bank accounts, these are the operating systems that nonetheless will eventually be confronted with a content that can't be adequately handled: "life is a very hard and complicated thing; that no interface can change that; that anyone who believes otherwise is a sucker; and that if you don't like having choices made for you, you should start making your own" (Stephenson 151).[xli] No operating system is free of bugs, that might be lesson number one, but lesson number two is that the best way to avoid flaws in operating systems is to make sure you get your own hands dirty in examining or creating your own, rather than relying entirely on the pre-sorted fabrications given to you, not just by the Microsofts and Apples of the world, but by the

Alchemists, Kabbalists, Humanists, Zarathustrians, and other millions of ideologues whose versions of reality we may have participated in, and which might be pleasant or helpful for awhile, but will eventually crash our hard drive.

Is any metaphor safe from the possibility of metaphor shear? For Stephenson, adoption of any operating system is essentially a kind of investment, with correspondent risks and rewards. "What we're buying into is the underlying assumption that metaphors are a good way to deal with the world" (64). If Stephenson's various novels touch upon these problems of data and interpretation, *In the Beginning* provides the only explicit account of the implications and consequences of adopting metaphors, our "operating systems" and how we deal with them. These are questions both for individuals, who use metaphors to save their data files, play Tomb Raider, and watch out for flying spears, but these are also questions for countries and cultures, who use metaphors to generate economies (and have subsequent anxieties about their collapse) and promote practices and behaviors to sustain their existence. If all of our languages, our interpretive paradigms of wisdom and rationality, our operating systems, can be used to transmit viruses and promote dangerous ideas, they can also creates worlds, and Stephenson's gift is to recognize that a history of the OS is a revelation of the nature of the universe.

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## Notes

[xxxiv] Try tracking down amiable but obscure magazine pieces like "Smiley's People," a *New Republic* article on the use of e-mail emoticons that Stephenson has since recanted, or "Communications Prosthetics: Threat or Menace?," an attack on Powerpoint Presentations, from *Whole Earth*. (In the era of online databases, these obscure articles aren't nearly so obscure anymore.) Full citation information for these and other referenced works can be found in the bibliography.

[xxxv] It might be useful here to think of "paradigm" in the largest possible context, as a kind of world view. For example, see Thomas Kuhn's influential *The Structure of Scientific Revolutions* (1962) for an account of scientific paradigms that seems relatively correspondent to the use of the term here.

[xxxvi] Literally *written* as "two B or not two B," but of course it is my exact argument that meaning alters because of the means of transmission. My thanks to software engineer Gregory Allen Hall for the initial inspiration in using this selection of code.

[xxxvii] Or none that we can see. There are a great number of refutations of Drosnin's *Code*, but a particularly useful one comes from a short section (pages 57-64) in mathematician John Allen Paulos's book *Once Upon a Number* (1998), a mathematic look at narrative in fiction, where Paulos reveals how such discovery of "meaning" is much more universal than one might realize—he discusses using ELS to find "evidence" of the Clinton/Lewinsky sex scandal hidden in the U.S. Constitution.

[xxxviii] The work, for example, doesn't appear in the list of books on Stephenson's own website, apparently because it is a co-written text. It also appeared originally under the pseudonym of "Stephen Bury." See Works Cited for full publication details.

[xxxix] Compare *The Diamond Age* to Orson Scott Card's *Ender's Game* (1977), a science-fiction novel that structurally has a great deal in common with Stephenson's book—both are narratives about a protagonist whose education is aided by a computerized "book"

that contains a sentient author, a designer, behind the text. However, *Ender's Game* has none of Stephenson's focus on interface determining content, and hence despite its structural similarity is obviously an entirely different kind of novel.

[xl] For a more comprehensive account of Logos/Sophia translation implications, see J. Martin C. Scott's "John" selection in Dunn and Rogerson's weighty tome *Eerdman's Commentary on the Bible*, 1161-1212.

[xli] Precisely the operative desire that lies behind the success of such games as *Sid Meier's Civilization*, or even more evidently the entire *Sims* software series.

# CHAPTER SEVEN

# CRYPTO-ECONOMICS: NEAL STEPHENSON, MILTON FRIEDMAN, AND POST-POSTMODERNISM

MICHAEL TRATNER

Early in *Cryptonomicon*, Neal Stephenson creates a devastating satire of postmodern academic theory in the form of a conference about World War II with the ungainly title of "The Intermediate Phase (1939-1945) of the Global Hegemony Struggle of the Twentieth Century (Common Era)." Since the topic is unrecognizable in that title, a nickname emerges: "War as Text." The novel visits this conference because Charlene, the girlfriend of one of the main characters, is presenting a paper on "Unshavenness as Signifier in World War II Movies," a follow-up to an article she wrote on deconstructing beards (96). The highlight of the conference is a lawsuit brought against the organizers for a poster they commissioned—a photo of a veteran with makeup and a dangling bra strap added. The academics are delighted to be sued by the veteran whose image they have manipulated, declaring that he is "just the sort they had gathered together to debunk, burn in effigy and sweep into the ash-bin of posthistorical discourse" (64). The narration, however, has put readers entirely on the side of the veteran: the scene immediately before the conference shows a marine tearfully telling his lover in 1941 that war has broken out. Stephenson clearly wants us to view the entire conference with disdain; these academics are just the sort of persons this novel aims to debunk, fools who know nothing about war and its effects on people.

But then the novel does something surprising: it presents a series of scenes of World War II which gradually lead up to a conclusion that is almost exactly what the academics sought to establish—that war is text. World War II is presented entirely in terms of strenuous, heroic, efforts to break codes and elaborate methods to convince enemies that their codes have not been broken. Some of the most detailed "war scenes" show military personnel blowing up their own ships and weapons while depositing human remains of various sorts to create what appear to be dead

spies. The goal of these scenes is to make it seem that spies were physically near the enemy, but then were killed, so that information would seem to have come from those spies rather than from the decoding of intercepted messages. After experiencing many such "war efforts," Lawrence Waterhouse, one of the main wartime figures in the novel, concludes that "the war is every bit as fictional as the war movies being turned out . . . in Hollywood" (550).

Lawrence Waterhouse is a mathematical geek, so it might seem that he is as mistaken as the academics of that absurd conference. But a tough marine whom we follow through the war, Bobby Shaftoe, also finds that all his physical prowess is devoted to "textual" acts such as protecting code-breakers. His final act of ultimate courage consists of parachuting onto a giant rock covered with antennas, which causes him to be badly cut up, and then flinging his broken body down an air shaft to set fire to fuel oil in order to burn up a room full of Japanese code-creators. The ultimate use of force in this novel is to wreck the ability of the enemy to produce texts. The side with the better texts is the side that wins the war.

While the book is thus negotiating a way to accept what it at first seemed to mock as a prime example of academic silliness—the notion that war is text—it also develops a second plot set fifty years after the war which is also couched in terms quite consonant with academic postmodern theories: the creation of a new form of money as digital currency. This second plot is another version of the process of dematerialization which the war scenes showed; instead of establishing that wars can be fought with texts, the second plot shows that business (another kind of war) can be conducted with digital codes instead of with physical money or valuable objects. Stephenson's vision of a global form of money as code could even be seen as a dramatization of one of Jean Baudrillard's theories of the postmodern era. Baudrillard writes in *The Mirror of Production* (1973) that a new age is arriving which will "elevate production . . . to a total abstraction, . . . to the power of a code, which no longer even risks being called into question by an abolished referent . . .[leading to] the virtual international autonomy of finance capital . . . [with] currencies . . . extracted from all production cautions . . . This apogee of the system corresponds to the triumph of the code" (129).

Baudrillard develops his vision of a new global economics entirely based on "code" with the explicit goal of bringing about the Marxist dream of ending capitalism. Stephenson may share elements of Baudrillard's vision, but nothing of Baudrillard's goal at all—the triumph of the code in this novel seems mostly a way to produce a purer form of capitalism, to free business from legal and political manipulation. Nevertheless, Stephenson

does present the new digital currency as helping to end certain kinds of oppression, just not those dear to Marxists. The characters who design the new form of money envision it as a way to stop any recurrence of the very real horrors of World War II—the horrors of Nazism. Needless to say, this is a strange thing to expect a new form of money to accomplish. Part of the way this is supposed to work is that once the electronic streams which function as money have been set up to pass into every country, one of the organizers, Avi Halaby, plans to insert into those streams what he calls a "Holocaust Education Avoidance Pod" designed specifically to counter any regimes plotting genocide. Included in this Pod would be "guerrilla" tactics for an oppressed group to use to resist a coming holocaust.

Avi's dream suggests that merely setting up lines of communication which cross all national borders provides at least the possibility of surreptitiously countering governments when they begin to claim that they can legitimately take the lives of some of their citizens. The Nazi Holocaust is not discussed in much detail in the book; it is largely presented as an example of a government going haywire, so we might say that what Avi seeks is basically a way to protect citizens from their governments. Hence it is a crucial feature of this new form of money that it will not be created by any government at all, but rather by a private company.

The notion of replacing a governmental operation with one carried out by a private company points to a certain ethos which informs this novel, the ethos of "privatization," which is usually advocated by conservative political figures, not by postmodern theorists, who are generally on the left. Yet in this novel privatization of one of the most crucial governmental functions is presented as a crucial step toward the reduction of cultural oppression, a typical goal of postmodern theory.

It may seem difficult to imagine an intellectual theorist of the postmodern who would advocate privatization as a way to achieve such a goal, but that may be because academics have not examined conservative theories of the postmodern world. Given that a new form of capitalism is what the novel finally presents as key to its vision of a new world order, we could look among capitalist economists rather than poststructuralists for such a theory, and it turns out that there is an very influential conservative economist—Milton Friedman—who has produced a theory that seems uncannily close to what Stephenson imagines in his novel.

Milton Friedman's central contribution to economic theory—the importance of monetary policy—derives from a fundamental insight that sounds strangely postmodern. He argues that recent history has gradually revealed that one of the most important sign systems in the social order—

money—actually operates without referring to anything at all. In *A Monetary History of the United States*, Friedman says that money is "a social convention that owes its very existence to the mutual acceptance of what from one point of view is a fiction" (696). Sounding very much like a poststructuralist, he concludes that money operates as a "veil" that functions largely by veiling its own fictionality. Previous economic theorists have generally argued that the fictionality of money made it irrelevant, that one could always substitute the things actually exchanged in any discussion of what money was doing. Instead, Friedman claims that changes in the sign system itself, in money, are significant determinants of economic events. Friedman is in effect theorizing the power of codes to shape and even create parts of the physical world (such as factories and machinery and valuable objects), and as such his theories end up surprisingly close to those of Jacques Derrida.[xlii] Friedman does not get recognition as a postmodernist, possibly because he does not much aim at countercultural goals of the sort usually associated with postmodernism; he is not seeking to change gender roles or to end the hegemony of Western Capitalism. He does, however, present his vision of the new world in terms of sociopolitical goals: he argues that the recognition of the power of codes to operate without physical reference can help complete the liberal state, creating a world of greater freedom. Friedman thus views the advent of a dematerialized money—money operating as a code—in very much the terms that Stephenson does.

Stephenson and Friedman also share a paradox: to free the individual, everything must be connected together into one giant code-distributing system, and someone must run that system. Friedman proposes that a structure could be set up within a modern government to operate automatically, according to formulas not subject to political considerations. In the United States, the Federal Reserve Board claims to operate in such a way. Stephenson is less sanguine about the possibility of independence within governments: the techno-liberators in this novel seek instead to create a global non-governmental system via computer networks, unbreakable cryptography and a central data crypt carved out of a mountain. Actually, it is not quite free of governments: the crypt is located in an imaginary Sultanate whose ruler will give up all control in return for immense profits. In a sense, the crypt becomes an international version of Friedman's automatically regulated money supply, and the Sultanate a non-political world government.

There is, however, a problem with a private company creating currency: how does that company convince people to use it? How can they create the conditions that will inspire belief in the fictions they produce—

belief that their money is "worth" what they say it is worth? Governments produce belief in complex ways that sometimes intersect with the money they produce, so that ideological decisions can end up distorting the entire economic system. The characters in this novel want to avoid such situations, and the solution proposed is a simple one: instead of relying on trust in a government, they propose convincing people that the new digital money is backed by a huge cache of value, or, as one character puts it, "a shitload of gold in the basement" (1008).

The use of gold to back up money might seem to contradict Friedman's theory and even the basic premise of the novel, that codes do not rely on "real objects" to function. Using gold to convince people to believe in money would seem to be trying to restore the "veil" which made money seem merely a referential sign pointing to "real value" in "real objects," the veil which Friedman says has in the past stopped governments from actively pursuing monetary policy (as if the governments were trying to change reality, not merely symbols).

Milton Friedman's theories do reject the gold standard, and they played a large role in Richard Nixon's decision in the 1970s to finally stop the policy of backing the dollar with gold. But the reason Friedman objects to gold is not that it contradicts his whole theory of the operation of money; even when a Gold Standard is fully operational, money still operates as a social fiction, and even without the Gold Standard, money still operates as a "veil" that appears to refer to "real" things and "real" value rather than fictions. What Friedman objects to about a Gold Standard is that the sheer physicality of digging up and storing gold distorts the operation of money. When a large stockpile of gold is presented as the source of money's value, then a great deal of energy gets devoted to a somewhat absurd economic exercise: gold mining. As Friedman puts it in *Capitalism and Freedom*: "People must work hard to dig gold out of the ground in South Africa—in order to rebury it in Fort Knox or some similar place" (40). Friedman is clearly mocking the role of Fort Knox and such arguments contributed to what was essentially the elimination of that classic image of the wealth of the United States' government: in the 1970s most of what was buried in Fort Knox was sold off so that dollars could "float" as social fictions continually redefined by the global money market.

But though Friedman rejects the gold standard, a number of economists who have followed his lead in recognizing the crucial role of the monetary system in the liberal state still feel that gold is the best way to do what Friedman advocates— to have a money supply that is free from tampering by politicians or large corporations. The most influential and well known Monetary economist during the period when Stephenson wrote

his novel is one of these "gold bugs": Alan Greenspan, the chairman of the Federal Reserve Board throughout the 1990s. Greenspan's acts of adjusting interest rates, changing the quantity and value of money in the U.S., might seem in conflict with the notion of freeing individuals from Governmental control, but he always presented the Fed's acts as an effort to stop social forces from distorting the system of values created by individuals; the Fed sought in particular to stop inflation or deflation from changing the "value" or we might say the "meaning" of money. Greenspan's stated goal for governmental economic policy, like Friedman's, is to produce maximal freedom for individuals. And Greenspan regards gold as a crucial element in that process. He wrote in 1966, long before he became head of the Fed, that "gold and economic freedom are inseparable . . . the gold standard is an instrument of laissez-faire and . . . each implies and requires the other" (96). Stephenson clearly has drawn upon such views in developing his plot.

*Cryptonomicon* is composed of two stories about gold's relationship to various economies: one story, set during the end of World War II, traces the removal of vast quantities of gold from national economies—-as the United States did in the 1970s; the second traces the effort fifty years later to recover this gold and restore it to serving an economic role. We might say, then, that the book is allegorically an effort to reverse Nixon's policies and to bring about the policy which Greenspan advocates but has never really pursued—the recollection of the gold recently divested by the Government in order to recreate a global Fort Knox.

The gold sought in the book is of course not represented as that which America removed from Fort Knox; rather it is represented as gold which Germany and Japan removed from their economic systems as a hedge against the destruction they saw coming as they lost World War II. But there are still some similarities: the book presents this loss of gold as resulting from bad policies by the German and Japanese governments, policies that destroyed individual freedom (such as the Final Solution), and the book presents the return of this gold as a way to counter those bad policies and hence protect freedom, in a move akin to what Greenspan advocates.

We might also say that the gold in this book represents a residue of a kind of value which disappeared or went underground in the decades after World War II, a kind of value which that war destroyed. If we view the novel as seeking to recover a kind of economic "value" which was lost after World War II, we can also view its imitating of an older kind of war story as also seeking to return to a set of personal values which some social

commentators describe as disappearing after that war. So in its economics as in its recreation of older literary forms, *Cryptonomicon* might be seen as a vast effort to reject much of the postmodern (or at least postwar) age and turn the clock back to an earlier time.

However, there is another way to understand the act of trying to recover values from an earlier era—as a version of what recent economic theorists such as Friedman and Greenspan have described themselves as doing, namely developing a new version of the "classical" economics of liberalism; hence this new economics is generally labeled as "Neoliberal" or "Neoclassical." It is important to realize, though, that Neoliberalism is not simply a return to liberalism. The old liberal view (in the nineteenth century, before Keynes and the New Deal) was based on the notion that the economic system is made entirely of individuals who are simply independent agents; it is these individuals who set up the government to serve them, and basically the government functions to keep individuals from interfering with each other. Neoliberalism is based instead on a view that there are certain quite complex and non-individual systems, such as the money supply, which have to be regulated to allow individuals to be free. Neoliberalism aims at what might seem an impossible goal, to maintain the social systems—the codes—in which people conduct their actions in such a way as to allow individuals to be "free" of those systems and those codes.

Toward the end of the novel, Stephenson includes a complex philosophical vision that extends that impossible goal of Neoliberalism far beyond what any economist has ever suggested. The novel climaxes in a vision of individuals as literally created out of codes—or, we might say, cultures—and yet able to transcend those codes/cultures. This paradoxical vision is presented by a mystical figure Enoch Root, who seems capable of transcending cultures by living for hundreds of years. Root proposes that we all live in a version of Plato's cave, seeing only shadows, patterns, never "real things" at all. These shadows include what we think of as our selves. Each culture creates a distinctive pattern of shadows, and would seem thereby to put cultural limits on what people can conceive or know. Root argues that there is, however, a way out of one's culture: by discovering certain elements that reappear over and over again in all the different shadow-patterns, across all cultures and throughout history. Root himself seems to actually "be" such a repeated a common pattern. He first suggests this possibility as an explanation of how Randy Waterhouse managed to recognize him in the flesh after having exchanged emails. Root says that by reading the emails Randy developed a "Root Rep," a representation of Root, and then upon meeting Enoch, recognized this same Root Rep in the real person. Root suggests that the core of every person is such a

"representation," not a physical reality. The novel goes on to imply that these representations can reappear in multiple eras. In this novel, Root dies during World War II but then appears in the tale fifty years later. In the next three Stephenson novels, *The Baroque* Cycle trilogy that is in some ways a "prequel" to *Cryptonomicon*, Enoch Root appears in the 17th and 18th centuries, and Stephenson has confirmed in an interview that this is the same character as the one in *Cryptonomicon*. Root's name is not accidental: he carries the message that "representations" (or, we might say, coded copies of real things) are the "root" of everything—not only of cultures and ideas and the weapons that win wars, but of reality and human bodies.

The novel shows gold similarly as a "rep" which reappears in multiple cultures, particularly through the story of how Goto Dengo, a Japanese soldier, survives during World War II. Goto gets separated from other Japanese soldiers and ends up hiding in the bushes in an area occupied by cannibals who initiate their youths by having them kill strangers. Goto finds a way to convince the cannibals to let him survive when he realizes that they value gold, which he sees is present in a nearby stream. He shows the cannibals that he can pan for gold, and this "new technology" buys his life, as they do not seem to learn the skill very quickly and so value him as a continued source of what is essentially money. Goto's story is a small version of what Avi hopes to accomplish with the Holocaust Education Avoidance Pod: the cannibals have a policy of killing those not in their culture, a mini-version of the Holocaust, but Goto finds a way to use a "stream" of currency to counter the genocidal behavior directed toward him.

Goto ends up one of the workers who build the vault in which the Germans and Japanese bury their gold, but his reaction to knowing about this gold is different from nearly everyone else's: he does not see it as potential treasure he might tap in later life but rather as a temptation to corruption. After the war, he helps MacArthur and the American government rebuild Japan, becoming rich and powerful as a result, but he makes no mention of the buried gold until fifty years later when he joins with Avi to try to disinter it and produce the new digital stream of currency. At first he rejects the plan because it involves the tainted gold, but finally he agrees to support Avi's goal of using the new form of money to counter governments who try to kill persons over whom they rule. Goto suffered from such governmental goals during the war. His wartime scenes repeatedly lead up to situations where he is expected to die in a Kamikaze gesture as a battle becomes hopeless. Goto escapes from each of these situations, feeling that he is a failure as a Japanese soldier and not worthy to

live on. But he does live on, in a bitter rejection of nationality. When he joins the group that plans on developing a new form of money, he brings to their dream of escaping the excesses of nationalism the realization that it is not easy or pleasant to live outside one's nation, outside the culture that formed one's personality. The kind of personal freedom that all the techno-liberators seek is understood by Goto as a painful and arduous way to live.

The desire to end mindless nationalism is at the core of nearly everything in this novel. It also informs the mystical vision of a world built out of "representations" which Root presents to Randy Waterhouse. Root draws attention to two "reps" in particular which he says have reappeared over and over again. He identifies these two with the Greek Gods Ares and Athena, two different versions of a God of war. Ares is a God who inspires followers to acts of "mindless, raging violence" while Athena worshippers seek to fight using "cunning . . . and technology" (1000-1). Root uses his description of these two Gods to explain the outcome of World War II: "we won because the Germans worshipped Ares and we worshipped Athena" (1004). The Holocaust and the Kamikaze sacrifice of individuals to hopeless national goals become in this novel the key examples of the horrors caused by the worship of Ares-type Gods.

Root's use of the term "we" would seem to refer to the Allies, but it may not. The novel makes it clear that the leaders of the Allies are not really Athena-worshippers; when we see Allied generals such as Douglas MacArthur, they seem to be largely idiots. The real opposition to the worship of mindless violence is embodied in a strange "conspiracy" that forms during the war among a group of persons who share a love of technology and a sense that the leaders of all countries tend to be war-mongering idiots. This group is presented as pretty much responsible for the Allies winning the war; most of them are Allies and successfully break German codes, but the main German code-creator, Rudy, also joins the conspiracy and reveals that even before he joined this group he had kept from the German High Command his best code. So in a sense the war is won by a group of techno-individuals who never simply line up with their nations. As the war ends, the group sets in motion the main plot of the novel precisely by seeking to separate themselves from all governments, including the Allies. They hide from American leaders clues to the cache of gold buried by the Germans and Japanese, aiming at using that gold to finance their own lives separate from their governments.

Root becomes part of this first conspiracy, as he also becomes part of the second one fifty years later. In a very real sense, he is responsible for there even being a second conspiracy, because his role in the first one is to ensure that they have children. This turns out to be important in the novel

because the conspirators fail to carry out their plans, leaving the gold buried for decades until that second conspiracy, which ends up bringing together descendants of the first conspiracy, devotes itself to finding the gold and using it to create the new digital currency. Root reappears and joins this second group, as a way to complete the victory of the Athenian values—in other words, to end the power of governments to bring their citizens to pursue goals of mindless violence.

Root's goal is to bring people to see beyond the limits of their governments and their cultures. But what is outside culture is not simply "reality." While Root does argue that cultures show us only shadows, coded versions of whatever is "real," he does not provide any way of escaping such codes. Rather, what he proposes as a way beyond culture requires in a sense building up a super-code out of the multiple codes of multiple cultures—finding common elements within multiple codes and then finding a way then to use all these codes at once and thereby to transcend the limits of any one code. I propose then that what this book is dramatizing and what Root is theorizing could be called a version of post-postmodernism, because it postulates a method of escaping the limits of postmodernism by doubling the operations that put people into the postmodern state. If postmodernism deconstructs the "natural" by showing that everything that seems natural is actually embedded in cultural codes, then this novel's post-postmodernism deconstructs "cultural codes" by showing that each cultural code is or can be embedded in a larger "super-code." The transcendence of cultural codes is performed not by resisting or stepping out of the patterns within which each person is caught, but by finding patterns within the patterns. Patterns of patterns reveal the "roots" of all the varied cultural systems and hence discovering patterns of patterns allows one to transcend cultural differences.

Going beyond the cultural does not then return people to the "natural;" rather what is restored by Root's transcendence of the cultural is the "super-natural," a form of the divine accessible from within the real world. Root is a priest, though one at odds with his Church, and what he advocates is a form of worship, though of the "Athena-rep" and her values, not of anything exactly Christian. The turn to religion as a way out of cultural limits is a central part of how this book seeks to get beyond postmodern theory. Since the roots of postmodern theory are Marxist, postmodernists have mostly interpreted religion as an institution or a form of ideology. But in the 1990s, religion has more and more crept into the center of discussions of sociopolitical events, in academic and non-academic circles. Certainly this is evident in the popular press. Since the demise of the clash between Communism and Capitalism, the terms of

political headlines have shifted from the language of ideology to the language of religion. A similar shift has also begun occurring in academic theorizing; for example, a recent issue of *PMLA* was devoted to Bill Brown's claim that one of the most influential Marxist theorists of the postmodern, Fredric Jameson, may actually have built his theories out of a "medieval Christian legacy" (734). If Jameson's theories are Catholic, then what they imply will follow the postmodernism he describes is not a Marxist revolution but The Second Coming, very much what Enoch Root represents. Jameson the Marxist is a postmodernist; Jameson the Catholic is a post-postmodernist akin to Stephenson.

What I have called Stephenson's post-post-modernism may then be part of a larger movement, not simply one author's vision. Its combination of economic and religious values bears similarity to recent conservative social commentary. For example, Lawrence Kudlow, in a 1997 article in *National Review*, remarks that "In today's world of high technology and global markets, it has become fashionable to disbelieve in both God and gold. Too bad, for continued application of old virtues would greatly assist the transition to the next millennium" (42). Kudlow brings together most of the basic elements of this novel—new technology, global markets, God, gold, old virtues, and the transition to a new millennium. The only thing missing is the primacy of codes, but, as we have seen, that could derive from Milton Friedman.

Once we recognize the novel as aiming to go through postmodernism to something else, we can return to the satire of postmodern academic theory and pinpoint just what Stephenson is critiquing. That scene climaxes in an argument between an academic bigwig, Dr. G.E.B. Kivistik and Randy Waterhouse, who will later become a central figure in the techno-liberation conspiracy. They argue about the Internet: Kivistik says those in the "'world's ghettoes'" will not have "'onramps'" to the "'information highway;'" instead "'slums'" will be "'bulldozed'" to build it. Randy explodes that Kivistik is just using a "'bad metaphor.'" Kivistik calmly replies that "'everything is a metaphor . . . who is to decide what is bad?'" The narrator enters at this point to say that Kivistik is about to pull out the "academician's ace in the hole: everything is relative, its all a matter of perspective" (101-2). In the terms used in the rest of the novel, Kivistik's claim that "Everything is a metaphor" is a version of the notion that everything has to be presented in codes, and it is these codes which then entrap people in differing and competing "perspectives" that condemn some to "ghettoes." Against such arguments, Randy and Stephenson declare that individuals can transcend the cultural codes surrounding them and at the same time connect to other individuals. That everything is a

metaphor, is coded, does not entrap everyone within a culture or within a single individual mind.

Randy seems to fall into clichés in his refutation of Kivistik, saying, "'I have found that if you work hard, educate yourself, and keep your wits about you, you can find your way in this society;'" the academics mock this conclusion as "'straight out of some nineteenth century Horatio Alger book'" (104; 105). In a sense the academics are exactly right: Randy and this novel are presenting as their answer to the problem of everyone being trapped within "a perspective" a remade version of nineteenth-century economics theory, a form of Neoliberalism. Randy's simple claim hints at what will be elaborated later in the book into such strange forms as Root's vision of transcultural "Reps" and Avi's theory of Holocaust Avoidance Pods.

Randy Waterhouse's claim that individuals can find their own ways may make him seem uncaring about the cultural inequities to which Kivistik alludes in speaking of the "world's ghettoes," but the logic of the novel suggests rather that it is Kivistik's ideas which create the social problems Kivistik would seem to want to solve. The mention of "ghettoes" would seem to put Kivistik in opposition to the Holocaust, but what the book ends up implying is that it is precisely what Kivistik believes which creates holocausts. Stephenson implies that when one believes that one's perspective is entirely bounded by the code one uses—or we might say, by the culture in which one is raised—then one's mind is in a sense the property of that culture. One's mind is then tied to, shaped by, and finally controlled by the "leadership" of that culture. In such a case, when the government goes haywire, the individual will join in genocidal or suicidal acts in pursuit of mindless national goals. The belief that the world is divided into cultures so different that no one can judge anyone else's metaphors produces wars and holocausts.

The novel is an investigation of a way out of the structure of the world as formed of incompatible "differences" of culture. The method proposed is in part privatization, in part religion, and in part an effort to create codes and systems of communication crossing all national boundaries. But it also is significant that the book presents the project as requiring groups from two different generations to accomplish it. A crucial part of the solution proposed requires crossing generational lines; one way individuals are freed from cultural bounds is by repeating some of what was done in the past. The second group of techno-liberators, the ones who seem on the verge of finding a solution to the problems of cultural difference, are in both literal and metaphorical senses a reproduction of the first one.

The double plots reveals that the concept of "reproduction" is central to this book, in several senses. For one thing, the book is about reproductions in the sense that what people find when they step out of their cultural bounds is not a vision of what is "really there" or of some "original" world, but rather a universe of copies, of reproductions, of representations. For example, the book suggests that the values needed in the present are reproductions of the values of earlier ages.

Equally important is the sexual sense of reproduction which functions within the novel as a central mechanism by which values are passed on. In the two groups of techno-conspirators, there are characters whose names are repeated: Lawrence Waterhouse and Randy Waterhouse; Bobby Shaftoe and Amy Shaftoe. The later versions are descendants of the earlier ones, but they are more than simply descendants: they are portrayed as having much the same core personalities. Lawrence and Randy are math geniuses; Bobby and Amy are tough soldier-types. We could say in the terms Enoch Root proposes, that there is one "Waterhouse Rep" and one "Shaftoe Rep," and each of these representations appears twice in the historical world. Stephenson even goes on in *The Baroque Cycle* to write about Daniel Waterhouse and Jack Shaftoe, founders of the families in *Cryptonomicon* and early models of the "reps" of their family names.

Reproducing core values through reproduction of individuals is presented as a way that codes and cultures can be transcended. Hence it makes sense that the scene mocking academic postmodernism is titled "The Spawn of Onan": Stephenson is of course mocking academic discussions of war as mental masturbation, but he is also saying that all this powerful intellectual thought does not "reproduce"—it has no offspring, it brings nothing physical into the world. The conference scene also focuses quite directly on the reproduction of Randy Waterhouse. We learn that he is attending the talks because his girlfriend Charlene is presenting a paper, but Randy has already "ruined his relationship with Charlene by wanting to have kids. Kids raise issues. Charlene, like all of her friends, couldn't handle issues." (101). The sexual relationship with Charlene remains a form of "onanism" whose only "spawn" is intellectual, not physical. To avoid "issues" is to avoid having anything actually issue from the ideas one has or we might say from the "representation" that one is. Academic ideas do not produce physical objects, unlike what the rather mystical theorist of the computer Alan Turing searches for, "the incarnation of pure ideas in the physical world" (423). Randy leaves Charlene and plans to marry Amy Shaftoe, a symbolic merger of the spirit of the Randy's grandfather, the mathematician Lawrence Waterhouse and the spirit of Amy's grandfather, the marine Bobby Shaftoe who were the two central figures in the World

War II stories. This marriage symbolizes the merger of the intellectual and the physical that is a key part of Stephenson's answer to academic onanism.

By tracing lines of reproduction of individuals, the novel complicates the kinds of patterns that make up cultures, the patterns that shape what individuals think. Most of the marriages we see in the book cross cultural lines, and thereby contribute to a lessening of the identification with one culture that is crucial to nationalism. If a culture is, as the book implies, a set of metaphors, a code, then the lines of reproduction suggest that the code is not a coherent and uniform pattern; it does not shape every person in the same way. Rather there are parts of the cultural code that remain incomprehensible if seen simply as parts of the current overall pattern. These elements are the bits and pieces reproduced from individuals existing before the current cultural patterns were put in place. Those parts of the "code" can be understood only by tracing lines of reproduction extending through multiple bodies and through multiple cultures. We could say of the Shaftoes and Waterhouses that they embody "family values" which maintain their own integrity throughout generations even though they are modified by successive cultural patterns. There are also, the book implies, "supernatural" elements, such as Enoch Root and gold, elements that have to be understood as being reproduced not simply into family resemblances but into exactly the same physical incarnations across all cultures.

In *Cryptonomicon*, the digital currency that the main characters seek to create is in itself a model of the complex system of intersecting patterns that this book is proposing to replace the model of people stuck inside single perspectives. The digital currency will add to each separate culture some bits of code not derived from that culture. The currency maintains a certain kind of integrity as it crosses national boundaries and so this universal money operates as Root does, creating within each separate culture a small ripple of meanings that derive from and point beyond the limits of that culture.

The digital money also has a crucial role in creating individual identities. When digital money enters a given region, it is marked as belonging to various individuals, and requires cryptographic protection to keep it from being stolen by other individuals and, even more important, to keep it from being tracked by the government of that region. Cryptography is necessary to protect against "identity theft," which becomes much more than simply a legal issue. The digital money aims at protecting each person's "identity" from being stolen or reduced to a controllable part of a cultural pattern. Digital money becomes a part of a person that can enter in the stream of commerce without losing its "identity" as part of that person.

It is a bit of code, which cannot be taken and used by anyone else. But it can, if the individual who owns it chooses, be transferred from one person to another, via a system of communicative lines crisscrossing the globe. The coded money is thus a model of something that is linked to individuals, not accessible to other persons or cultural authorities. The book implies that to get such elements to interact with the rest of the world (and not just remain hoarded by isolated individuals) requires a complex system originating far outside the physical realm of each individual.

*Cryptonomicon* thus embodies an attempt to bridge contradictions, to unite conservative social commentary and academic postmodern theory, to imagine a culture and a set of individuals who have solid identities based on universal, eternal values inherited from their ancestors and yet are part of the continually shifting stream passing from past to future. To press together such opposites, the book ultimately turns to fantasy, but it ends with an image of hope, an image of the possibility of a new system just starting to emerge that would bring the solid gold stability of the past into the liquidity of the digital future. In the last sentence, the hero who has designed the new, post-postmodern form of money stands on an "isolated boulder," watching the stored wealth of past failed governments emerge from a buried vault as a "bright, thick river of gold" (1130).

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## Notes

[xlii] See Tratner, Michael. "Derrida's Debt to Milton Friedman." *New Literary History*. 34.4. (Autumn 2003): 791-807.

# CHAPTER EIGHT

# HOUSE OF WAR, HOUSE OF PEACE: THE ENLIGHTENMENT AND TERROR IN *THE BAROQUE CYCLE*

JONATHAN P. LEWIS

*The Baroque Cycle* began with *Quicksilver* in the fall of 2003 and was completed with *The System of the World* one year later. Reviews were generally mixed; while *Entertainment Weekly*, for example, praised each volume, others were not nearly so impressed. Among these, Polly Shulman's review in *The New York Times* ends, "[*Quicksilver*] is so swollen and overloaded that . . . delightful Stephensonian offerings are hard to follow—and even hard to identify. And *Quicksilver* suffers from a problem common in parts of trilogies: it feels unresolved." On the other hand, in *Time Magazine*'s "What's Next" issue, Lev Grossman's blurb glows with praise for *The Cycle*: "a stunning 3,000-page trilogy about 17th century scientists that will defy any category, genre, precedent or label—except for genius." Like Grossman, many reviewers enjoyed the play of modern science's Enlightenment origins as well as discussions of cryptology and market economics mixed with sex, brutal violence, and slapstick all told at a relentless pace, and several critics commented favorably on Stephenson's pastiche of the historical novel, the picaresque novel, and science fiction.[xliii] However, in *The New Republic*, Deborah Friedell writes perhaps the first assessment of the *Cycle*'s literary achievements and finds it lacking: "Stephenson is himself the most vulgar of literary empiricists. [*Quicksilver*] is nothing but research in search of a narrative, a gigantic collection of index cards." This statement is particularly ironic given that huge stacks of punch cards are central to the plotlines about efforts to control information in both *Cryptonomicon* and *The System of the World*. Writing before *System* was published, Friedell continues her sharp criticism: "Stephenson seems to have a sense that since he is writing a novel he should occasionally use actual literary techniques, and so he spreads similes around plentifully—and thoughtlessly." These are perhaps neither inaccurate

nor unfair statements as Friedell does cite such crude similes as "a character has 'a look of self-righteous horror on his face, like a vicar who's just surprised an altar boy masturbating in the sacristy.'" However, Friedell does not mention that the character speaking the line is Jack Shaftoe, an illiterate, irreligious, syphilis-infected Vagabond who speaks like this throughout the *Cycle*. He may be rude, but Stephenson's characterization of Jack is consistent and logical for the character, and Jack displays a caustic wit that, along with great daring and incredible luck, helps him survive any number of scrapes.

The use value of such popular press reviews as Shulman and Friedell's is, by definition, limited. None of these reviews can examine all four books of the Waterhouse/Shaftoe series that began with *Cryptonomicon* with much depth. Reading the complete *Baroque Cycle* through the mythological lens established in *Cryptonomicon*, we can see that they constitute an important literary achievement marked by the maturation of Stephenson's voice beyond being the most technologically literate voice of today and tomorrow.[xliv] With the addition of historical fiction to his visions of the future in *Snow Crash* and *The Diamond Age*, Stephenson plumbs the depths of global modernization and industrialization to illuminate our present. In *Cryptonomicon*, he explores the creation of digital computers as part of World War Two-era encryption and decryption techniques though both fictional characters and such historical figures as Alan Turing. For *The Baroque Cycle*, he traveled three centuries back in history to the Age of Reason, while still focusing on the same families as in *Cryptonomicon*, to show that contemporary market-based economies and currencies have 18th century roots.

While *The Baroque Cycle* does not especially re-create or play with the form of the 18th century novel to the degree of John Barth's *The Sot-Weed Factor* (1960) or Thomas Pynchon's *Mason & Dixon* (1997), *The Baroque Cycle* is likewise focused on modernity's Enlightenment roots and ironic play with the contemporary. Pynchon particularly uses such figures as George Washington and a fictional slave named Gershom to these ends; Washington not only shares a bowl full of "Indian Hemp" with Mason and Dixon but explains that he is growing "'a small patch out back . . . as an Experiment" (278). Pynchon also deflates the sanctity of the Founding Fathers in a scene in a Maryland tavern as Dixon's off-hand toast to "To the pursuit of Happiness" will be borrowed by a "tall red-headed youth at the next table" who asks, "'You don't mind if I use the Phrase sometime?'" (395). Through his use of figures like Washington and Jefferson in these scenes and others, Pynchon aligns the founding of America and its continuing struggles with race to Age of Reason rationality and the division of the New World into colonial holdings.

Similar examples appear throughout the Waterhouse/Shaftoe saga. On the one hand, Enoch Root's introduction of tea to an English alchemist induces

a reaction as light-hearted as Washington's experimental marijuana use: "This . . . is inoffensive enough, but I don't think Englishmen will ever take to anything so outlandish" (*Quicksilver* 26). On the other hand, when Enoch utters the Spanish word for the slave trade, "*Asiento*," in Boston, an eight-year old Benjamin Franklin urges Root to lower his voice, saying "There are a few here, sir, opposed to it, and they are dangerous" (*Quicksilver* 8). Franklin's allusion to the anti-slavery movement, as well as Stephenson's introduction of Eliza and her passionate abolitionism later in *Quicksilver*, immediately signifies the history of racism in western civilization to the present day. It is an inescapable association, and this kind of historical fiction is not thoughtless research as narrative, but rather a careful and calculated connection of the events that formed the modern European nation-states with their supporting colonial holdings and enterprises. Therefore, as Stephenson's voice developed significantly from the juvenile *Big U* to the explosively popular post-cyberpunk works that made his name, we see this evolution again in his complex explorations of our society's present through such historical moments as the Second World War and the Enlightenment.

All of Stephenson's novels function within such moments of paradigm shifts, Thomas S. Kuhn's articulation of those "extraordinary episodes in which that shift of professional commitments occurs" (6). Stephenson sets his characters during (or just after) the creation of such paradigm shifts as the massive virtual world known as the Metaverse and the collapse of centralized governments that precipitated *Snow Crash*'s dystopic setting. Likewise, the perfection of nanotechnology revolutionizes medicine, engineering, security, food preparation, and entertainment but simultaneously unleashes new horrors of biological warfare in *The Diamond Age*. However, looking through conversations in *Cryptonomicon*, the conflicts driving nearly all of Stephenson's novels can be more effectively categorized as "Titanomachias" or iterations of the pattern established by the war between the Titans and the Olympians in Hesiod's *Theogony*. The Titanomachia as schema suggests that the societal ruptures either unleashed or hastened by the creation of new technologies (especially during wartime) fall into patterns that the Greeks would identify with Ares or Athena.

In *Cryptonomicon*, Enoch Root suggests that the Allied inventions of sonar, radar, and the atomic bomb in the 1940s mirrors the Cyclops' creations of thunderbolts, invisibility helms, and tridents that turned the tide of war for the Olympians. The Greeks would connect this kind of cunning and creativity to Athena and her favorites. In short, although he first articulates the schema in *Cryptonomicon*, and it reaches an apotheosis in *The Baroque Cycle,* the Titanomachia emerges as the underlying protocol in Stephenson's oeuvre.[xlv] Because Stephenson's works engage the world of computers, we can profitably

term the various iterations of the Greek gods as new releases of a kind of software program. In other words, we can read the emergence of Uranus and Gaia from Chaos as the release of version 1.0 of the "Ruler God Protocols."[xlvi] Later, in version 2.0, Cronus defeats his father Uranus, releases his Titan siblings Oceanus, Coeus, Crius, Hyperion, and Iapetus, and establishes dominion from Mount Othrys. In version 3.0, Cronus' sons Zeus, Poseidon, and Hades overthrow their father, imprison many of the Titans in Tartarus, and establish their rule from Mount Olympus.

Certainly, it is tempting to read the Titanomachia through a Freudian and/or Lacanian lens. However, for Stephenson's work, the relation of cultures and societies to technology drive the narrative conflicts to a far greater degree than generational power struggles. In *Snow Crash*, Hiro notes that ancient Sumerian *me*, the cuneiform instructions for all the activities of life, "served as the operating system of the society, organizing an inert collection of people into a functioning system,'" and that the creative god Enki was the master of these commands (240). Enki was a hacker, in other words, capable of writing and rewriting the rules for his people and a role model for Hiro and his friends. Stephenson builds upon this metaphor in a discussion of societies and technology in *Cryptonomicon*. In the later novel, Enoch Root explains that nearly all cultures have created stories about inventive, trickster figures like Enki, Loki, Coyote, Raven, Esu, Anansi, and Athena:

> "[I]n the case of the Trickster gods the pattern is that cunning people tend to attain power that un-cunning people don't. And all cultures are fascinated by this. Some of them, like many Native Americans, basically admire it, but never couple it with technological development. Others, like the Norse, hate it and identify it with the Devil. . . . The Vikings—to judge from their mythology—would instinctively hate hackers. But something different happened with the Greeks. The Greeks liked their geeks. That's how we get Athena" (806).[xlvii]

The articulation of the Titanomachia engages this trickster pattern and the issue of creativity and makes the overthrowing of fathers less important than the power struggles between and among the patterns of human behavior, whether historical or fictional, that the Greeks identified with Ares and Athena. Finally, in each release, the next generation gods possess more articulated features than the previous; for example, Apollo and his chariot replace Hyperion who was simply the sun itself. The part remains generally the same as the players change.

In *Cryptonomicon*, Stephenson employs the myths as an organizing metaphor suggesting that in such clashes as the Second World War, societies must choose between "worshipping" Ares or Athena. By worshipping, Stephenson does not mean building temples or sacrificing animals, but rather

exhibiting the characteristics the myths and epics describe as representative of these deities. As a representation of the worst in people's behavior towards each other and the natural world, Ares is readily identifiable in the National Socialists, Stalin, and other totalitarian regimes and individuals. To return to the ancient texts, in *The Iliad*, Homer introduces Ares as "bloodstained," and whereas Athena is nearly always described as the "grey-eyed goddess," Homer repeatedly identifies her brother as the "manslaughtering Ares" (5.30 et cetera). Likewise, in *Cryptonomicon*, Enoch Root argues that the cult of Ares is marked by a pattern of wanton destruction and violence: "Let's just say that Ares is a complete asshole. His personal aides are Fear and Terror and sometimes Strife" (804). There is little cunning with Ares—only intimidation and blunt force. He lives for battle and is a mindless, aggressive, and yet at times, an incompetent combatant. Heracles injures him twice, once stripping Ares of his armor; twice Ares limps back to Olympus and Zeus' healing touch, and, Root notes, "'He's chained up by a couple of giants and imprisoned in a bronze vessel for thirteen months. He's wounded by one of Odysseus's drinking buddies during the *Iliad*. Athena knocks him out with a rock at one point'" (804-05). By contrast, Athena is beautiful and peaceful, but cunning, deadly, and seemingly invincible when angered. She invents the war chariot, and among her human favorites were Odysseus and Heracles; she aids Danaus, Argos, and Epeius in the creation of the two-prowed ship, the *Argo*, and the Trojan Horse. Her favor also falls upon such arts as literature, philosophy, music, as well as household crafts and technology.

What is especially important for *Cryptonomicon* and *The Baroque Cycle* is that the modern world emerges through the conflicts between new generations of Athenians and "Aresians." Root's schema suggests that during paradigm shifts, societies fall into chaos and generally re-organize along familiar patterns---again we can identify the Hitler and Stalin regimes as cults of Ares. Likewise, despite his fascination for bleeding-edge technologies like digital computers and the binary languages of machine and encryption codes, Stephenson shows that the Titanomachia is on-going and not a Manichean binary of evil, Ares-worshipping cultures or good Athenians. Because of this lack of stable identifiers, the play of these two epistemologies works as a social rhizome as employed by Gilles Deleuze and Félix Guattari in *A Thousand Plateaus*.[xlviii] In other words, the societal ruptures unleashed by the rise of militaristic fascism and totalitarianism in the 1930s and 1940s shows that Ares can become the dominant protocol—an appropriate term given Stephenson's use of digital computers in his work—in any society.

In a section of *Quicksilver* set in 1655, Root notes that he can sense the Enlightenment's coming paradigm shifts, and he is searching out the next generation of savants to offer limited guidance: "'Galileo and Descartes were

only harbingers. Something is happening now—the mercury is rising in the ground, like water climbing up the bore of a well'" (32). In Leipzig, Enoch forced the Leibniz family to open its library to young Gottfried, and in Grantham he found young Isaac Newton and instructs his schoolmaster to "'show the boy Euclid and let him find his way'" (33). Likewise, the post-war histories of such societies as Germany and Japan shows that Ares-cults can be "converted." However the opposite is always true, as when "liberators" become conquerors, or when "explorers" become slavers, and Stephenson throws his protagonists into situations where they must employ all their inventive skills and cunning to create the means to defeat the Ares protocol.

In *The Baroque Cycle*, this rhizome occurs as the Enlightenment savants create chemistry, physics, biology, engineering, and horology by developing the scientific method of observation, experimentation, repetition, and publication. As with any rhizome, there were unexpected, costly results that Stephenson exploits throughout the *Cycle*. For example, the fault-lines opened up by the creation of calculus by Isaac Newton and Gottfried Leibniz, precision pendulum clocks by Christiaan Huygens, and the isolation of such chemical elements as oxygen and phosphorous led to the invention of such new weapons of mass destruction as precision time bombs.[xlix] The costs of these scientific discoveries become manifest in *The System of the World*; having just returned to England after more than twenty years in Massachusetts, Daniel Waterhouse is nearly blown up when a phosphorous bomb detonates among his luggage. Isaac Newton, Robert Hooke, and other members of the Royal Society guided Daniel's development as a natural philosopher, and Stephenson makes this training strongly evident in the passage describing Daniel's observations of the explosion. As Daniel stands near the entrance to the Royal Society's Crane Court headquarters, he carefully observes that,

> The luggage wagon suddenly got much larger, as if a giant bladder had been inflated to fill the entire width of the court. Daniel had scarcely registered that impression, when it became a source of light. Then it seemed a radiant yellow fist was punching at Daniel through a curtain of iron-colored smoke. The punch was pulled long before it reached him, and collapsed and paled into an ashy cloud. But he had felt its heat on his face, and things had flown out of it and struck him. Crane Court was now enlivened by the music of faery-bells as golden coins sought out resting-places on the paving-stones, and fell in twirling parabolas onto the roof-tiles. Some of them must have been flung straight up in the air for great distances because they continued to land hard and to bounce high for several seconds after Daniel had found his own resting-place: on his arse in the street. (44)

While the events narrated here take place in early 1714, the passage eerily evokes such events as the Lockerbie disaster and the World Trade Center

attacks. In Daniel's 18th century scene then, Stephenson directly engages the history of recent terror attacks and their relation to what the Greeks identified as Ares cults in such passages and the whole Waterhouse/Shaftoe saga.

While William Gibson's *Pattern Recognition* (2003) was the first work of fiction by a major contemporary author to engage the World Trade Center attacks, even tangentially, *The Baroque Cycle* was also published in what Art Spiegelman has called "The Shadow of No Towers."[1] And any work that includes such images as this "radiant fist" or the "ashy cloud" cannot now escape such connections. Further, because the picaresque story of Jack and Eliza commences at the Grand Vizier's camp at the Battle of Vienna, *The Baroque Cycle* also connects to the contemporary conflict between rationalism and radical conservative religious orders. Certainly in the passage quoted above, the coins falling in twirling parabolas call to mind images of the blizzard of office paper that fell on lower Manhattan, and the "radiant yellow fist" summons memories of the second plane's course through the South Tower. *The Baroque Cycle*, by including Leibniz, Newton, Hooke, and Huygens among its Dramatis Personae, suggests that the religious, economic, and political chaos unleashed by such savants unleashed chaos by fracturing the stability of theology's hold on scientific truth claims. As Enoch Root argues in *Cryptonomicon*, Ares always emerges as terror out of chaos, and Daniel's rationalist attempts to discover the source and targets of these attacks demonstrate an Athenian response to terror. In other words, a Titanomachia has been in progress ever since the Enlightenment.

Further, Stephenson uses contemporary and historical terror to color *The Baroque Cycle* from its opening. As I mentioned earlier, not only do Jack Shaftoe and Eliza meet in Vienna during the Ottoman Wars, but scarcely eight pages into this nearly 3000 page epic, Root bumps into Ben Franklin in the fall of 1713. Their conversation quickly turns from Ben's education to the subjects of religion and politics; while often forbidden from polite conversation, Stephenson uses these subjects to get both to one of the major issues in *The Cycle*, the slave trade, and to allude to the contemporary War on Terror. At the same time, the opening of *Quicksilver* gives a glimpse of an Islamic societal paradigm that has been revived of late by Islamic fundamentalist movements. When Ben asks Root if he has come from "Europe" and not, in Enoch's mind the more accurate term, "Christendom," Enoch is forced to rethink his views. He then reminds himself—and takes it upon himself to educate Ben—that there is another protocol for separating the world:

> "Islam—a larger, richer, and in most ways more sophisticated civilization that hems in the Christians of Europe to the east and south—divides all the world into only three parts: their part, which is the *dar al-Islam*; the part with which they are friendly, which is the *dar al-sulh*, or House of Peace; and everything else,

> which is the *dar al-harb*, or House of War. The latter is, I'm sorry to say, a far more apt name than Christendom for the part of the world where most of the Christians live." (8)

Today, some Islamic fundamentalists speak of restoring the historical Caliphate that stretched from the Iberian peninsula to India and view non-Islamic nations, particularly Israel and the United States, as being by definition the *dar al-harb* and therefore subject to annihilation. Through *Quicksilver*'s opening scene in Boston featuring the hanging of an accused witch and forthcoming scenes at the Battle of Vienna in 1683, Stephenson's work forcefully engages the history of the conflict between modernity and fundamental religions and between the *dar al-Islam* and the Houses of Europe. However, by the time of a third terrorist attack in *The System of the World*, it becomes clear that the contemporary associative threat of the *dar al-Islam* is an anachronistic red herring; in actuality, it is the "House of Ares" that is the greater evil in the person of the home-grown terrorist, Jack Shaftoe, a point I shall return to shortly.

As the 7 July 2005 attacks again demonstrated, for some Islamic fundamentalists, Britain remains in the *dar al-harb*, but to return to the opening of *Quicksilver*, what is also important is the date when Enoch meets Ben Franklin in Puritan Boston: 12 October 1713 or 221 years to the day after Columbus arrived in the West Indies. This choice of an opening date becomes more important when we learn that Stephenson's Eliza, liberated from slavery by Jack, is an abolitionist consumed with destroying the African slave trade. As Ben explains, the *Asiento* was an English spoil from the War of Spanish Succession that became a crucial commercial enterprise for the British Empire in the New World and Africa. As Stephenson's prior Athenians Sangamon Taylor, Hiro Protagonist, Nell, John Hackworth, and Lawrence and Randy Waterhouse work to dismantle companies, regimes, and individuals bent on domination, in *The Baroque Cycle*, Eliza de la Zeur employs passion, intelligence, subterfuge, and cunning to destroy slavery.[li] While Stephenson's works often break down easy binaries, Eliza defines people as either opposing slavery or profiting from it. She cuts off all contact with her true love and liberator when he refuses to give up his berth on a ship ready to sail the Atlantic trade routes from England to Africa, the Caribbean, and back. Believing that there is "a great market for African cloth in the West Indies," Jack instead learns from Eliza that "A *piece of India* is an expression meaning a male African slave between fifteen and forty years of age" (*Quicksilver* 585). In her view, Jack would sell his soul for a few pieces of gold. As he does when he later terrorizes Newton and greater London, "Jack the Slaver" would sail with the House of Ares as one of his aides: Fear, Terror, and Strife. In exchange for his investment and place on the ship, Eliza offers him "safety, happiness, wealth—and *my* respect," but he refuses to be, as he sees it, a kept man (585, 586). As Athena

angrily transformed Arachne into a spider for failing to show modesty even after a plea for humility, when Jack declines this offer, Eliza throws a harpoon at him that slashes across his chest, passes between the ulna and the radius of his left arm, and pins him to the ship's mast. Ironically, once detached, Jack never becomes a slaver as Barbary corsairs take the vessel before it reaches Africa, and he spends the next two years as a galley slave. Adding to the ironies, his time as a slave actually *benefits* him in two ways: he survives a high fever that cures his syphilis, and he creates a cabal with nine other slaves to successfully steal a Spanish treasure galleon that later enables his career as "Jack the Coiner."

By the time of *The Baroque Cycle*, more and more of the Houses of Europe's wealth was derived either directly or indirectly from the slave trade, and nearly all the gold flowing through Newton's Mint was washed in the blood of some slave, somewhere in the New World. Eliza, who never sweetens her tea, argues that the English "'believe Slavery is not so bad, because they have no personal experience of it—it takes places in Africa and America, out of sight out of mind to the English, who love sugar in their tea and care not how 'twas made'" (*The System of the World* 158). For Eliza, in this Age of Reason, one group of humans easily rationalizes rotting souls, and teeth, for sweet tea. We know of course that the plantation system and the slave trade expanded exponentially in the 18th century, but what *The Baroque Cycle* demonstrates is that for the Houses of Europe, "Christendom" included the slave ports in West Africa and the burgeoning plantation system in the New World. Likewise, for these states, their House of War included their conflicts over the colonies and against the Ottoman Empire. *The Baroque Cycle* therefore suggests that the conflict with contemporary radical Islam reaches back to the Age of Reason and to the invention of the technologies that gave Ares time bombs and helped him navigate the Middle Passage and engage in such enterprises as the sugar and slave trades.

At several points, *The Baroque Cycle* alludes to recent terror attacks, but Stephenson carefully shows that Ares infects all sides in such events; as with the Oklahoma City bombing in 1995, eyes accustomed to looking for jihadists only slowly focus on the real villains. Because such images are so indelibly marked on Stephenson's readers, Jack's attacks on Newton and the Tower of London become paradoxically interwoven with the attacks on Washington and Manhattan. Such connections allow Stephenson to set a trap, drawing us into the Ares-worshipping (and anti-rational scientific) position of forcing new observations into expected results; in other words, no matter when it happens, if a bomb goes off in a Western city, radical Islam must be responsible. Daniel Waterhouse's observations of the Crane Court explosion certainly resonate with

memories that summon some of the most iconic images from the Murrah Building, the Pentagon, and the Twin Towers:

> The court had been blocked off by a wall of smoke which now advanced to surround him; he could not see his own feet. But he could smell the smoke; it was sulfurous, unmistakenly the product of combustion of gunpowder. Mixed in with that was a sharper chymical scent that Daniel probably could have identified if he had sniffed it in a laboratory; as it was he had distractions. (*System of the World* 44).

The smell that Daniel cannot yet place because of the distractions of being a survivor of a terror plot is phosphorous. Later in the novel, Daniel is summoned to a shipyard in Rotherhithe where a character named Orney has been constructing three battleships for Tsar Peter Romanov. A messenger delivering a note describing "a hellish glow on the eastern horizon" and "a column consisting more of steam than of smoak, as the Fire has been put out" summons Daniel from London to the shipyard (*System of the World* 99-100). Again, can such descriptions fail to recall recent terror attacks? When Daniel arrives, he again catches the strange "chymical" scent but now recognizes its source:

> Daniel had most recently smelled it in Crane Court . . . just after the Infernal Device had gone off. Before that he had smelled it many other times in his life; but the *first* time had been forty years ago at a Royal Society meeting. The guest of honor: Enoch Root. The topic: a new Element called Phosphorus. Light-bearer. A substance with two remarkable properties: it glowed in the dark, and it liked to burn. (emphasis original, 101).

Here Stephenson depicts the rhizomatic dangers of science. Root showed England's leading minds how to isolate the new element from urine and how easily it burns. Others perfected the extraction process, and Jack Shaftoe learns to distill the more explosive red phosphorous for the bombs used at Crane Court and Orney's Shipyard. To do so, Jack and his crew secretly procure large quantities of urine and an isolated farm to hide the pungent odors. Jack's conspiracy is extensive, and it takes all of Daniel and Isaac's investigative skills to unravel it after the two bombs detonate in London and Jack's invasion of the Tower.

As bin Laden and others stated before and after their efforts to destroy the World Trade Center, the goal was to disrupt and cripple the American economy; likewise, Jack attempts to destroy the British currency's stability created by Isaac Newton as Master of the Mint. In the case of both Jack the Coiner and al-Qaeda, success or failure is less an issue than the very modern concept of not necessarily attacking the actual engines of an economy—factories, farms, markets, et cetera, but rather confidence in the stability and

universality of the dominant regime's currency and underlying economic protocols.

Today, most people know of Newton's scientific discoveries, but few know of his thirty-year career as the Master of the Mint. In applying the same rationalist approaches to the nation's currency that he did to the laws of motion, thermodynamics, and gravity, Newton strengthened England's once worthless currency and weak economy. Stephenson's Newton is not shy in sharing this point with Daniel when they reunite in 1714: "England is awash in gold. The currency is as hard as adamant. Our commerce is the wonder of all the earth" (*System of the World* 141). In other words, Newton has made the Mint, and by extension, England, a center of world trade.[lii] It is for this reason that Jack follows up his attack on Newton's body by breaking into the Tower of London to destroy Newton's work and reputation. While the guards, and some of those in Jack's company, assume he means to steal the Crown Jewels, his true target is the Pyx, the repository of sample coins from Newton's Mint. To cap his career as the most prolific counterfeiter in the Realm, Jack means to pollute the Pyx with counterfeit guineas and thus to raise doubts as to the veracity of the complete British coinage leading to a weakening of the British economy and military. In short, what Newton made strong and pure, Jack would debase and destroy. As with the description of the attack in Crane Court, Stephenson tempts us to align such eighteenth century moments to the recent terror attacks.

As I remarked earlier, the "Infernal Device" that nearly kills Daniel Waterhouse combines the emerging technologies of horology and chemistry with what we now call state-sponsored terrorism. The etymology of "Infernal" clearly brings to mind the flames and fires that Daniel so carefully registers when he is nearly blown up; but given Daniel's Puritan upbringing and the conflicts between Catholics and Protestants that run like a digital computer's sub-routines throughout the *Cycle*, we can read this label as denotating a damnable quality to these bombs. Certainly, there is a hellishness to their destructive power, and Daniel and Isaac's dogged attempt to prosecute those who created and detonated these devices is akin to a religious fervor.

What is more, Louis XIV employs Jack to undermine two of France's rivals for colonial hegemony: Britain, France's traditional enemy, and Russia, modernizing under Peter the Great. It is a multi-tiered plan that achieves some success even as Jack fails to assassinate Newton. Depending on one's perspective then, Jack and his bomb-maker, Peter Hoxton, also known as "Saturn" in *The System of the World*, could be seen as Athenians, combining the explosive properties of phosphorous with recent horological improvements with spectacular results; the time bomb is a remarkable achievement in warfare. Saturn is also the Roman equivalent to Cronus, Zeus's father, so Stephenson is again playfully alluding to the Ruler God Program through this character, but as

well, both Saturn and Cronus are often confused and conflated with the Greek personification of time, Chronos, which connects to Hoxton's career as a watch and clock-maker. More importantly, Stephenson's Saturn is another example of the rhizomatic nature of the Ares/Athena matrix because he is a double agent, working for both Daniel Waterhouse and Jack Shaftoe; in other words, he worships both Ares and Athena depending upon the situation. Like Jack, Saturn shows the difficulty in assigning stable, mutually exclusive identifiers like "Athenian favorite" or "Aresian terrorist." While Saturn's weapons nearly kill Daniel, Saturn also saves Daniel from being crushed to death by a mob, and he joins Daniel's "Clubb" incorporated to find and prosecute those responsible for blowing up Crane's Court and the Tsar's battleship.

That Saturn is himself the object of this search is ironic enough, but he also helps Daniel recruit use skilled artisans and engineers for a factory constructing punch cards for Leibniz's Logic Mill. Acting as venture capitalist in a subplot mirroring contemporary research and development enterprises, Peter the Great finances Leibniz and Waterhouse's efforts to create a kind of digital computer that would, theoretically, store all the known information in the world as binary numbers. While Thomas Newcomen's steam engine holds promise, Saturn and Daniel run into power limitations; however, they very nearly create something that we might recognize as a computer: using punch cards, springs, pendulums, and gears, the Logic Mill could store and retrieve information and perform complex computations. But what remains important for the connection of Saturn and the Ares/Athena rhizome is that his allegiances are constantly vacillating between the two deities. Saturn's changing allegiances is a rhizomatic example that both mirrors Jack Shaftoe's situation and again shows how easily one can move from one "temple" to another.

In availing himself of useful, if shady, men like Saturn and any, even shadier, technological innovations, Jack believes he redeem himself to Eliza for the incident with the slave ship. From his point of view, we could count him among Stephenson's Athenians. To achieve his ends, Jack can either kill Newton directly or, failing that, raise enough doubt in the purity of Newton's coins to have Newton either removed from the Mint or executed for treason. Because of Newton's stature in history of science and math in our culture, he can seem to be mythic—a kind of Hephaestus simply willing into existence previously unimagined solutions to unasked questions. Stephenson's Newton becomes, particularly through the eyes of Daniel Waterhouse, a driven, flawed, proud, and difficult character. For example, Jack lures Isaac and a squadron of marines and soldiers into a trap at the mouth of the Thames while he raids the Tower. In this moment, we see a Newton outsmarted by a Vagabond, a view no one, even Daniel, has witnessed:

> For once, Daniel had Isaac at a disadvantage. Isaac had boarded this hooker still believing that he had sprung a trap on Jack the Coiner and was about to recover Jack's hoard of Solomonic Gold. That *he'd* been trapped by *Jack* was just not trespassing on the frontiers of his awareness, and would take a good long time to march in to the core of his brain. (emphasis original, *System of the World* 308)

Perhaps paradoxically, Newton's fallibility here humanizes him and allows Stephenson to set up Jack as a worthy adversary for the former Lucasian Chair. While knighted by Queen Anne and Master of the Mint, Newton is not precisely a military target, but he remains a key national asset. As such, Newton can be seen as a logical target for assassination by Britain's enemies. It is worth noting that Stephenson similarly engaged with the value of political and martial assassination in his version of the death of Admiral Yamamoto in *Cryptonomicon*.[liii] As Jack observed Newton's schedule and laid an ambush at Crane Court, US intelligence decrypted Yamamoto's itinerary, and his plane was intercepted and downed in the Solomon Islands. Again demonstrating the rhizomatic nature of the Ares and Athena labels, we can see Admiral Yamamoto's assassination as an Athenian effort, but Stephenson's version of the Admiral's last day suggests that Yamamoto was an Athenian forced to fight for incompetent Ares worshippers.[liv] Finally, the loss of Yamamoto proved decisive in the Pacific (and for morale in America); in *The Baroque Cycle*, the British economy would be shattered by either Newton's death or the destruction of his reputation. In the case of both Yamamoto and Newton, carefully planning the elimination of an adversary's principal military and/or economic pillars is an Athenian tactic on par with the Trojan Horse. It is also one that Ares would likely not conceive, rashly preferring to meet the enemy in open combat.

For Jack, however, Louis' favor may help him win back Eliza's respect and provide a legacy for his sons. These are his only goals, and he literally sails around the world and sacrifices significant amounts of blood (much of it his own) as well as a fortune in gold to get back in her good graces. In the "Epilogs," Eliza watches as Jack and "Leroy," as Jack calls *Le Roi Soleil*, hunt geese together in the Gardens of Trianon. Meanwhile, on a plantation in Carolina, Danny and Jimmy Shaftoe save their shipmate and friend Tomba by killing an overseer and run west towards Tennessee where Jimmy and Danny presumably found the American Shaftoe clan Lawrence and Randy Waterhouse encounter in *Cryptonomicon*.[lv] On the whole, one could say that Jack Shaftoe presents the same warrior's cunning, adaptability, and creativity as Odysseus, and certainly, both can be cruel, murderous, deceitful, heroic, and proud. While not a natural philosopher, mathematician, or hacker like the various iterations of the Waterhouse clan, Jack is in many ways just as much an Athenian. That Jack is an officer and shareholder in a boat named *Minerva* for much of *The Confusion* and *The System of the World* certainly aids this assessment. Jack's

decapitation of the duc d'Arcachon, Louis-François de Lavardac, the man who sold Eliza and her mother into slavery in exchange for an albino horse, does nothing to deter this assessment. While the duc was not a usurper or suitor like Homer's Antinous, the King of France, most of the nobility, and his family share the horrible spectacle of the late duc's "entrance." More importantly, Jack's true signal reaches Eliza through the noise of the duc's return: "she knew two things absolutely. One was that the duc d'Arcachon was dead. Her mission in life had, therefore, been accomplished. The other was that Jack Shaftoe was alive, had redeemed himself, which made being loved by him ever so much less inconvenient" (*The Confusion* 287). While Eliza's vendetta is achieved, the events of *The Confusion* and *The System of the World* delay their reunion for another fourteen years, but we can read the hunting scene at Versailles as akin to Odysseus's return to Ithaca and Penelope.

However, we might better characterize Jack as a son of Ares because he uses explosives against civilians whom we see as Athenians dedicated to the pursuit of pure knowledge; further, the Shaftoes are part of the House of War throughout *Cryptonomicon* and *The Baroque Cycle*. The first Shaftoe we meet, reading in order of publication, is Bobby Shaftoe. Initially a corporal in the Marine Corps stationed in Shanghai in late 1941, later in the novel, we learn more about the Shaftoes' history: "the family has been scrupulous about holding on to . . . traditions such as military service. . . . [H]is two older brothers are in the Army. Bobby's not the first to have won Silver Star, though he is the first to have won the Navy Cross" (111). Bobby's son Douglas MacArthur Shaftoe served with the SEALs in Vietnam, and going further back, Bobby's great-grandfather "was there at Petersburg when Burnside blew a huge whole in the Confederate lines with buried explosives and sent his men rushing into the crater where they got slaughtered" (112). Initially in *Quicksilver*, Jack and his brother Bob are part of John Churchill's regiment under the Duke of York; Bob remains loyal to Churchill throughout the *Cycle* while Jack briefly serves as a musketeer at Vienna.

Stephenson thus creates the Shaftoes as the prototypical military family; however, as the founder of the line, Jack was an indifferent (at best) and absent (more often) soldier. Mainly, he gambled and tried to answer the question of "where was the best looting to be found?" (*Quicksilver* 361). In short, Jack the soldier is not particularly Ares-driven; he is no lover of combat and seeks to capitalize on the chaos brought about by wars and other catastrophes as an opportunistic scavenger.[lvi] He mainly exists from moment to moment, waiting for an "opportunity to be stupid in some way that was much more interesting than being shrewd would've been" (*Quicksilver* 367). And while Jack the commander is cunning and inventive in his use of strategy to plan and execute a raid on a Spanish treasure galleon and the British Mint and in the

use of the latest technological innovations to blow up various people and/or property, it is hard to label him wholly Athenian either. Rather, Jack demonstrates that for savants like the Waterhouses, to say nothing of Newton, Leibniz, or, as he appears in *Cryptonomicon*, Alan Turing, easy divisions into Ares or Athena worshippers or the *dar al-sulh* or *al-harb* are unproductive and ultimately useless.

But what remain ultimately useful and productive for a reading of *The Baroque Cycle* (and, for that matter, the four volumes of the Waterhouse/Shaftoe saga), are the terrifying parallels Stephenson draws between the Enlightenment and our own Information Age. Ares clearly remains identifiable amid chaos and noise; as Root argues in *Cryptonomicon*, the patterns of human behavior marked by war-mongering, cruelty, destructive and wanton violence exist in nearly every age and society, and the Ares representation will seize upon any and all opportunities to become the dominant regime or protocol. No society or individual is naturally immune from Ares. As societies can quickly become infected by such pathogenic activities as fascism or the construction of a network of secret prisons, Jack Shaftoe's efforts to destroy Newton and his currency and his decision to join the slave trade demonstrate that Ares becomes localized beyond areas directly controlled by a state or areas friendly to that state.

In *The Baroque Cycle*, Stephenson extends his use of the Titanomachia as societal epistemology from *Cryptonomicon*, showing that the concepts of the House of War and the House of Ares are not just personally destructive, but deeply connected to the many varieties of violent fundamentalism and monologism that employ terror in blind and ill-logical attempts to recover lost order that may never have existed in the first place. Further, the destructiveness of fundamentalism is shown through Daniel Waterhouse's Puritanical upbringing. Among his first memories is Charles I's execution, an event he witnessed from his father Drake's shoulders. Drake had been mutilated by the Church for being a Calvinist and went to his death in the Great Fire of London believing that the Apocalypse had arrived. Daniel spends much of his adult life being dragged back into religious, social, and ideological conflicts that forced him from the Old World to the Massachusetts colony, and these battles threaten to pull down the order being created by science and reason.

What is more, however, and what truly marks the achievement of *The Baroque Cycle*, is Stephenson's expansion of the Titanomachia to connect 18th century European struggles over colonies and slaves to the 21st century conflict between radical groups who evade real-world complexities and instead use simplistic and reductive labels such as "*dar al-harb*" or "Axis of Evil." For Stephenson's readers, such mutually constitutive and exclusive labels immediately summon images of contemporary terrorism, even as anachronisms

and red herrings, through the attacks on Newton and his currency. *The Baroque Cycle* therefore shares a sensibility with another text that exposes the greedy and violent alliances between governments, paradigm shifts, and technological innovations: Pynchon's *Gravity's Rainbow*. Late in that novel, Oberst Enzian, Pynchon's half-German, half-Herero searching for a rocket to end his people's misery, realizes: "this War was never political at all, the politics was all theatre, all just to keep the people distracted" (521). Likewise, *The Baroque Cycle* suggests that theaters of war serve to give Ares his renewing blood sacrifices and that dependence upon such simple signifiers as "*dar al-Islam*" or "the U.S. and its Allies" distracts the people and leads to enslavement and the defeat of the Enlightenment.

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## Notes:

[xliii] See for example, Ken Tucker's review in *Entertainment Weekly* (24 September 2003) or Nisi Shawl's review in *The Seattle Times* (21 September 2003).

[xliv] William Gibson has not, for example, published non-fiction texts advocating the use of the Linux operating system nor helped create wikis for the exploration of his novels. See *In the Beginning… was the Command Line* and "The *Quicksilver* Wiki" at <www.metaweb.com/wiki/wiki.phtml?title=Main_Page>. Of course, Neal recently noted on his website <NealStephenson.com> that *In the Beginning* needs a complete re-write and that he has been using Apple's OSX for the last few years.

[xlv] In *Snow Crash*, for example, we can retro-actively identify the conflict over the intellectual freedom of hackers and computer programmers that draws the Athenians Hiro Protagonist and Juanita Marquez into battle against the Ares-worshipping Raven and L. Bob Rife as a Titanomachia set amid the changes and challenges unleashed by the simultaneous fall of most western capitalistic societies and the rise of the massive online networks and virtual worlds visited by billions of people daily.

[xlvi] Similarly, the opening of Genesis describing God's creation of the heavens and earth from nothing and that the earth was "without form" certainly fits this pattern of order emerging from chaos as well (1:2).

[xlvii] For discussions of the trickster figure, see for example Robert D. Pelton's *The Trickster in West Africa: A Study of Mythic Irony and Sacred Belief* (1980) and Lewis Hyde's *Trickster Makes This World: Mischief, Myth, & Art* (1998). In *Guns, Germs, and Steel* (1997) Jared Diamond makes a compelling argument that societies were utterly dependent upon geography, climate, and plants and animals suitable for domestication to afford the leisure time necessary to become "interested" in creating technologies like steel.

[xlviii] "A rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines. . . . Every rhizome contains lines of segmentarity according to which it is stratified, territorialized, organized, signified, attributed, etc., as well as lines of deterritorialization down which it constantly flees" (Deleuze and Guattari 9).

[xlix] At the 2006 XXth Century Literature Conference at the University of Louisville, Brian L. Croxall made a compelling presentation entitled "Novus Ordo Temporum: Trauma, Temporality, Virilio, and *Cryptonomicon*." In his reading of the implicit dangers of the HEAP, cryptoanalysis, and data havens through trauma theory, Croxall argues, "Virilio reads accidents specifically for their connection both to technology and to the future. His own words most easily explain this concept: 'I argue that every time a

new technological breakthrough occurs—a new kind of ship or plane for example—there's a new kind of accident. The *Titanic* was a kind of accident, bringing about a new kind of disaster at sea. In other words, I think that every technological innovation is accompanied by a kind of particular negative form or accident'" (quoted in Croxall 154). I am indebted to Croxall for pointing out the connection of my argument about phosphorous, pendulum clocks, and the attempts on Newton's life and reputation in *The System of the World* to Virilio's work.

[l] In *Pattern Recognition*, Gibson's protagonist Cayce Pollard's father was last seen exiting a taxi near the World Trade Center at 7 am on 11 September 2001. Spiegelman's graphic novel *In the Shadow of No Towers* (2004) traces his family's efforts to find each other during the attacks juxtaposed with Spiegelman's political responses to the 2000 Presidential elections and other events relating to the attacks.

[li] None of these characters describes him or herself as Athenians; it is only in retrospect that we can see Ares and Athena as the controlling metaphors at work in all of Stephenson's works since *Zodiac*. Sangamon calls himself a "Toxic Rambo" and Hiro a hacker and "the greatest sword-fighter in the world." In *The Diamond Age*, Nell grows from an illiterate "thete" to the Queen of the Mouse Army, and Hackworth is an Artifex or top-level nanotech engineer, and Lawrence is a mathematician, a code-breaker, and an "Elf" to Randy's self-description as a "Dwarf" in a Tolkien-inspired epistemology. Nevertheless, they are all Athenians.

[lii] Stephenson's Newton also uses the Mint as a center of world trade to pan the world's currency in his alchemical search for the Solomonic Gold; one of the other plot-lines in the work deals with alchemy and the search for the Philosophic Mercury which may explain how Enoch Root lives so long and gives credence to the argument that Enoch dies but is reanimated in *Cryptonomicon*. In *The System of the World*, Daniel finds out that he died while being cut for a bladder stone after the close of *Quicksilver*, but was brought back to life by Enoch, and Daniel is able to resurrect Newton during the Trial of the Pyx using Enoch's recipe.

[liii] See the section entitled "Yamamoto," pages 334-38.

[liv] While he refers to the Nipponese command as "Tojo and his claque of Imperial Army boneheads," Stephenson's Yamamoto notes, "they were running the country. They had assassinated anyone in their way, they had the emperor's ear, and it was hard to tell them that their plan was full of shit and that the Americans were just going to get really pissed off and annihilate them" (*Cryptonomicon* 334). In truth, Yamamoto told the "boneheads" that he would only be able to hold the Pacific for six months, and the Battle of Midway proved him nearly exactly right.

[lv] Danny and Jimmy use Nipponese katanas and wakizashis to kill the overseer. As a show of fealty, Jack also received a set of samurai swords from a ronin Jesuit priest named Gabriel Goto in *The Confusion*. Presumably, Gabriel's line resurfaces in *Cryptonomicon* in Goto Dengo and his son Furudenendu. Likewise, Bobby Shaftoe's grandnephews, Robin and Marcus Aurelius, help Randy Waterhouse drive from the Bay Area to Washington State late in *Cryptonomicon*. Interestingly, Randy notices a pair of samurai swords in the back of Shaftoe boys' hot-rod. Stephenson builds many such connections between *Cryptonomicon* and *The Baroque Cycle*—see author interview below.

[lvi] Stephenson playfully alludes to Dumas' romances when Jack tells Eliza of fighting with the Duke of Monmouth and Monsieur D'Artagnan at the Siege of Maastrict. Of course, he ruins the moment when he reveals that he tried to loot D'Artagnan's corpse: "'The fighting was *over*. Those rings were the size of *doorknockers*. They would have buried that famed Musketeer with those rings on his fingers—if someone else hadn't looted them first'" (*Quicksilver* 410). Like D'Artagnan, Jack becomes a character of series of popular books within *The Cycle* where he is known as the King of the Vagabonds, Quicksilver, Ali Zaybak, and *L'Emmerdeur*, and Stephenson appears to have partially based Jack on the historical thief Jack Sheppard, also known as Gentleman Jack and Jack the Lad, who was executed at Tyburn.

# AN INTERVIEW WITH NEAL STEPHENSON

The following interview was conducted via email. Again, my thanks to Ros Perrotta at Darhansoff, Verrill, Feldman for facilitating the conversation and to Neal Stephenson for his time.

Q: In *Snow Crash*'s "About the Author" section, you used the phrase "relentlessly loud" used to describe the music you listened to while writing some of the earlier works; are you still listening to the late, great Soundgarden and other metal groups, or did the longhand writing process for the *Baroque Cycle* also call for Baroque music?

I wouldn't put too much stock in anything I ever wrote in an "About the author" blurb. Remember that I didn't know, at the time I wrote it, that a book like *Snow Crash* would sell many copies or that I'd have a sustainable career as a novelist. My practice was (and largely still is) to write a book and heave it into a FedEx box and more or less forget about it. As much as a year later, I'd receive communications from the publisher asking me to provide an "About the author" blurb and other such ancillary material. I don't like writing that kind of material and had usually moved on to some other project anyway, so I would ignore these requests until they became heated, then toss something off quickly and reluctantly, not expecting that it would make it into the book unedited or that anyone would ever read it. These early "About the author" blurbs are, therefore, almost entirely facetious. They are really parodies of typical "About the author" blurbs, which frequently strike me as pretentious. I have always been and continue to be mortified and bemused when someone reads one of these things and takes it seriously.

At the time I was writing *Snow Crash* I was listening to a lot of music along the lines of Soundgarden. This was partly because I was working in an environment where I had to make a lot of noise to drown out distractions, and partly because I was in exile from Seattle during the formative years of the Seattle-based post-hair-band music revolution and so had to experience it vicariously. I still listen to that kind of music (e.g. Audioslave) frequently, but I listen to many other types of music as well.

Most of what we call Baroque music was written well after the events described

in the *Baroque Cycle* books. *The Baroque Cycle* ends in 1714 before Bach wrote most of his works. It is surprisingly difficult to find music from the 1660s through the 1690s. I'm not saying it can't be done, but if you simply go to the record store and buy a bunch of so-called Baroque music you won't find anything written during that period. I did find some of it and listen to some of it while writing these books but I was just as likely to listen to rock or Arab-inflected popular music such as Rachid Taha, Natacha Atlas, et al. When I was working on *System of the World* I listened to a fair amount of Handel.

Q: What do you think of efforts in artificial intelligence circles (i.e., pseudo-intelligence circles) to make something like the Primer a reality, inspired specifically by *The Diamond Age?*

That's sort of like asking "What do you think of efforts in restaurants to cook food?" It depends on the restaurant and the chef. I am naturally biased in favor of anyone who wants to emulate the Primer in an actual functioning piece of software today. Since more than one person is trying to do it, I'm reluctant to single any one of them out and say nice things about him or her for fear of offending the others. When thinking about any such project, it's worth keeping in mind that technologies in SF novels are, in general, mere plot devices—not serious proposals for actual technologies. When using them as inspiration for actual technologies, it's best to expect a lot of changes. One shouldn't assume that the real technology will resemble the one in the book all that closely. Each person who attempts it will make a different set of decisions, so the various technologies that claim descent from the Primer may look surprisingly different from one another.

Q: You have made several entries on the *Baroque Cycle* wiki; how closely are you watching the development of it, and are you happy with the results (spamming attacks aside)?

That wiki was generously supported for a few years by Applied Minds. Most of the contributions made to it were posted during the first few months after the books were published. After that, the contributions naturally tailed off and it became primarily a static reference. The quality of the contributions was quite good overall. Beyond a certain point it was in danger of becoming an orphan website, in that there was not enough new activity to justify the effort that went into maintaining it. I believe it has now been mothballed and archived in a static form by the Internet Archive.

Q: Aside from the Shaftoe, Waterhouse, Hacklheber, Bolstrood, and Goto

families, and such plot elements as the samurai swords in the back of M.A. and Robin's hotrod, Mount Eliza, and the Solomonic gold that is (or is in) Enoch's box, would you care to mention other connections to *Cryptonomicon* you built into *The Baroque Cycle*?

No, it sounds to me as though you are already aware of most of them. I don't think I put in any that are deeply buried or cryptic. One that might not be obvious to some is the New Mexico connection between Moseh de la Cruz and Avi's family.

Q: Speaking of Enoch's box, was your description of it in *Cryptonomicon* a kind of nod to the marquis de Carabas' snuff box in Neil Gaiman's *Neverwhere*? And do you ever allude to friends' or other writers' works in such ways?

I wasn't aware of the *Neverwhere* snuff box at the time I wrote *Cryptonomicon*. I would avoid making use of such allusions now, because it strikes me as self-indulgent and because you never know how the person who's being alluded to is going to react.

Q: And as a kind of follow-up, given the decade and a half since the writing of *Snow Crash*, have you given thought of again writing a graphic novel?

Occasionally the idea drifts across my mind, but the novel-writing gig is too much of a sweet deal for me to be seriously tempted by other kinds of work.

Q: You've said in a previous interview that you are not likely to return to some of your previous works (e.g. *Snow Crash*, *The Diamond Age*) to write sequels or connected stories—though you often leave room in stories for continuation. Are there themes/elements (in them or elsewhere) you feel you haven't finished exploring yet?

Certainly, because if you think you've fully explored any given theme it probably means you don't really understand it. But it's usually better to move on to a completely different project than to keep milking the old one. One of the things you're doing when composing a novel is setting up an apparatus that enables you to work with certain themes. But as your ideas develop, that apparatus begins to seem outmoded or even wrong.

Q: Numerous historical figures appear in the Waterhouse/Shaftoe books; among them are some of history's most brilliant minds, e.g. Turing, Newton, Leibniz, Franklin, and Louis XIV—of these (or others), whom did you most enjoy

writing and who presented the biggest challenge?

Newton was the biggest challenge, because he had the most unfathomable intellect and because he had few redeeming characteristics that made him likable. The young Franklin was unexpectedly fun to work with. There's room for a spin-off there: young Ben raising hell in Puritan Boston. I also enjoyed writing the Louis XIV stuff just because his mentality was so completely different from anyone else's. He was the first and last monarch (at least in the West) to have that degree of power and self-assurance.

Q: On the Well site and on NealStephenson.com, you dismiss *The Big U* and (to a lesser extent) *Zodiac*; what do you most like about your works since *Zodiac* and what do you most wish you could revise or delete?

In general I think that it's idle to fret about these things. Better to put one's energy into writing completely new material. I will say that I was astonished when I began to hear from people that they were giving *Diamond Age* to young people to read. There's material in that book that's clearly not suitable for young readers. In retrospect it should have been obvious to me that since the book is about a little girl with a magic storybook, some might think of it as children's or young adult literature. If I'd anticipated that, I'd have written certain parts of it differently. It could have made an interesting YA novel. But this was before Harry Potter, and the whole YA thing just wasn't on my radar.

Q: Will Stephen Bury publish again and why did his "name" change for the recent reprints?

He is unlikely to publish again because his other half and I have both found ourselves with other things to do. We used a combined pen name to write those books because it seemed cleaner than having two big long Anglo-Saxon names on the cover. My only published works at that time were *The Big U* and *Zodiac*, neither of which had sold many copies, and so there was little commercial advantage in putting my name on the cover. After the success of *Snow Crash* that changed. My involvement in Stephen Bury was never a secret, but the use of the pen name gave some people the idea that some kind of secret was being kept, and the perception of secrecy or furtiveness tends to make people behave irrationally. So we put my name on the cover to sell more books and to make it clear that my connection with those books wasn't intended to be a secret.

# CHRONOLOGY

**1959**: October 31, Neal Town Stephenson born at Ft. Meade, Maryland to David and Janet Stephenson

**1966**: Stephenson family moves to Ames, Iowa

**1977**: Graduates from Ames High School, matriculates to Boston University

**1981**: Graduates from Boston University, B.S. in geography, minor in physics; returns to Ames before, eventually, settling in Seattle

**1984**: *The Big U* published by Vintage (reissued in 2001 by Perennial)

**1985**: Marries Ellen Lackermann, M.D.

**1988**: *Zodiac: The Eco-Thriller* published by Atlantic Monthly Press

**1992**: *Snow Crash* published by Bantam

**1993**: "Smiley's People," non-fiction essay on emoticons, published in *The New Republic* 209.11 (9.13.93): 26 (later retracted on NealStephenson.com)

**1994**: *Interface*, co-written with George F. Jewsbury as "Stephen Bury," published by Bantam (reissued as written by Neal Stephenson and J. Fredrick George in 2005); "In the Kingdom of Mao Bell," non-fiction, published in *Wired* 2.2 (February 1994); and "Spew," short story, published in *Wired* 2.10 (October 1994) and republished in the collection *Hackers*, edited by Jack Dann and Gardner R. Dozois (New York: Ace, 1996. 203-21)

**1995**: *The Diamond Age, or a Young Lady's Illustrated Primer* published by Bantam; "The Great Simoleon Caper," short story, published in *Time* 145.12 (Spring 1995, Special Issue): 83-88; and "Excerpt from the Third and Last Volume of *Tribes of the Pacific Coast*," short story, published in *Full Spectrum 5*, edited by Jennifer Hershey, Tom Dupree, and Janna Silverstein (New York: Bantam Spectra, 1995. 224-33)

**1996**: *The Cobweb*, also co-written with Jewsbury as Stephen Bury, published by Bantam (reissued as written by Neal Stephenson and J. Fredrick George in 2005), and "Mother Earth Mother Board," non-fiction, published in *Wired* 4.12 (December 1996)

**1997**: "Dreams & Nightmares of the Digital Age," non-fiction, published simultaneously by *Time Australia*, 5 (2.3.97): 60-63 and *Time Canada*, 149.5 (2.3.97): 54-57; "Jipi and the Paranoid Chip," short story, published in *Forbes* 160.1 (7.7.97): 366-82

**1998**: "Global Neighborhood Watch," non-fiction, published in *Wired* and available online at <http://www.wired.com/wired/scenarios/global.html>

**1999**: *Cryptonomicon* and *In the Beginning ... Was the Command Line* published by Avon

**2001**: "Communications Prosthetics: Threat or Menace?," non-fiction, published in *Whole Earth* 105 (Summer 2001): 36–37

**2003**: *Quicksilver: Volume One of the Baroque Cycle* published by William Morrow

**2004**: *The Confusion: Volume Two of the Baroque Cycle* and *The System of the World: Volume Three of the Baroque Cycle* published by William Morrow

**2005**: "Turn On, Tune In, Veg Out," non-fiction, published in *The New York Times* (6.17.05): A27

**2006**: *The Baroque Cycle* republished as eight mass-market paperbacks by HarperTorch

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# NOTES ON CONTRIBUTORS

**Gray Scott** is a former business journalist and current doctoral candidate in English at the University of California, Riverside, focusing on collaborative writing in the classroom; scientific literature and rhetoric; and authorship attribution. His dissertation seeks to apply self-directed work group models from industry to the teaching of collaborative writing.

**Peter Sands** teaches graduate and undergraduate courses in computers and composition, rhetoric, American literature, sf/utopia, and writing at University of Wisconsin-Milwaukee. He is co-editor of *Electronic Collaboration in the Humanities* (Erlbaum, 2003), and his articles have appeared in *Academic Writing*, *ACE Journal*, *Kairos*, *Utopian Studies*, *Works and Day*s, and elsewhere. He is founding editor of H-Utopia, part of the Humanities and Social Sciences Online network, and is currently working on a book-length study of rhetoric, utopia, and pedagogy. Currently, he is also completing a JD on a Wisconsin Idea scholarship at University of Wisconsin Law School.

**Nicholas P. Spencer** is an Associate Professor in the Department of English at the University of Nebraska-Lincoln. His book, *After Utopia: The Rise of Critical Space in Twentieth-Century American Fiction*, was published by the University of Nebraska Press in 2006. He has published articles on twentieth-century American literature and critical theory in *Contemporary Literature*, *Angelaki*, *Arizona Quarterly*, and elsewhere.

**Shane A. Shukis** received his doctorate from the University of California, Riverside and is currently Director of Education and Communication at the UCR Arts Block. His dissertation investigates the national debates over linguistic unity from Puritan origins until yesterday. He has been an Andrew W. Mellon Fellow at the Huntington Library and a research fellow at the Laboratoire de Recherche sur L'Imaginaire Americain in Paris. His primary interest is texts that explore the American Mind, whether historically or conceptually.

**Kathleen McClancy** is a doctoral candidate at Duke University. She focuses primarily on cultural studies and 20th century American literature, and helps to organize the Comics Arts Conference at the San Diego Comic-Con International. Her dissertation considers the representation in popular culture of Vietnam veterans before and after the construction of the Vietnam Veterans Memorial Wall.

**Steven J. Zani** is an Associate Professor of English and Modern Languages at Lamar University in Beaumont, Texas. He has recent articles in *The Byron Journal*, *The Journal of Popular Film and Television*, and *Lovecraft Studies*, a forthcoming article in *James Bond and Philosophy*, and has co-written a freshman literature anthology, *Inside Literature*. In his spare time he enjoys spamming Neal Stephenson's Inbox with proposals for lucrative business engagements.

**Michael Tratner** is Professor of English at Bryn Mawr College, where he teaches courses in modernism, postcolonial literature, and film. He is the author of *Modernism and Mass Politics: Joyce, Woolf, Eliot, Yeats* (1995) and *Deficits and Desires: Economics and Sexuality in Twentieth-Century Literature* (2001).

**Jonathan P. Lewis** is an Assistant Professor in the Department of English, Theatre, and Languages at the University of North Carolina at Pembroke. He teaches composition, film, and modern and contemporary literature and has published on J.D. Salinger and Neal Stephenson and most recently contributed an essay on visual imagery to *Scholarly Studies in Harry Potter: Applying Academic Methods to a Popular Text* (2005).

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