

Chapter 3

The Ecstatic Interface

Each cell of the body has its own consciousness, a cellular consciousness of electron transport chains and protein synthesis DNA. When the cells were completely awakened to the secrets locked inside them, segments of DNA that had never been active before would turn on and come alive. ... And then humanity would truly evolve. It would be a willed evolution, a conscious journey into a new symmetry of body and mind. (Zindell: 1994:512)

This is what technology is: just consciousness reflected upon itself, gaining ever more control of itself and creating new forms. (Zindell 1999:782)

David Zindell examines notions of posthuman evolutionismⁱ in *Neverness* (1989) and its follow-up trilogy, *A Requiem for Homosapiens*ⁱⁱ (hereafter referred to collectively as *Requiem*), but questions versions of this posthumanism that call for a “total reduction of human beings to information ... the [complete] overthrow of matter” (Bendle 2002:47). Instead, Zindell’s sf provides an ambiguous response to posthumanism, imagining a cyborgian fusion of the biological and the artificial, in which sensory material bodies are enhanced but not set aside by technology. Fusing the cognitive and the fantastic, the transcendent and the embodied, Zindell’s fruitful coupling of sf and mythopoetics revives the tenets of shamanism in the context of an emerging technological ontology. Technology forms, for Zindell, part and parcel of a “conscious” universal ecology that animates not only the biological networks of the body, but the entire material universe.

The shaman’s journey through the interconnections of a living and sacred cosmos is described as a “paradoxical passage”, involving extreme physical ordeal, symbolic death and metamorphosis (Eliade 1989:179). Able to access numinous realms of information that are occluded to ordinary humans (McKenna 1992:1), the shaman is primarily an agent of novelty and a psychopomp or mediator between the realms of the living and the non-living, the past and an unknowable future

(Eliade 1989:246). Modelled on these trademarks of an ancient ecstatic *techne*, the protagonists of Zindell's *Requiem* cycle undergo ritualised torment and transformation as they quest through the "manifold" (see endnote xviii) in search of a new embodied understanding of a living and strangely technological universe.

In contrast to the shaman's emphasis on embodied understanding, many contemporary notions of posthumanism privilege incorporeality. Zindell's sf explores this movement towards an incorporeal future, in which "the essence of life [has become] disembodied information" (Bendle 2002:55). Warped by the exponential rate of contemporary technological proliferation, such posthuman fantasies tend to view the body and material existence as redundant. Instead of celebrating embodiment, posthumanism appears to reject the body and offer a singular vision of "enhanced evolutionism" (Terranova in Bell 2000:268) in which the only step forward for humankind is seen to reside in "merging with our computerized creations" (Kaku 1998:17) and transcending our flesh altogether.

What it means to be [post]human is no longer being immersed in genetic memory but in being reconfigured in the electromagnetic field of the circuit, in the realm of the image (Stelarc in Broadhurst-Dixon 1998:123)

The exponential growth of technology has led some proponents of posthumanism to "argue that the human body needs repositioning from the biological to the cyber ... from genetic containment to electronic extrusion" (Pearson 1997:231).

Posthuman visions of technologically mutated cyborg bodies and superhuman artificial intelligences have proliferated in the genre of sf since its very inception, writes Tiziana Terranova (in Bell 2000:269). This is especially evident in the subgenre of cyberpunk, whose main proponent, Bruce Sterling, has made a significant contribution to the propagation of a new, wired variety of posthumanism, "literally producing a 'new cyborg body', one thoroughly invaded and colonized by a host of invisible technologies" (Bell 2000:269). Imagining "a far future where humanity will have expanded into space and learned to alter its

biological frame for efficiency and longevity" (Bell 2000:269), Sterling's fiction sets about redefining the nature of humanity and the nature of the self. This theme of technological augmentation, "a movement that began with the personal computer, the Sony Walkman, the portable telephone" has been extended in the realms of sf into scenarios where humans have been modified to such an extent that they could literally become pure disembodied information, posits Terranova (2000:269).

Although Zindell continues the cyberpunk theme of posthuman transformation through technology, he remains hesitant about the more extreme notions of posthuman artificial evolution exhibited by some cyberpunk writers. Keith Ansell Pearson defines these notions as "scenarios ... [that] construe evolution as [being] powered by a process of 'negentropic complexification' [whereby] self-replicating robot intelligence is [taken to be] life's solution to the problem of entropy and final heat-death" (Pearson 1997:221).

Zindell's cautionary approach to posthumanism is particularly evident in his descriptions of the extreme posthumanist beliefs of the fictional Narain and the zealous Architects of the Universal Cybernetic Church, who elect to vanish from the world and its uncertain future by pursuing a total conversion of their material bodies into immortalised virtual doubles. This option is critiqued by Hakim Bey as follows:

We cannot live in cyberspace in any real way [and] to dream that we can is to fall into CyberGnosis, the false transcendence of the body. The world is a physical place and we are either in it or not. ... Any act of autonomy that takes place in the world must involve all the senses. Cyberspace is like a new sense in some ways, but it must be added to the others – the others must not be subtracted from it, as in some horrible parody of the mystic trance. ... Cyberspace should never be an end in itself. (Bey 1991:133).

Although the vision of a future humanity that Zindell articulates throughout *Requiem* embraces a host of electronic extrusions and repositionings of the human body, Zindell is unwavering in his privileging of material responsibility. Like Haraway's cyborgs, Zindell's protagonists merge the artificial and the organic, the imaginary and the practical with a sense of social conscience and accountability. Like Holdstock's hybrid sf, Zindell's fiction is based on a fluid confluence between fantasy and cognition, science and emotion as it searches for new and meaningful definitions of humanity. This apparently contradictory fusion between genres and incompatible discourses, which is shared by other sf writers such as Kathleen Ann Goonan (whose work will be explored in chapter 4), appears to share a commonality with Donna Haraway's concept of cyborg irony, trickster-like behaviour and mythmaking. "Irony", writes Haraway in her germinal *Cyborg Manifesto* (1991), "is about contradictions ... about the tension of holding incompatible things together because both or all are necessary and true" (1991:149). Cyborg irony is affiliated to the trickster-mode of shamanism. "The cyborg is a condensed image of both imagination and material reality ... [who takes] pleasure in the confusion of boundaries", continues Haraway (1991:150). For Zindell, whose sf is centred around a merger of primitive world-views and sophisticated technological paradigms, holding contradictory world-views simultaneously (which Zindell refers to as "multiplexity" [1994:143] – see endnote viii) is critical in affirming the contradictory nature of a living and evolving universe in which the natural and the artificial conjoin and evolution is seen to progress through mutation and symbiosis (see endnotes iii & ix).

As in Robert Holdstock's *Mythago* cycle, the body and the mind in the *Requiem* cycle are subjected to strange electromagnetic fields, temporal distortions, and augmentations. Examining ecstatic shamanic triggers that herald evolutionary possibilities, the *Mythago* and *Requiem* cycles both explore borderlands where senses, times and memories overlap. In Zindell's sf, the embodied (and

disembodied) worlds traversed are not, however, archetypal landscapes peopled by mythical hybrids (as in Holdstock's writing), but futuristic extraterrestrial environments and bizarre quantum topographies where cyborg deities and technological body-augmentations are endemic. These seemingly divergent landscapes are not so distant from one another: "if we are to have visions of our future, we must look into our past", asserts Zindell (1989:385), echoing Holdstock's science-fictional sampling of pre-historical arcana, mythology and oral tradition.

Both Zindell and Holdstock explore memory and consciousness as properties of matter and posit a type of "machinic becoming"ⁱⁱⁱ in which conceptions of past, present, and future are fused within the imperative of embodied immanence. Their fictions situate images of the shaman-as-cyborg within what I have termed the *vegetable matrix* (an organic network of planetary or universal intelligence), exploring alternative aspects of technological becoming that posit an ecstatic virtual interface between nature and culture, self and other, humans and machines.^{iv} In Zindell's fiction, though, there is a more direct emphasis on the mechanisms of our present techno-enhanced landscape and our dreams of posthuman transcendence. Whereas Holdstock's backdrop for his exploration is the inner realm of the unconscious, Zindell has folded out the unconscious to encompass the *terra-incognita* of space. Built around a technologically advanced interstellar civilization far in the future, Zindell's setting is more traditionally (and recognisably) science-fictional than that of Holdstock.

At the "topological nexus" of Zindell's future galaxy, "where the pathways through the manifold (see endnote xviii) twist and loop together" lies an icy planet, home to a race of genetically modified modern primitives, the Alaloi, as well as a great academy of learning, the *Order of Mystic Mathematicians and Other Seekers of the Ineffable Flame*. The unusual confluence of science and mysticism apparent in

the Order's title is further reflected in the name of the city of Neverness that houses it, described as "the Unreal City" (1994:8) as well as "the spiritual center of the most brilliant civilization humankind has ever known" (1994:101). Neverness not only lies at the centre of Zindell's galactic civilization, but also forms the centerpiece of the entire *Requiem* cycle. The sense of the impossible implied in its name reflects the seemingly unattainable synthesis of spirituality and logic, civilisation and anarchy, logic and occultism, modern and primitive, cognitive and fantastical that is prevalent throughout Zindell's fiction. The quixotic overtones of improbability inherent in its name find further articulation in the fact that the technologically urbane people of Neverness seem to have peacefully shared the planet Icefall with a population of primitive people, the Alaloi,^v for several millennia. The reality of colonial and contemporary history (the total obliteration of so-called "primitive" cultures and their world-views by technologically superior civilisations), of course, seems to render this peaceful coexistence improbable.

Like the Guild in Frank Herbert's *Dune* (1968), the Order preserves the secret of faster-than-light space travel, monopolizes technology and supplies a federation of three thousand civilized worlds with interstellar pilots and other professionals. Propounding a seemingly impossible union of mysticism and science, the Order's peculiar mixture of experts include *scryers*, *cetics*, *cantors* (mathematicians), *tinkers* (engineers), *holists* (scientists), *mechanics* (engineers), *remembrancers*, *ecologists*, *eschatologists* (historians), and *pilots*.

Described as "those strange, holy, self-blinded men and women of our Order [who] believe that if we are to have visions of our future, we must look into the past", the mystical visionaries of the Order are the scryers, who utilise a combination of electronic stimulation and ritual body mutilation in divining possible futures and outcomes (1989:43). The Order's equally esoteric cetics are digital adepts and technological mystics, masters and mistresses of various cybernetic disciplines and

ecstatic techniques who are also referred to as “cyber-shamans”. Utilising hallucinogens and sophisticated computer technology to elicit embodied memory, the Order’s remembrancers, in turn, pursue the knowledge of endless transformation and morphogenesis that lies “encoded within the human genome” (1999: 31).

Like the cetics, the remembrancers and the scryers, Zindell’s pilots have a strong shamanic nexus, which is especially evident in the arduous initiations undergone by novice pilots. In a ritual described as a “culling”, neophyte pilots endure extremities of cold and experience near-physical death (1994: 179-218). This methodology recalls various death-defying initiation rites described by Eliade throughout *Shamanism: Archaic Techniques of Ecstasy* (1989) in which “resistance to perilous cold [and other extremes] is regarded as a particular sign of shamanic selection” (1989: 113). Thus, having proved their ability to overcome physical and mental boundaries, pilots are able to become true shamanic cyborgs. Trained in all the Order’s various disciplines, pilots eventually attain the capacity to merge completely with their sophisticated spacecraft, transforming themselves into “biological lightships that could swim through the cold currents of space” (1999: 138).

Zindell’s emphasis on the importance of shamanism in facilitating a new and more responsible technological awareness is enhanced by the fact that, despite its garrison of professionals and its lofty technological status, the Order’s fate is entwined with the primitive Alaloi, a population of humans genetically remade into Neanderthals who, like Rousseau’s noble savages, have abandoned a reliance on modern technology and returned to nature.^{vi}

Leading Zindell’s future humanity to a new understanding of technology, the protagonists of *Requiem*, Mallory Ringess and his son Danlo, are both initiates into

the shamanic customs and lifelines of the Alaloi. Besides being a skilled mathematician and a gifted pilot, Mallory, for example, is genetically remade into an Alaloi and has their entire primitive symbolic and cultural system imprinted into his memory. Living among the Alaloi for a protracted period of time, Mallory leaves his son Danlo behind in the care of Alaloi foster parents when he returns to Neverness. Danlo is raised and initiated by an Alaloi shaman before leaving to join the Order and become a pilot himself (Zindell 1994:1-40). Although both Mallory and Danlo are technological sophisticates, they are heavily influenced by the mindset of the Alaloi, evinced, for example, by their imaginative use of Alaloi terms and their frequent references to Alaloi customs and sacred practices.

Zindell's juxtaposition of two opposed world-views can be seen as a refracted example of what biologist Edward Wilson has labeled "consilience", a "unity of knowledge" that spans divergent disciplines and ways of thinking (1998:4).^{vii} Unlike Wilson, whose search for unity seems to privilege the sciences, Zindell seeks an integration between science and myth or a means to forge "a spiritual path or practice [that is conducted] through a scientific lens" (Zindell 2000:1).

Unlike Zindell, Wilson dismisses "prescientific cultures" as "intelligent fish born in a deep shadowed pool ... [who] invent ingenious speculations and myths" to explain their origins but are invariably proved "wrong, always wrong, because the world is too remote from ordinary experience to be merely imagined" (1998:48). Wilson privileges science by claiming that "no exercise from myth, revelation, art, trance ... [or] mysticism, the strongest prescientific probe into the unknown ... no shaman's spell or fast upon a sacred mountain can summon the electromagnetic spectrum ... because they lack the hard-won knowledge of physics" (1998:50). "The ancients", Zindell writes, by contrast, "in all their stupendous ignorance ... knew as much of the great secret of life – or as little – as we know now. Though their perceptions were simple, it seemed [that] they often perceived reality more

deeply" (1989:85). For Zindell, the vision of scientists is circumscribed by the invariable fallibilities of their instruments and abstractions: "there is no way for them to perceive deep reality except through the distorting lenses of their instruments or through the touch of their equations" (1989:110-11). The 'primitive' Alaloi, claims Zindell, are "more robust and vital, and in many ways much wiser, than modern human beings" (1994:7).

Primitive peoples can apparently perceive beyond what is directly accessible to the senses. Anthropologist Jeremy Narby asserts: "the people who practice shamanism know about the hidden unity of nature, which molecular biology has [only recently] confirmed, precisely because they have access to the *reality* of molecular biology" (1998:80, my emphasis). The "reality" to which shamans gain access through hallucination and vision, avers Narby, is that of "the crystalline and biospheric network of DNA-based life ... the grandiose web of life surrounding the planet" (Narby 1998:112). This "perception of pattern ... [and] attention to interconnectedness" is also acknowledged by Zindell as a quality of primitive rather than scientific culture (Zindell 1989:283). For shamans, in any event, visionary travel is perceived as travel in the very literal sense (Narby 1998:80).

Zindell's quest for an embodied "transcendence" (2000:1) is often critical of reductionist science and wary of the lure of artificial simulation (aspects of his fiction that are fully explored in this chapter). Offering decisive critiques of cybernetic rapture, *Requiem* argues for a technology that is firmly rooted in the material world and takes its cue from the tenets of archaic shamanism. Despite a mistrust of the virtual, though, Zindell evokes a rich tapestry of simulation and artificial becoming. In this merger of the technological and the archaic, his work can also be read as a continuation of the writings of various "cyberdelic" authors (such as Terence McKenna and Ralph Abrahams) whose works blend ideas of cybernetic rapture with embodied shamanic practices and techniques.^{viii} The union

of the technological and the shamanic is not, however, restricted to the cyberdelic imagination. Instead, it appears to be endemic to global electronic culture. Davis writes:

Though our cosmology is scientific, our cultures, psyches, and collective rituals are not. ... With its bias toward image, orality, and simultaneous participation, the electronic environment is conjuring up the collective psyche of earlier oral cultures. (Davis 1998:174)

The notion that contemporary media simulations are, in a sense, returning humans to primitive modes of thinking is one that is, paradoxically, entrenched in the posthuman vision of the "hive-mind"; an ethereal unification of humanity in cyberspace (Bendle 2002: 53). Such a vision veers away from "technoscientific logic ... [into] the world of participation [that] dominates archaic and oral cultures" (Davis 1998:174).^{ix} This union of magical thinking and scientific technology finds expression in the visions of the contemporary cyberdelic counterculture. The cyberdelic notion of personal freedom through a paganised technology that can be accessed through drugs, dance, spiritual techniques, chaos theory and bizarre cyber-rituals (Ruthofer 1997:1) is appraised by Zindell and finds expression in the Order's many ecstatic cybernetic disciplines as well in the VR rituals of Zindell's imaginary Narain and the Architects of the Universal Cybernetic Church. The artificial, ecstatic interface that is imagined (and critiqued) by Zindell, for example, is both scientifically sound and mystically evocative: " a cyber samadhi ... a moment of neurotransmitter storms and mind-lightning. ... Wholly artificial bliss [triggered] by computers [that are] programmed to stimulate neurons, to trigger the release of endorphins, epinephrine, serotonin and the other manifold chemicals of consciousness" (1996:437). The cyberdelic merger of technology and ecstasy presents a psychedelic vision of spiritual computers and seems to imply that "science/technology is the same as magic; [that] spiritual is digital", (Ruthofer 1997:1). This psychedelic representation of technological-gnosis is as much the domain of Clyne and Kline's original conception of the cyborg^x as it is that of the

emergent spiritual cyborg. "For certain seekers", writes Erik Davis, "the machine comes to serve as an interactive mirror, an ambiguous Other. ... This is the path of the spiritual cyborg, a path whose buzzing circuits and command overrides represent both the perils and promise of technosis. ... The first spiritual cyborgs were probably the shamans" (1998:132).

Concepts such as chaos and ritual, which have an affinity with the cyberdelic community (Ruthofer 1997:1), are also triggers of what Deleuze and Guattari have termed "the primitive rhizome" (1988: 211). Practices, such as sorcery and shamanism, they argue, retain a "rhizomataical nature" in that they "organize resonance [through] independent sequences", instead of through "arboreal" systems of hierarchical "centralized power" (1988:209). Deleuze and Guattari maintain, however, that the "supple fabric" of primitive magic and the "rigidity" of modernity can and should be fused together in potentially fruitful couplings (1988:213). For Zindell, integrating primitive conceptions is essential as it allows for the formulation of "a way of affirmation beyond logic" and a means for inserting a sense of wonder into a technologically anaesthetised world (Zindell 1994:48). Zindell's combination of science and shamanism embraces paradox, sacralises the vision achieved through the mediation of machines (such as magnification, miniaturisation, time-lapse, and infrared vision) and invokes "a primordial balance [within] a universe [that] roars with chaos and change" (1994:460). For Erik Davis, a synthesis between the primitive and the modern is vital if humans are to avoid an uncritical and potentially fatal technological involvement:

We find ourselves trapped on a cyborg sandbank, caught between the old, smoldering campfire stories and the new networks of programming and control. As we loose our faith in free will or the coherence of personality, we glimpse androids in the bathroom mirror, their eyes black with nihilism – the black void that Nietzsche pegged over a century ago as the Achilles heel of modern civilization. (Davis 1998:131)

Dislodging ourselves from Nietzsche's black void (or the icy gridlock of Holdstock's Lavondyss) may entail "turning back time to a time when there were no clocks" (1998:132). This, in any event, is the line of reasoning followed by the ancestors of Zindell's Alaloi. Nevertheless, as crucial as the world-view of the Alaloi is in forging the mindset of his protagonists, "the way for humankind", ruminates Zindell, "is not back ... there can be no return to simplicity this way" (1999:783). As crucial as it may be to regain contact with a primitive ontology, our task, reasons Zindell, is to build new Bodies without Organs, to "deepen into new forms and possibilities" (1999:786). Immersed in a technological matrix in which time becomes more elastic, Zindell's protagonists adapt primitive world-views in forging an intuitive embodied perception that draws upon a wealth of shamanic techniques. Simultaneously, they embark on a cyborgian odyssey as they remake themselves into biotechnological evolutionary engineers. As Davis suggests, the path of the spiritual cyborg is a cyber-shamanic "psychospiritual quest [conducted] through the image of the machine" (1998:132). For the cyborg, the visualisation techniques of shamanism and magic become navigational tools for mapping the intensities of cyberspace.

In gazing backwards at the primitive in order to crystallise a mystical and transcendent future (albeit a high-tech one) within the context of the present, Leary and other cyberdelics, such as Terence McKenna, invoke the shaman, remaking him or her in the image of a hi-tech VR engineer, a "latter-day cyber-shaman" (Eagar 2003:28). Who better than the shaman, the revered technician of the sacred and the arbiter of chaos, they argue, to guide us into a new future by rekindling a magico-spiritual imagination?

The rekindling of shamanism in the West seemed to coincide with Leary's infamous Harvard experiments involving consciousness-altering (psychoactive) substances and new ways of seeing, experiencing and interacting with the world. While the

infamous psychedelic guru and his coterie of psychonauts were advising young intellectuals to “tune in” to other ways of knowing, “turn on” to hallucinogens, and “drop out” of mainstream society in the 1960s, anthropology was giving people a name that they could attach to the growth of new areas of experiential knowledge: shamanism (Harvey 1997:110). “Through the use of hallucinogenic plants we are obtaining a new set of lenses to see our way in the world”, reasons Terence McKenna (1992:98), calling for a continued “immersion in the psychedelic experience of the shaman” (1992:93). For Zindell, the invocation of the shaman is symptomatic of a desire to conjure up novel cultural mutations. In the same way as Holdstock’s protagonists undergo complete bodily transformations by invoking primitive magic (for example, making voodoo dolls, activating geomantic energies, using masks and conjuring up animistic spirits), Zindell’s protagonists attempt to open up new evolutionary pathways through a rekindling of ancient shamanic techniques.

Likening the hallucinogenic fire-magic of the shamans to an “ancient and holy burning ... a turning inward [attuned] to the exquisite rhythms of mind and blood” (1994:467-68), Zindell suggests that humanity has always “depended upon [such] seekers of the ineffable and immanent” to “awaken” the species to its “evolutionary possibilities” (1994:468-69). This awakening, in *Requiem*, takes the form of an attempt to activate the “Elder Eddas ... sleeping memories [implanted] into the human genome” (1999:31) by a race of godlike and mythical aliens called the Ieldra. Undoubtedly referring to the ancient Nordic collection of poems known as the *Elder Eddas*, Zindell’s sleeping memories seem to recall the first poem of the *Eddas*, the *Völuspá*, in which a sybill recounts how the high gods breathed their secrets and the mysterious essence of life into humankind (Cherry 1996:1).

In a shaman-like trance, Mallory listens to the Eddas, “the harmonies, microscopic motions and rhythms” of deep embodied memory (1989:654): “I looked into my

blood, looked down into the dark squiggle of my chromosomes where the Elder Eddas were hidden" (1989:654). Encoded in DNA, the Eddas are accessed through an activation of the "deepest and oldest parts of the brain" (1996:99). This "awakening" of evolutionary possibilities that are somehow tied into humanity's deep past represents "a continuation of all the quests throughout time and history ... [an] urge to discover the true nature of humanity, the shape and substance of what humankind might someday become" (1996:61). This remembering involves, for Mallory, the opening of archaic channels of communication with anti-rational emotions, instincts and ancestral memories through newly crafted cyborg eyes.

There are many twists in the techno-shamanic DNA saga that ostensibly informs Zindell's notion of the Ieldra and the hallucinogen-inspired recovery of their evolutionary genomic transcripts. Erik Davis mentions Timothy Leary's view that "DNA arrived on the planet with the sole purpose of producing intelligent life that could one day return to its sidereal palace" in his seminal cyberdelic travelogue, *TechGnosis* (1998:161). Leary takes his cue from DNA co-discoverer Francis Crick's contentious theory of "directed panspermia", which speculates that DNA is far too complex to have evolved randomly in the Earth's 4.5-billion-year lifespan and must therefore be of extraterrestrial origin (Narby 1998:73-6). Leary also recalls a psychedelic vision experienced by another academic trickster and fellow psychonaut, the prominent anthropologist Michael Harner. The first nine pages of Harner's hands-on manual of shamanic techniques, *The Way of the Shaman* (1980), relates a panspermian vision experienced by the author under the influence of a potent hallucinogenic brew (a vision that, like Narby's own psychedelic experiences as recounted in *The Cosmic Serpent* [1998], appears to bear a striking resemblance to subsequently chronicled shamanic origin myths of the upper Amazon [see, for example, 1998:60-102]). Recorded just prior to the inception of the modern-day Internet at UCLA and the formulation of Lovelock and Margulis's *Gaia* hypothesis, Harner's vision transported him to a primordial time

when the Earth was seemingly barren of life. Intruding into his hallucination were “DNA-like beings” (Harner 1980:4), who descended from the sky in countless numbers. According to Harner, these creatures related to him how they had “created life on Earth in order to hide within (and inform) its multitudinous forms” (Harner 1980:4). Synthesising Harner’s creative vision with numerous shamanic mythologies and incorporating the *Gaian* and panspermian theories, anthropologist Jeremy Narby speculates in *The Cosmic Serpent* (1998) that the DNA molecule itself is the actual *alien* or *other* mind that had created life on our planet – a vital principle capable of engendering endless variety and crafting an information-rich biosphere (1998:103). DNA, he claims, has organised itself into a complex matrix of vegetable intelligence, which shamans are able to access through plant hallucinogens that are described as the planet’s “televisions” or “receivers” (1998:4).^{xi} Acting like visionary machines or software, these plants give their users the ability to “transform language [and] transform culture” (McKenna 1992:1). Enabled to twist their ordinary context-bound perceptions, hallucinogenic travellers are able to defocalise their gaze and perceive the microscopic worlds of DNA, logging into the web of interconnected vegetable intelligence that impregnates the biosphere (Narby 1998:4).

Leary, Harner, McKenna, Narby and Zindell concur that reflecting on the mysterious alien otherness that lies enfolded within our genome may require an embodied shamanic vision. In *Requiem*, the Ieldra and their mysterious biotechnological codex represent “a vast and ancient cellular intelligence” (Zindell 1996:78) that exists independently of “mind” (1996:78). The Eddas epitomize more than the potency of human genetic or racial memories: they signify the mysterious nature of “universal memory ... a pure shimmering consciousness that flows at the center of all things” (Zindell 1999:756).

"This urge to know the unknowable ... the secret of life" (Zindell 1996:61), is traced by Zindell to archaic shamanism: "dating back ... to the primitive shamans of the forests and deserts, seekers of this way have carried on an unbroken, hidden tradition, an evolutionary journey deeper into life" (1994:467). That Zindell has located the potential of humankind within the mysterious coils of the chromosome is no coincidence. With its universal language of four letters (the four chemical compounds adanine[A], cytosine[C], thymine[T], and guanine[G]) DNA has today been recognized by modern science as "the informational molecule of life" (Narby 1998:90). Moreover, according to Narby, shamans have already been accessing the "molecule of life" through the ritual use of hallucinogens for aeons. Not only, he writes, has the discovery of DNA "confirmed the 'animist' belief, according to which all living beings are animated by the same principle" (Narby 1998:61), it has revealed that "the distance between molecular biology and shamanism/mythology is [merely] an optical illusion produced by the rationalist gaze that separates things ahead of time" (Narby1998:78). One of the keys to unlocking the secret of the genome lies, for Zindell and Narby alike, in the shamanic usage of what Sadie Plant (1998a:1) has called "the original wetware technology", namely, hallucinogens. "What is the remembrancer's drug of *Requiem*, after all, if not a very powerful and very specific psychedelic?" (Zindell in Gevers 2001:1).

The hallucinogen that opens Zindell's psychonauts to their evolutionary possibilities is a potent synthesis of various psychoactive substances. Referred to as "kalla", this substance was "developed from sources like the sacred mushrooms of old earth, alien plants, and synthetics" (Zindell 1994:545). "Drinking kalla", explains Zindell, "is like clearing a window of frost in order to see another world, the forgotten realms of experience buried deep in the snowdrifts of memory" (1994:545). "Many [who had drunk the kalla] believed that they were the initiators of a new direction in humanity's evolution ... they had sensed the

evolutionary possibilities inside themselves" (1994:563). Indeed, "they who drank the kalla were pilots of mind and soul ... their path lay among the shimmering lights inside" (Zindell 1999:213). These curious substances are perfect candidates for Zindell's union of the modern and the primitive, the distant past and far futures. "Psychedelics describe the matrix of all possible narratives ... the shamanic story of flight, transformation, and return ... a voyage into a twilight zone of faded memories, ghostly archives, hidden clues", writes Sadie Plant (1999b:102-03). Like psychedelic detectives bent on a shamanic quest into novelty, Zindell's psychonauts unfold the coils of their DNA to find hidden clues and marvellous new patterns. Filled with a "holy burning" (1994:467), they glimpse "memories of the future ... the possibilities of evolution [that] in everyone are all folded up" (1994:568).

Merging primitive and modern world-views necessitates a dance on the edge of paradox. Gazing at the primitive rhizome "through a multiplicity of animist eyes" involves a subtlety and flexibility that seem incongruent with the "rigid" gaze of the modern subject, write Deleuze and Guattari (1989:211). "The [modern] rational gaze is forever focalized and can only see one thing at a time", concurs Jeremy Narby: "it separates things ahead of time, including the truly complementary" (Narby 1998:77). Likewise, for Zindell, the rational gaze is restrictive and potentially destructive.

The basic fault of everyday human consciousness was that it was cut off from the rest of the universe. All human beings in all places had suffered the pain and loneliness of living as separate beings. ... As humankind had evolved from bands of primitive fruit gatherers to sophisticates dwelling in star-flung civilization, the split between the self and the other parts of creation had grown as vast as the great emptiness between the galaxies. ... Many – during the Age of Science [Zindell's name for our present era, which he also calls the *Holocaust Century* in reference to the ostensibly immanent destruction of the biosphere] – had even glorified in the separation of humans from nature, subjects from objects, facts from meanings, mind from matter. (Zindell 1994:463)

"The *great danger*", for Zindell, lies "in falsely perceiving the otherness of things"; namely, incorrectly viewing things as other or separated from the self (Zindell 1989:662). His scorn for "reductionism" and "cold fact" is clearly conveyed throughout *Requiem*, and is given chilling articulation (Zindell 1994:150-53) when Danlo encounters a "cult" calling themselves the "Order of True Scientists" who perpetrate vivisection, nuclear experimentation and other "barbarous horrors" in the name of "true science" (1994:150). Blinded by "single vision", writes Zindell, the scientists have forgotten that "each world view is true only relatively" (1994:155). Driven by such "single vision", human beings may "pull the wings off flies, or murder seals, other human beings [or even] destroy the stars" in the name of science (Zindell 1989:662). Zindell admits that the attempt by science to "control matter and energy" is of extreme relevance, yet limited and imperilled by rationalistic definitions and methodologies (Zindell 1994:155). Instead, Zindell turns to chaos and dynamical systems theories and suggests that "a solution, a way out [lies in achieving] a unity of consciousness" (1989:662): only then humans might realise, as the archaic shamans knew, that "single vision" is a dangerous illusion, that everything in the universe is connected and that "matter is just a standing wavefront of consciousness, and energy" (662). Physicist and mathematician Ralph Abraham confirms that contemporary chaos and dynamical systems theories are attempting to match patterns in nature across disciplines (Abraham 1992:7). Abraham cautions that despite the best attempts of science, anti-rational skills (such as intuition) remain important and crucial. Dependent on a large degree of intuition and insight on the part of mathematicians and physicists (as well as on the immense number-crunching binary-modulating capacity of computers), the structures and correspondences inherent in chaotic and dynamical systems will continue to elude minds that are clouded by single vision (Abraham 1992:7).

In order to perceive correspondences it may be necessary to first embrace the ambiguous resonance of a primitive world-view. This is the path taken by Zindell's protagonist, Danlo, who, "nurtured by the shamans of his tribe", embraces a "magical thinking ... a wildness" (1996:73).^{xii} His wildness enables him to perceive new patterns by first "becoming pure chaos" (1996:73) and "embracing paradox" (1996:78). Danlo's great gift, according to Zindell, is his ability hold different world-views simultaneously,^{xiii} an ability that allows him "to see the identity of opposites and to wed them together" (1994:813). As I mentioned in chapter 1, for the Amazonian shamans, the merging of oppositions is made possible through a convoluted articulation called "twisted language" that is related to them by the "nature spirits" that they perceive under the influence of hallucinogens (Narby 1998:99). According to Narby, this twisted language allows them to "describe reality from a different perspective" and make connections that are seemingly hidden from the mechanisms of a purely logical discourse (1998:102). Seen through the "molecular vision" of hallucinatory perception, the "paradoxical language of DNA" (a "doubly double language that wraps around itself") becomes visible to shamans, allowing them to tap into wholly different universes of becoming (Narby 1998:101).^{xiv}

Shamans use a variety of "defocalization techniques to activate the neurological changes that allow them to pick up information from DNA", writes Narby (1998:109). These include "controlled dreams, prolonged fasting, isolation in wilderness, ingestion of hallucinogenic plants, hypnosis based on repetitive drum-beat, near-death experience, or a combination of the above" (1998:108). In *Requiem* shamanic techniques of ecstasy, other than hallucinogens, are also utilised in order to activate deep memory and transformation. These include fasting, deprivation, controlled dreaming, and the practice of the Order's various metaphysical and cybernetic disciplines. A distinct strain of psychedelic metaphor, however, permeates Zindell's expression of all of these extremes of ecstatic

becoming. Certainly, as Deleuze and Guattari have noted, drug experimentation has left its mark on users and non-users alike, introducing “a universe of microperceptions” into the cultural imagination (1988:248). The neurochemical dive taken by the shaman plunges him/her into a “raging universe of active intelligence that is transhuman, hyperdimensional, and decidedly alien”, writes Terence McKenna (1983:6). Such a psychedelic immersion in “flows of intensity” (Deleuze and Guattari 1988:162) becomes the perfect metaphorical basis for Zindell’s science-fictional confrontation with surreal mindscapes and micro-perceptions. His future worlds are, in many ways, manifestations of Deleuze and Guattari’s psychedelic topographies where characters confront “unnamable waves and indefinable particles” (1988:248). Writing on William Burroughs’s experiences with hallucinogens, Sadie Plant avers that these substances introduced him to a sensorama of “space-time travel ... a world of combinations not yet realized ... taking Burroughs ahead of himself but also elsewhere ... to a ‘place where the unknown past and the emergent future meet in a vibrating soundless hum’” (Plant 1999b:142). Throughout *Requiem*, Zindell makes his indebtedness to narcotic shamanism clear and his protagonist, Danlo, frequently affirms his “natural love of drugs ... and his especial love of the [shamanic] psychedelics made from cacti and mushrooms” (1996:113). His city of Neverness, like Burroughs’s hallucinogen-inspired Interzone (see Plant 1999b:142), is a metropolis where the popping of hallucinogenic “Triya seeds”^{xv} and the heady smoke of alien “Toaloache” leaves pervades an atmosphere of *fin-de-siècle*^{xvi} decadence in which strange alien races and forbidden technologies mingle with genetically modified humans, producing an atmosphere redolent with possibility and change.

“The most potent drug of all is the interface of the human mind with the cybernetic spaces of the computer”, writes Zindell (1994:704), imagining a total sensory interface, akin to that experienced by psychonauts. “The more extreme, inventive, and avant-garde of the VR [virtual reality] constructions are likely to

resemble experiences with psychedelic plants”, writes Terence McKenna, imagining a techno-linguistic “phase shift toward a kind of [digital] telepathy” (1991:234-235).^{xvii} The notion of a telepathic VR language forms the crux of the Order’s imagined visual cybernetic symbol-system, the *universal syntax*. While an individual is interfaced with a computer, information is encoded into three-dimensional floating objects called “ideoplasts” and “directly superscribed into the various sense and cognitive centers of the brain” (1989:71). Existing inside “the cybernetic spaces of a computer” (1994:331), the jewel-like ideoplasts of the universal syntax are “arrays of lovely and complex glyphs which a computer could imprint into the vast visual fields of the mind’s eye. ... They can represent and relate any aspect of reality [whether] alien archetypes ... mental [or mathematical] symbols ...paradoxes ... [or] the phonemes and sounds of any language” (1996:85). Taken together, the ideoplasts form an unambiguous and interactive language called the “universal syntax” in which linguistic (or mathematical) objects and intents can literally be seen, touched, felt and interacted with. The notion of a “universal syntax” transcends Cartesian mind/body dualism and also embodies the union/merger of the individual with the machine. This interactive language is the crux of the shaman/cyborg fusion, which is post-rational, ego-unfixing, boundary dissolving, and involved in the patterning of a new sensory weave that is beyond dualism and hierarchy.

Merged completely with their lightship computers, the Order’s pilots utilise the syntax in literally shamanizing their way through the bizarre quantum topography of the manifold (see endnote xviii), the “deep reality” (1996:379) that exists “beneath the space of the visible universe” (1994:461) and “folds between the stars” (1996:46). When a pilot “faces the manifold” he or she is described as experiencing “a slowing of time and a quickening of thought ... something other ... something of a mystery ... a shimmering of colours ... in the absence of all light and spacetime” (1996:57-8). Adrift in a virtual pool of affective information, pilots

experience a symbolic and hallucinatory “crosstalk of the senses” (1989:83) and are subjected to a visual (and tactile) language much like that experienced by the shaman. Sensory overlap, or synaesthesia, is currently seen as a perceptual dysfunction (Plant 1999b:36), yet it holds the key to a reconfiguring of the senses that is crucial to bypassing the overcoded language functions in the brain. Synaesthesia is direct and instinctual, “a language of gestalts, the bootstrapping of discrete sensory channels [whereby] seeing and hearing become merged into see/hear, and so forth” (Rucker et al 1992:244). Originating from the Greek word *syn* [union] and *thesis* [sensation]), synaesthesia describes the merging or parallelism of sensory input (1992:244). As a metaphor for the collusion of the sensory overload of psychedelics and technology, it forms one of the keystones of contemporary ‘cyberdelic’ thinking (1992:244).

The Order’s pilots attain synaesthesia through their computers and experience a sensory merger that enables them to perceive with numerous senses simultaneously. “I smelled the stars of the Sarolta being born and listened to the purple sound of equations being solved”, recounts Mallory as he pilots his lightship through the “dreamtime” of the manifold (1989:101).^{xviii} Likewise, Danlo relates the dissolving of his selfhood into a sea “of electrons rushing and spreading out through the microscopic filaments of a computer’s neurologics” (1994:460). This is an experience of unity beyond boundaries: “Time nearly stops ... there is an experience of oneness, a union with the cybernetic space of the manifold ... a giddy and joyous sense of thinking faster, making connections, of being a vaster mind” (1994:461).

“Technologies of the virtual, immersive, and cyber realities create boundaryless experiences that are analogous to the archaic techniques evolved through shamanic journeys”, writes Manie Eagar (2003:25). As a master of the ecstatic interface, the shaman exerts a powerful attraction for the technological

imagination that is involved in the conceptualisation (and realisation) of these realities. In Zindell's star-flung civilization, information technology has ascended to new levels of complexity and searching for information through vast data pools, like navigating the complexities of the manifold, requires all the capabilities of an imagined cyber-shaman.^{xix} Danlo has, in fact, been "trained by his Order's cetics ... cyber-shamans who are said to be masters of the cybernetic spaces" (1996:379). Zindell's narrator explains that "a cetic – or anyone whom a cetic had trained – might navigate through [informational] windows with all the speed of a pilot falling through the manifold" (1996:395) and Danlo uses his cyber-shamanic training to traverse complex cybernetic fields and navigate his way through the manifold. Often his search through dense information clusters is described in animistic and archaic terms, suggesting that he has an archaic shaman's knack for merging instinct and knowledge as well as different elements of sensory input. Zindell, for example, describes him as possessing the keen honing instinct of his totemic spirit animal, the snowy owl: "Danlo almost flew along the frozen rivers of information, swooping here or there as a snowy owl might follow an elusive prey" 1996:396. He also illustrates Danlo's shamanic finesse at retrieving elusive data by comparing him to "an osprey fishing the ocean waters ... dipping down to taste some tantalizing bit of knowledge" (1996:397). This collusion of instinct and knowledge draws on a rich tradition of shamanic drug use, invoking "synaesthetic possibilities ... a supercognition of synaesthetic communications that accompanies the use of hallucinogenic drugs" (Rucker et al 1992:244).

Experimenting with the "powerful psychoactive alkaloids" of central Asia, nineteenth century writer Fritz Hugh Ludlow remarked that they enabled him to "smell colours, to see sounds, and to see feelings" (in Plant 1999b:33). "Psychedelics offer us a taste of synaesthetic possibilities that are increasingly being realized by our external communications technologies", explains Jas Morgan (in Rucker 1992:244). Recalling Kathleen Ann Goonan's vision of an ecstatically

sense-driven future technology (see Chapter 4), Zindell's pilots are enmeshed in an ecstatic technological interface in which auditory input, movement, perception, touch and smell blend into a multitude and intensity of sensations and ideas. Not only visual, but tactile, aromatic and aural, a total interface in a virtual ocean of information merges all the senses in a kind of "electronic telepathy", remarks Zindell (1996:432). For cyber-shamans, "information fields open out into infinity in all directions, the electric connections, the flowing out of the self into the vastness" (Zindell 1999:282).

If the media were once as divided as the senses with which they interact, their convergence and transmission into hypermedia allows the senses to fuse and connect. Touch is the sense of multi-media, the immersive simulations of cyberspace, and the connections, switches, and links of all nets. (Plant 1998b:179)

Zindell's Narain (a technologically advanced culture that Danlo encounters in his travels), pursue a dream of complete immersion in a perfect synaesthetic artificial wonderland. They have succeeded in crafting an artificial weave-world where "evolving [cybernetic] entities grow infinitely in all directions" (1996:436). Immersed in a digital ocean or "Field," they are "joined body to [virtual] body, the evanescent tissues of their [simulated] beings running together as if they were amoebas who had opened their outer membranes to each other and let their cytoplasm flow together and merge into a single fluid" (1996:436). For Catherine Rich, the material body "is [already] an entity so plugged in that it is indistinguishable from its environment ... an ecology of fluctuating intensities" (in Plant 1998b:188-89). Why not, argues Plant, "take this [affective and immersed] body with you" into VR? Touched all over by the "logic fields" of their computers, the Narain have ostensibly followed Plant's counsel, transporting their bodily senses into a complete sensorama of virtual pleasure where they "flit about like butterflies, darting, whirring, diving ... merging together in a cloud of light" (1996:436). Nevertheless, although their Field seems to echo Sadie Plant's vision of a "synaesthetic, immersive zone in which all the channels and senses find

themselves embroiled", (1998b:186) it lacks the "duplicity" of Plant's "fluid" cyborgs that walk "on the edge of the water and the land", that merge digital dreams with a playful and exuberant sense of embodiment (1998b:249).

The "magnificent surreality" of the Narain's Field almost succeeds in capturing Danlo's "deep sense of reality," but he enters it tentatively with the "dual consciousness of a shaman entering the dreamtime of the *altjiranga mitgina*" (1996:416). "Sending his other self (his dreaming self) seeking" through the Field (1996:416), Danlo's body experiences "the most melting of ecstasies" (1996:437). Despite his fear of "mistaking the unreal for the real ... out of pure wildness, he let[s] go of himself ...[knowing that] to become himself he must first lose himself" to the Narain's digital dreamscape (1996:442-43). Experiencing all the potency of the Field's complete artificial simulation, Danlo, finds it too far removed from the material universe: "in the glittering mindscapes of the Field, what could it mean to know real joy or sorrow ... or to call oneself alive when totally disconnected from the pain and cold of the real world?" (1996:461).

This important scene in *Requiem* implies that for Zindell, the "real" and imperfect material world remains more potent than the simulated world of the Field: "experience can be lived but not copied" (at least not completely) (1996:283) and experience, for Danlo, resides in an ecstatic interface between the artificial and the natural, between the abstract and the material world(s). In contrast to visions of being completely freed from the vicissitudes of the physical world, the objective of the shaman and the spiritual cyborg is to embrace both disincarnate dreams and the chaotic matrix of the flesh. Although the shaman leaves his or her body to navigate abstract information spaces, s/he always returns to the embodied world, bearing insights and "healing medicine" (Davis 1998:223). In contrast to the flexibility of the shaman and cyborg, the posthuman Narain only live to escape into their digital heaven.

Zindell's depictions of the imaginary cybernetic tantalizations of the Narain resonate with contemporary posthuman notions of a technological unification of humanity "into One Big System dedicated to processing gargantuan amounts of information ... [a System within which humans are] totally disembodied and [have] indeed become information" (Bendle 2002:53). Although such visions of technological transcendence seem to evoke a "magical world of participation", they should be approached with caution as they may actually offer us nothing more than a pale imitation, a dangerously "seductive phantasm", cautions Davis (1998:174-75). For Zindell, the Narain's vision of collective fleshless cybernetic rapture veers away from the embodied gnosis of the lightship pilot's shamanic flight through the cybernetic spaces of the manifold. Instead, their "consensus hallucination" (1996:384) seems to resonate with Vivian Sobchack's description of a disincarnate posthuman 'New Age Mutant Ninja hacker' fantasy.

Rather than finding the gravity (and vulnerability) of human flesh and the finitude of the earth providing the material grounds for ethical responsibility in a highly technologised world, 'New Age Mutant Ninja hackers' would look towards downloading their consciousness into the computer, leaving their 'obsolete' bodies, now contemptuously called 'meat', behind, and inhabiting the datascape either as completely disembodied information or as a cadre of 'Be All You Can Be', invulnerable, invincible, immortal New Age/New Edge cyborgs. (Sobchack 1993:576)

Unlike the altruistic pilots, Zindell's Narain "care nothing" for the real world that bodies inhabit (1996:361). Dwelling in "ugly plastic people-mounds ... they breathe stale conditioned air ... [and have] never known the touch of a real sun" (1996:449). Their sole concern is to lie down in darkness inside their separate cells ... pull silvery heaumes [interfaces] over their heads ... [and] instantiate into cyberspace" (1996:149). No matter how great the transcendent promise, cautions Sobchack, there's always a "catch" to any tantalizing surreality (1993:577). Dreams of completely exchanging the physical rhythms of the human body for a posthuman informational body represent a precarious shift away from material responsibility. No matter how we may try to ignore it, there will always be

a “real body and a real world situation” waiting for us to return to from our forays into cyberspace (Sobchack 1993:576-77).

When there is too much information for body and mind to contain and survive, need we wonder at the desire to transcend the gravity of our situation and to escape where and who we are? (Sobchack 1993:576)

The physical consequences of technological escapism and the failure to take cognisance of the realities of the material world are, for Zindell, fatal flaws in posthumanism. Despite his lush and redolent descriptions of virtual incarnations, Zindell remains cautious regarding the posthuman desire to completely transcend the flesh or “meat” and evolve into pure information (in a so-called “liftoff from biology” [Dery in Ruthofer 1997:1]). “For human beings”, he writes, “the true life-force [remains] liquid and red and real – not merely some insubstantial program or bits of information written into a machine” (1996:387). The body, for Zindell, remains the most comprehensive means to access the sensory distortions, vibrations and frequencies of machine-enhanced vision. “Posthumanist visions of the mind unbound are a wish-fulfillment fantasy of the end of limits, situated (at least for now) in a world of limits”, writes cultural critic Mark Dery. “The envisioned liftoff from biology and gravity by borging, morphing, and ‘downloading’, or launching our minds beyond all bounds is itself held fast by gravity” (in Ruthofer 1997:1). As Zindell postulates throughout *Requiem*, the gravity of social and political realities, moral issues and environmental conditions outweigh abstract dreams of technological wish-fulfillment. The Narain, for example, who choose to disregard embodied reality, “finally get their wish of vanishing into a ball of light”, but only when their planet is vaporized by renegade Architects who deem them to be heretics (1999:698). Similarly, our present home (planet Earth) stands to be fatally maimed by the “terrible wounds” of technological “insanity” (Zindell 1996:76). This insanity is epitomised by the unsustainable ethics of contemporary capitalist modes of production. Unless human beings take responsibility and consider the material consequences of their actions, all that will be left is a dead

planet, its atmosphere blighted by “fluorocarbons, chloride plastics, plutonium”, its oceans devoid of life, filled with nothing but “garbage and oil-slicks” (1996:76).

Hollander writes:

That the very seas should be considered a wasting asset [a dumpyard] must surely be the nightmare of the despoilation of this planet that is perpetuated daily before our eyes, about our ears, inside our nostrils, and during our sleep. ... Our technological power to build and destroy has become almost limitless. The action of modern technics has exceeded the power of nature to heal itself. (Hollander in Cohen 1981:31)

The dark side of posthuman conceptions of disembodied transcendence find particular expression in the fanatical cyber-gnosticism^{xx} practiced by the Architects of the Universal Cybernetic Church, who worship an onanistic, life-hating deity known as “Ede the God”. Zindell equates the vision of the Architects and the Narain: “ultimately for any Architect, even the Narain, there is [only] the timeless and ineffable state of vastening, where one’s selfness is carked out into a computer’s information field as pure glittering program and memory and nothing more” (1996:406). The Architects, who conceive of the universe as a computer, “a giant Turing machine” (1996:559), are depicted in a far more chilling light than the Narain. Their belief-system echoes the conviction of many contemporary physicists and ‘technomavericks’ alike, a position that Zindell construes as potentially hazardous to life.^{xxi} Unlike the Narain, who merely dream of transcending their *own* flesh and becoming pure information, the Architects have institutionalised a hostile and aggressive revulsion towards the material universe: “they [the Architects] believed that the universe of rocks and comets and stars was fundamentally flawed and must therefore be totally remade” (1999:364). The Architects’ “Program of Totality” has, in fact, dictated that they must actively set about “destroying the stars” in order to bring about a rapturous state of unified transcendence (1999:364). To this end, the Architects have developed a deadly technology, a “star-killer” that “generates streams of graviphotons and fires them into a sun” (1996:690). The application of this apocalyptic technology, premised

on fear and hatred of the fallibility of the material world, has set off unforeseen chain-reactions in Zindell's universe and finds its echo in contemporary run-away technological manifestations. Equating the position held by technology in modern society with that religious fervor, sociologist William Stahl opines that the myth of technological progress has come to constitute the "One True Faith", a meshwork of increasingly global beliefs, values and goals centred on apocalyptic notions of technological progress (Stahl 1999:3). Stahl posits that visions of disembodied technological transcendence carry within them an unconscious seed of Chiliasm, "a Christian form of apocalyptic prophecy which emphasizes the immediacy of 'Judgement Day' and the utopian 'Kingdom of God'", where we will live forever in fleshless perfection (1999:44). Zindell's Architects are instructed to "prepare for a second creation" by "cathecting dead matter with consciousness", pulverising the material elements of the universe (such as organisms, planets, and stars) into dust (1996:363). This extrapolated future recalls biblical apocalyptic prophecies and the speculations of contemporary futurologists, such as Michio Kaku, alike.

Promising an eternal life in a kingdom of heaven, the religious texts of the Architects offer a Chilistic vision of perfection in the hereafter for the faithful, who have dutifully carried out their disincarnate god, Ede's, great work of cleansing and remaking the material universe:

When all the galaxies were full of nothing but these freed elements – and an uncountable number of human beings whose souls had been carked into eternal computers ... Ede ... the Universal Computer ... would feast upon these elements ... and remake the universe from the material elements of his body. He would make millions of new Earths, perfect worlds whose lovely green gardens and blue oceans knew neither suffering or evil ... making new bodies for all of the faithful. ... And then he would cark their consciousnesses from his computer's memory spaces back into living flesh, incarnating their purified souls into these golden, perfect, immortal forms. (1996:363-64)

In *God and the Chip* (1999), Stahl writes that our current technological practices constitute, like those of the Architects, an "implicit religion, wrapped in myth and

mystification ... [that] seeks perfection through machines ... [and] leads us into a progressive future in which all aspects of life will be under control" (1999:34). "In a time of rapid social change", he continues, "we have spawned a new discipline, futurology, and 'experts' on the future [that] institutionalize [technological] utopianism" (1999:35). The Chiliastic vision of various technological futurologists such as Yoneji Masuda, Feigenbaum, McCorduck, Eric Drexler, Nicholas Negroponte, and Frank Ogden are critically examined by Stahl as examples of forecasts that are as much "religious as [they are] scientific" (1999:35). He describes their thinking as follows:

These utopians are emblematic of persistent themes in technological discourse today: faith that technology is both the question and the answer, and belief that our machines and technologies can bring a perfect world within reach. These themes persist because they are built upon the myth of progress ... [and because] they are structured by a centuries-old tradition of chiliastic prophecy. (Stahl 1999:50-1)

All of these visions evince common themes, according to Stahl: "for all [the utopians] their visions constitute the culmination, and climax of human history. ... Only optimistic, idealistic, techno-mavericks [referred to as the "digirati"] will enter the 'Kingdom'" (1999:47-8). Furthermore, under the auspices of the biblical "Program of Totality", the Architects are encouraged to multiply and expand, regarding all the material elements of the universe as food. Theirs is a cybernetic and apocalyptic dream of "total control ... the simulation of human mind processes and the downloading of exact models of thought, memory, and even emotion from the flesh to machine carriers purified of the threat of death, forever and ever ... a fantastic preservation of the narcissistic ego without end" (1996:363). The following passage captures the Architects' dream of a utopia founded on destruction:

To fall through the galaxy and find lush, untouched planets [and] farm these worlds ... strip their biospheres clean [and] set their robots to pulverising them ... freeing all their elements to nourish even more human

life. World upon world they should dismantle in this way, and then ultimately, they should destroy the stars. (1996:363)

The unchecked progress of the Architects may sound a little far-fetched but, according to prominent futurologist and physicist Michio Kaku, in a world of unprecedented technological, industrial and scientific upheavals, our escalating energy needs may one day approach star-killing proportions. "Assuming a modest yearly increase in energy consumption", he writes, "one can extrapolate centuries into the future when certain energy supplies will be exhausted, forcing society to advance to the next level" (Kaku 1998:18). According to Kaku, given the present rate of energy consumption, humans will have used up all planetary resources (including the oceans, the biosphere, and the planetary core) within a few centuries and will need to harness stellar energy, perhaps even "igniting stars" for the purposes of energy deployment (1998:18). Within 10 000 years, he speculates, we will have "exhausted the energy output of a single star system ... [and will have to] obtain energy by 'harnessing' [in other words, igniting] collections of star-systems throughout the universe" (1998:18). "Stripping biospheres clean" and igniting stars, in order to fulfil an apocalyptic vision and fuel their god-ordained expansion (Zindell 1996:363), the Architects embody Kaku's future vision of an exponentially greedy humanity.

For Keith Ansell Pearson, humanity's indiscriminate fascination with technology may not lead to the kind of transcendence that many posthumanists envision.

"Through the inventions of technology the human species does not outwit the reality of extinction but may, on the contrary, encourage and facilitate it", writes Pearson (1997:222). He continues: "this is part of what Baudrillard called 'the irony of technology' ... the irony of unintended consequences of mechanical, chemical, biological, and medical ingenuity, the 'revenge effects' of a world we seek to control and regulate but which has a knack of twisting our cleverness against us" (Pearson 1997:222).

Like our own time, in which our drive to re-invent ourselves seems to overshadow our instinct to preserve the integrity of our fragile biosphere (see endnote iii, Chapter 1), Zindell's far future is "a fateful time ... when people are prepared to burn worlds if only they might create themselves anew" (Zindell 1999:84). Attempting to transcend the limitations of their mortal flesh, the humans of *Requiem* have "become strangers to their bodies ... who feared the organic [and] dwelt too long in dreams, or in their computers' tantalizing surrealities" (1994:469). "Civilized people need a new religion", avers Zindell: "they are so unhappy, so dead inside, so lost" (1994:477). The futuristic religion that Zindell envisions as an alternative to the world-burning doctrines of the Architects is a mixture between science and mysticism, a paganised set of cybernetic guidelines that encourage "human beings to come alive to their possibilities" (1994:469). Drawing on the digital ecstasies of the Narain, the Architects, the lightship pilots, and the cyberdelic visions of the kalla ritual, the rampant technological positivism inherent in Zindell's religion of *Ringism* echoes William Stahl's conception of technology as the "one true faith". Espousing the technological evolutionism of cyberdelics such as Timothy Leary, Ringism is a form of hi-tech mysticism that promises eternal cybernetic rapture. Like the unbridled and almost spiritual faith in progress that underscores contemporary science and technology, Ringism threatens either to push humanity into "a true awakening, or into something else, perhaps some horrible mechanism for destruction" (Zindell 1994:469).

Triggered by the apotheosis of Mallory who, "with nano-computers replacing parts of his brain, becomes something more than human in form and possibly in function" (Zindell in Gevers 2001:1) the transcendent religion of Ringism echoes Leary's cyberdelic notion that the human organism is "a robot designed to discover the circuitry which programs its behaviour" (in Davis 1998:160). Leary's call for individual transformation finds particular expression in Mallory's contradictory quest

to remake himself through technology and simultaneously become more fully embodied. He expresses his aspirations as follows: "we are prisoners of our natural brains. ... But what if I [Mallory] could write new metaprograms controlling this arrangement of programs? I could create myself and call into being wonderful new programs that had never before existed. ... I would be something new" (1989:477). Nano-technology enables Mallory to reprogram himself, evolve new senses, and achieve a type of godhood, becoming, in effect, like one of Clynnes and Kline's cyborgs, carrying a re-engineered brain instead of an inbuilt osmotic pump. Able to "enter the manifold at will ... without the aid of [a] ship computer" (Zindell 1994:518), Mallory evolves into a space-faring, self-contained cyborg with new-fangled evolutionary potential (1994:630). Mallory's high-tech apotheosis is, however, not the only vision of transcendence imagined by Zindell. At the end of *Requiem*, Danlo is able to achieve a similar apotheosis without the aid of inbuilt nano-machineries. Instead, by using technology as a symbolic interface, Danlo achieves transcendence by following the path of the spiritual cyborg. Merging the disembodied cybernetic ecstasies of the Narain and the Architects with the shamanic ecstasies of his beloved psychedelics, Danlo is able to craft a new direction for Ringism that weds the artificial and the natural as well as blending the modern and the primitive in a more balanced fashion.

Contrary to "the technoromantic speculation about digital ecstasies through 'total immersion environments' and the collective rapture of humankind through computer networks", (Coyne 1999:53) cyborg vision turns away from the posthuman desire for unity in a disembodied artificial reality. Instead, the cyborg reaches for multiplicity, taking up "certain provocative narratives [that] present the cyberspace phenomena as dealing in the ineffable & contradictory" (Coyne 1999:52). For the cyborg, the ideal is not located in an immaterial and virtual realm of permanence. Instead, the cyborg, like the shaman, situates the ideal within a fusion of seeming opposites (such as ideal and real, immaterial and

material, spirit and matter). Like the shaman, the spiritual cyborg is a mythical creature of syntheses and contagions, for whom the machine is an interactive mirror. Looking into this mirror is no simple feat. It may, as Davis suggests, entail embracing chaos, facing Nietzsche's "black void" (Davis 1998:131), and freeing ourselves from the self-image of an enslaved automaton that we see reflected there. Nietzsche's own solution to overcoming the "black void" that he saw at the heart of industrialised humanity, was a call to throw off our human weaknesses, transcend Christian moralism and become amoral and godlike supermen (in Davis 1998:131).

Do what thou wilt shall be the whole of the law. (Crowley in Zindell 1999:185)

In a commentary on the meaning of his infamous statement, "do what thou wilt", Alistair Crowley wrote in a typically hubristic (and, perhaps, ironic fashion) that it signified the Nietzschean prerogative of humankind to "discard the lesser rules of society and take up a new law, a law for the gods" (Crowley 1985:2). Crowley's notion that humankind must learn to "recognize itself [as godly] and gain experience ... by virtue of memory ... and intoxication" (1985:3) also seems to inform the attempts throughout *Requiem* to attain godhood by "remembrancing" the Eddas through blissful cybernetic samhadis and ecstatic kalla rituals. "Each person is the sublime starry nature, a consciousness to be attained", writes Crowley, extolling the mystical transcendent virtues of intoxicants and their polar opposites, stringent esoteric disciplines (1985:73). The universe, he states, "contains an infinite number of gods, individual and equal though diverse" (1985:73-4). Zindell concurs with aspects of "Crowley's Nietzschean brand of modern occult magic" (Davis 1998:139) and its re-conception idea of the super[hu]man, averring, "the universe is a womb for the genesis of gods" (1994:665). Frequent references to Crowley's statements (such as the oft-

repeated “every man and woman is a star” from Crowley’s notorious *Book of the Law* [1985]) appear throughout *Requiem*, pointing toward an ironic Crowley-esque mixture of vice and virtue, wisdom and folly, hubris and humility that taint all human (and posthuman) endeavours. Realising this all-too-human aspect of our godlike technological aspirations is an integral part of the cyborg’s imperative to use the machine as an interactive mirror with which to see and transcend his or her sense of self. “Crowley’s imaginative pragmatism” and sense of irony is well suited to contemporary attempts to “maneuver between technoscientific categories and imaginative premodern practices”, writes Erik Davis (1998:183). “More importantly, Crowley’s particular brand of sorcery [which Crowley called “magick”] has led neo-pagans to re-imagine technology as both a metaphor and tool for ritual” (1998:183).

Throughout *Requiem* countless human experiments in “grafting of computer neurologics onto the human brain”, (1996:99) have produced something other than human: cyborg deities of incalculable sizes and immeasurable powers. Described as “a vast and glorious web of pure intelligence”, one of Zindell’s cyborg deities, the Solid State Entity, begins life as a mortal woman and finally becomes an immense and interconnected interstellar being that “nearly filled a nebula one hundred light-years in diameter” (1996:67). “A huge computer made up of component units the size of moons ... that pulsed with information and thoughts impossible for a mere human to think”, (1996:67) the Entity, like all the other gods in Zindell’s universe, nevertheless remains an embodied being who lives to “to perceive, to suffer all of the senses ...to feel, to move, to become what I am” (1996:218).

“None [of the gods], though many have tried, have ever completely abandoned the body or escaped the pull of matter”, writes Zindell (1994:813). Instead, in the manner of Haraway’s cyborgs that breach “the boundary between the physical and

non-physical", (Haraway 1991:153) Zindell's cyborg gods dwell in "electromagnetic waves, a section of the spectrum" (1991:153) as much as they are physically incarnate in the material universe. Inhabiting "great clumps of matter" strewn throughout a nebula, the Entity, for example, is also described as dwelling within streams of invisible and sub-atomic "tachyons, those ghostly, theoretical particles whose slowest velocity approaches the speed of light" (1996:67). Similarly, "Ede", another nebula-sized god, is able to exist within "nothing more than invisible radio waves" (Zindell 1996:268).

The gods and goddesses of *Requiem* are primarily concerned with an evolutionary prerogative to "create new types of matter ... decomposing matter and rebuilding it from the most fundamental units" (1996:69). All gods, even the mythical Ieldra, are described as being animated by an "urge to know the unknowable ... a terrible restlessness" (1996:61). This drive to become "something other, something more" (1996:18) has been imprinted into the human genome (*Requiem* locates this imperative within the *Eddas*), instilling in humans a cosmic imperative to move beyond themselves and reach for the ineffable through an embodied morphogenesis (1996:97).

The drive to transcend boundaries is depicted in *Requiem* as forming part of the "information ecology" of the galaxy (1989:664). This drive, described as being inherent in all biological life, ultimately moves toward an unified "interflow of energy ... a collective consciousness" in which all life, "human beings, aliens, animals, bacteria, [and] viruses" partake (1989:664). Despite this movement toward ultimate interconnectivity, the universe is nevertheless filled with endless danger, paradox and chaos (1996:262). Humanity's continued survival in the universe may therefore require a shamanic knack for finding a "hidden order inside [chaos] ... [and] seeing where pattern is born of formlessness, that pattern that connects" (1996: 73). Only when we have "become chaos" (73), avers Zindell,

will we be able to face the “terrible and paradoxical nature of reality”, decode the universal memories that lie embedded within the fabric of the universe, and uncover the technological secrets written into the cells and atoms of our bodies (1996:78).

By using the twisted language of the shaman, Zindell’s humans learn to unravel the patterns that lie buried within their genomes, and discover how to “think like DNA” (1989:522). Becoming aware of “vast microscopic motions and rhythms” (1989:654), they uncover the invisible “secrets of matter” (1996:656). Armed with the technological finesse of the lightship pilot and the cyber-shaman, they learn to navigate strange cybernetic spaces, develop new machinic senses and evolve complex abstract information ecologies. Our only prerogative, writes Zindell, is to “go beyond ourselves” into a universe that is nothing but an endless becoming, “infinite and eternal ... without beginning or end” (1999:776-77). Zindell implies that humans, in grasping their place in an evolving universe, will need to nurture a new understanding and a new aesthetic paradigm made manifest through contemporary technology. Guattari writes speculatively of what this new paradigm might be like: “imagine a machine whose particles are constructed from galaxies ... or conversely, a cognitivity constituted on the scale of quarks. A different panorama, another ontological consistency [is required as] ... there is [as of yet] no general syntax for these deterritorialisations” (Guattari 1995:52). Zindell concurs:

If my prose tends toward the poetic, it’s because I’m continually trying to make extensions from this world to the realm that lies beneath and beyond it ... to convey a sense of the interconnectedness, and even identity, of all things. The language of poetry, with its metaphors and similes, is precisely that which connects: ideas to objects, images to emotions, and in some small way, outer events to great blazing inner realizations. (Zindell in Gevers 2002:4)

In developing a syntax to describe a projected future in which humans move towards a new sense of interconnectedness, Zindell mixes poetry and logic,

archaic revivalism and visions of posthuman technological potential. Keeping one foot in the scientific and the other in a primitive world-view, Zindell's sf can be said to return to *magic*, simply defined by Erik Davis as "the science of the imagination" (1995:1). Sharing a potent mythopoetical commonality with Holdstock's *Mythago* novels, *Requiem* merges the two opposed worlds of science and myth whilst offering commentary on the paradoxes inherent in the posthuman condition. In ruminating on the high-tech desire to engineer consciousness, Zindell turns to archaic shamanism to assist him in uncovering the forces that bridge the false divide between the body-mind and the physical universe. Simultaneously, he connects the body with the energies of starlight and situates it within a living cosmos:

Life everywhere was moving off planets made of water and rocks out toward the stars. (Zindell 1999:140)

According to quantum physics, the universe and everything in it is "one unbroken, enormous something that has extended its uncountable arms and appendages into all the apparent objects, atoms, restless oceans, and twinkling stars in the cosmos", writes Michael Talbot (1996:48). Such a universal ecology is a living organism, "a dynamic and ever active movement", simultaneously a multiplicity and a unity (1996:49). This idea of a living weave or network that extends into and animates all things forms the crux of archaic techniques of ecstasy. At the heart of shamanism, avers anthropologist Michael Harner, is the tenet that "everything that is, is alive" (Harner 1980: xv). Zindell affirms this conviction by declaring, "all things are, in some sense, alive, or a part of a living system ... matter is mind" (1994:465). "The real world of mind and matter, body and consciousness", he continues, "cannot be understood by reducing it to pieces and parts" (1994:465). His merger between shamanism and science sees embodied reality as essentially conscious, enlivened, and strangely technological. He explains his own concept of technology thusly: "technology [is] just consciousness reflected upon itself,

gaining ever more control of itself and creating new forms" (1999:782). The destiny of all life (and its myriad biological and mechanical technological processes), speculates Zindell, is simply to "grow ever vaster and more complex" (1999:788). Like *Gaia*, a living system that "terminally blurs the boundaries among the geological, the organic, and the technical" (Haraway in Gray 1995:xii), Zindell's imagined universe is a boundary-blurring process, a dynamic system, a network pulsing with a sensory, ecstatic and all-embracing life-force: "life, like an infinite flower, opened everywhere out into the universe, and into all possible universes, touching all matter, all space, all time" (Zindell 1999:788). In its constant generation of new forms, Zindell's universe (like Lovelock and Margulis's *Gaia*) taps into the machinic phylum, which Deleuze and Guattari describe as "matter in [eternal] movement, in flux, in variation ... in flow" (1988:409).

Like the galactic empire situations conjured by Dan Simmon's *Hyperion* quintet (1989-1997), Zindell's *Requiem* conjures a universe "full of planets, worlds, spaceships on the scale of worlds, empires ... all filled with societies and secret societies or sects, customs or perversions, classes or species, histories or games or histories as games, and conspiracies and apocalypses" (1999:75). This seems a far cry from the multiple pre-historical time zones conjured by Holdstock in the *Mythago* cycle. Nevertheless, both Holdstock's and Zindell's fiction have affinities with the idea of hyperspace in quantum physics. "The theory of hyperspace states that dimensions exist beyond the commonly accepted four of space and time", explains Michio Kaku (1994:vii). Traversing science-fictional domains where physicists and cosmologists analyzing Einstein's equations demonstrate that the fabric of space-time may be torn under special conditions, Kaku refers to "wormholes ... tunnels that link distant parts of space and time" (1994:x). Such wormholes in space and time seem to correspond Holdstock's "hollowings" or "gateways between worlds" as well as to the cybernetic spaces of Zindell's manifold. In both *Requiem* and *Mythago*, the mutations consequent upon human

exposure to tears in the fabric of space and time are extrapolated on. Explaining the relevance of hyperspace to the contemporary scientific imagination, Kaku remarks that the notion of dimensions existing beyond the ordinary dimensions of space and time provides a new perspective whereby we might examine the mechanics of our own world (1994:ix):

Many physicists are now convinced that a conventional four-dimensional theory is too small to describe adequately the forces that describe our universe. In a four-dimensional theory, physicists have to squeeze together the forces of nature in a clumsy fashion. ... When expressed in dimensions beyond the four, however, we have 'enough room' to explain the fundamental forces in an elegant, self-contained fashion. (Kaku 1994: ix)

Scientists, however, are not the only ones who are mapping new perspectives. The inner space explored by shamans is analogous to hyperspace and modern-day "psychedelic shamans, many of whom are scientifically sophisticated [and well-versed in quantum physics], now constitute a worldwide and growing subculture of hyperdimensional explorers", writes Terence McKenna (1991:9). For these brave shamanic and scientific travellers, a new discourse is "coming into focus, a region still glimpsed only dimly, but emerging, claiming the attention of rational discourse – and possibly threatening to confound it" (1991:9).

The hyperspatial and multiplex universe described by shamanic travellers and quantum physicists alike is perplexing to a mind that is set on rationality and logic. The universe is a "multiplicity" existing within a "unity, a harmony of motions", writes physicist David Bohm (in Talbot 1996:49). Such a non-rational, non-local universe is ever-evolving and mutating, preserving all its shapes and incarnations in a ceaseless "holomovement" of eternal "universal memory" (Talbot 1996:49). Within these infinite possibilities, the twisted vision of the shaman may once again be necessary in comprehending "the way that matter had moved itself from the beginning of time, moved and evolved and reached out into ever more complex and conscious forms" (Zindell 1999:787).

Like *Gaia*, who acts as the “launching pad” for Haraway’s cyborgs (Haraway in Gray 1995:xii), Zindell’s living universe gives birth to an extraterrestrial race capable of birthing other universes. This confluence of the organic and the mechanical is both embodied and disembodied, both biological and posthuman. Like Clynes and Kline’s cyborgs (see endnote x), the new hybrid organisms that are beginning to evolve at the close of Zindell’s *War in Heaven* (1999) are able to adapt to manifold extraterrestrial and interstellar conditions. No longer either human, organic, or artificial, Zindell’s new cyborg life forms, the “ring creatures”, are a novel synthesis between human and non-human life: “beings that can evolve into manifold shapes ... living upon starlight [and] creating... new technologies ... distortions in spacetime ... concentrations of matter-energy that could evolve into new universes” (Zindell 1999:787).

In the following chapter I will survey Kathleen Ann Goonan’s speculations about the confluence of rampant DNA-based technologies and humans. Like Zindell, Goonan relies on a renewed shamanism to guide her cyborg protagonists through chaos and catastrophe towards a new technological awareness. Goonan’s sf, as I will demonstrate, is animated by a desire to find what biologist Edward Wilson has defined as a “consilience beyond science”, a “vision of unity” that spans divergent elements and areas of knowledge (Wilson 1998:7). Her fiction, like that of Zindell and Holdstock, merges both the old and the new, both sorcery and science, as it imagines new trajectories for humanity and new articulations of the human/machine nexus.

ENDNOTES

ⁱ Posthumanism is defined as “a radical technophilia ... an articulated cultural response to a number of underlying economic, technological and social dynamics that are together transforming the world” (Bendle 2002:45). Notions of the posthuman “facilitate the re-conception of human beings as essentially information that is only contingently embodied and therefore capable of being uploaded into super-intelligent communications and information systems. ...

The total reduction of human beings to information ... the overthrow of matter ... a Promethean leap in evolution from the human to the posthuman" (2002:47). "Posthumanism", writes Tiziana Terranova, "is the belief in artificially enhanced human evolution ... a rhetoric of simulation, media-orientated epochal shifts, and enhanced evolutionism by artificial means, available in the writings of people like Jean Baudrillard, Marshall McLuhan and Timothy Leary" (Terranova in Bell 2000:268).

ⁱⁱ The *Requiem for Homosapiens* trilogy consists of *The Broken God* (1994), *The Wild* (1995) and *War In Heaven* (1999). For the purposes of this discussion I have grouped the *Requiem* trilogy with its prequel, *Neverness* (1989), and collectively refer to all four books as *Requiem*.

ⁱⁱⁱ Pearson cites the writings of Deleuze and Guattari as providing numerous examples of "the originary machinic character of evolution" (1997:225). "Machinic", he writes, "refers to modes of evolution such as symbiosis and contagion, involving the communication of systems of energy" (1997:225). This conception of evolution forms the nexus of my proposed synthesis between notions of the *petra-genetrix* (generative earth/organic evolution) and the *techno-genetrix* (generative technology/mechanical evolution). This synthesis is already present in Deleuze and Guattari's formulation of the *bio-mechanosphere* (or simply, the *mechanosphere*), which is set out in chapter 1. The symbiotic and viral nature of machinic becoming and machinic evolution by means of the affective body (or the BwO) is further explored in chapter 2.

^{iv} By ecstatic virtual interface, I mean an interface between human and machine that is influenced by shamanic techniques of ecstasy. Such an interface is virtual in as much as virtual can be taken to imply both artificially simulated realities and imaginary dreamscapes (as well as mythical topographies, such as the different worlds or underworlds conjured by Holdstock in the *Mythago* cycle). These interfaces are ecstatic because they are triggered by, or depend on activation via different shamanic (and cyber-shamanic) techniques of ecstasy. By 'alternative', I mean conceptions of technology that are ambiguous and do not fully subscribe to extreme posthumanist myths of disembodiment and becoming information. For a full discussion of the concept of the *vegetable matrix* as well as the shaman-as-cyborg, see chapter 1.

^v Zindell's Alaloi seem to bear a superficial relationship to Victorian writer H.G. Well's Eloi, a gentle and "thoughtless" futuristic incarnation of humanity who are preyed upon by the bestial and equally ignorant Morlocks, another future incarnation of humanity that seem to depict the more avaricious side of the industrial revolution that was sweeping across Well's Victorian England (Clute 2000:1225). Zindell's Alaloi are, however, far more robust and practical than the tender Eloi and their affiliation to the real-life Aleut, hardy Eskimo tribesmen (many of whom still "keep alive their ancient traditions" [Wilson 2003:3]) that inhabit modern-day Alaska is far more probable, particularly as Well's Eloi seem to signify the "dainty Victorian upper class" (Clute 2000:1225).

^{vi} As an antithesis to the Faustian prospects of science, French philosopher Rousseau "extolled the 'sleep of reason'. ... Humanity, [he] claimed, was originally a race of noble savages in a peaceful state of nature, who were later corrupted by civilization and by scholarship" (Wilson 1998:36-7). Zindell explores the romantic conceit of the noble savage through the ironic lens of the genetically-remade Alaloi, a future race of primitive humans whose "ancestors had hated the rot and vice of civilization, any civilization. ... They had fled Old Earth [and] because they wanted to live what thought of as a natural life, they had back-mutated some of their chromosomes ... and carked their germ cells with ancient chromosomes", literally genetically transforming themselves into Neanderthals (1989:151). These bio-tech cyborgs, Zindell tells us, were the first humans to arrive on the planet Icefall. Millennia later, when the Order arrived on Icefall, they restricted their activities by means of a pact made with descendants of the original Alaloi, to a small island-continent. Despite the sophistication of the Order and its Academy, the sophisticates of *Neverness* retain a romantic fascination with the primitive Alaloi, akin to "Rousseau's fascination with the 'noble savages' who haunted the public imagination of his day" (Wilson 1998:36-7). At some point, a fad even propels some of the inhabitants of *Neverness* to

have themselves cosmetically enhanced in order to resemble the robust Alaloi (Zindell 1989:162). Some, like Mallory, even go so far as to “imprint” Alaloi language and customs upon their own consciousness and attempt to live amongst them. A significant portion of the *Requiem* series plays off in and around the Alaloi’s primitive cave-dwellings, as Zindell attempts to reconcile their primitive, simple, yet balanced world-view with the technologically complex galactic civilization that the Order embodies. Mallory’s son, Danlo, for example, is raised by the Alaloi in total isolation from any taint of civilization and is only taken up by the Order after a genetic plague eliminates his adopted Alaloi family. At this point, Danlo has to be completely “imprinted” with the customs, language, and world-view of a scientifically-advanced culture.

vii The term “twisted” refers to the shamanic metaphor of twisted language, which is discussed in Chapters 1 and 2, and which will also be discussed later in this chapter. Kathleen Ann Goonan explores a similarly “twisted” version of Wilson’s concept of consilience in her nano-tech *Queen City Jazz* trilogy (see Chapter 4). Like Zindell, Goonan’s notion of consilience also unifies logic and intuition, sciences and myth-systems.

viii The term “cyberdelic” describes “the cybernetic-psychedelic counterculture of the 1990s” (Ruthofer 1997:1). Combining elements of “cyber-culture” and “psychedelic counterculture”, the term cyberdelic is often used to describe the writings of the “godfather of cyberpunk, Timothy Leary” (1997:1) whose writings have influenced aspects of Zindell’s fiction (Gevers: 2001:1). The term, however, readily fits the vision of other counter-cultural figures of the 1990s, such as ethnobotanist and shamanic revivalist Terence McKenna, who was “one of the early proponents of virtual reality” (Ruthofer 1997:1). His concept of a visible, psychedelic VR language (see McKenna 1991:228-36) seems to directly inform the complex information technologies envisioned throughout *Requiem*.

ix “Causality boils down to the pragmatic rationalism of science: the detached individual ego divides and fragments the welter of the world according to objective and explanatory schemes based on neutrality and instrumental action. In contrast the world of participation plunges the individual into a collective sea that erodes the barrier between human agency and the surrounding environment” (Davis 1998:174). According to Olson, cyberspace, as a “consensual hallucination”, is premised on participation and a certain type of communication that relies on ritualised behaviour and an archaic mode of thinking. Olsen, furthermore, draws analogies between Gibson’s conception of cyberspace and primitive concepts of evolution as ritual. “Evolution,” writes Olsen, “as the uncontainability of change, is located by ‘primitive’ people in the destabilisation (and consequent reestablishment) of relations between the concrete and the imagined, namely, evolution mapped as participatory ritual: the evolutionary modification, usually intensification, of a behaviour pattern designed to assist communication. The consensual hallucination that is cyberspace, according to Gibson, is a collective visualisation achieved through a [primitive] ritual nexus in order to concretise the immaterial” (Olsen 1991:283).

x “The *cyborg* deliberately incorporates exogenous components extending the self-regulatory control function of the organism”, write the research space scientists who first coined the term *cyborg* on the threshold of the psychedelic sixties. For Manfred E. Clynes and Nathan S. Kline these “exogenous components” constituted various “psychic energizers” administered via inbuilt osmotic pumps that would enable space-faring cyborgs to control the functioning of their central nervous systems and, like shamanic initiates, cope with extremes, augment their perceptions, and even heighten their spiritual awareness (1995:31-33). These ‘osmotic pumps’ would trigger the release of hormones, endorphins, serotonin and other chemicals (1995:31-33). In Zindell’s sf, these chemicals are not released by inbuilt pumps, but by direct neurological stimulation via computer-generated fields (1996:437).

xi Also worth noting are the myriad cyberdelic notions that not only DNA, but also hallucinogens themselves, are of extraterrestrial origin (see endnote xiv, chapter 1). The extraterrestrial whims and science-fictional speculations of technological sophisticates bear a remarkable

resemblance to the “myths of archaic peoples”, avers Narby, citing numerous correspondences (see Narby 1998:60-102).

^{xii} “Wildness is that urge, trait, sense and part of the will which recognizes one’s deep self in all the elements of creation and feels the fiery signatures of the universe written deep inside oneself” (Zindell 1994:452).

^{xiii} Zindell refers to Danlo’s ability as *Multiplexity*: “Multiplex vision is paradoxical vision, new logics, the sudden completion of startling patterns. The mastery of multiplexity makes it possible to see the world in many dimensions; it is like peering into a jewel of a thousand different faces” (1994:143)

^{xiv} “This is how shamans learn to couple brain hormones with monoamine oxidase inhibitors, or how they discover forty different sources of muscle paralyzers whereas science has only been able to imitate their molecules”, avers Narby, citing the immensely complex medicinal brews made by Amazonian shamans under the guidance of hallucinogenic visions (1993: 68). Elsewhere he writes: “so here are people without electron microscopes who choose among some 80,000 Amazonian plant species, the leaves of a bush containing a hallucinogenic brain hormone, which they combine with a vine containing substances that inactivate an enzyme of the digestive tract, which would otherwise block the hallucinogenic effect. And they do this to modify their consciousness. It is as if they knew about the molecular properties of plants and the art of combining them, and if one asks them how they know these things, they say their knowledge comes directly from hallucinogenic plants” (1998:11). In recent years, reports Narby, the amazing botanical knowledge of Amazonian shamans has led to a swathe of pharmaceutical companies sending biologists off to the Amazon in the hopes of gleaning free knowledge without making due compensation. Examples of complex ‘recipes’ that have been incorporated into Western pharmacology without due compensation to their ‘primitive sources’ are *Curare* (pain-killers), preparations from *Pilocarpus Jaburandi* (a remedy for Glaucoma), *Couroupita Guinensis* (a remedy for fungal infections and stomach ache), as well as countless others (1998: 41). “Biotechnology opened up new possibilities for the exploitation of natural resources”, writes Narby, “but without the botanical knowledge of indigenous people, however, biotechnicians would be reduced to testing blindly the medicinal properties of the world’s estimated 250,000 plant-species” (1998:39).

^{xv} “Triya seeds” are a constant feature in the urban ecology of Neverness, and are regularly smoked at its numerous and decadent social gatherings. Zindell describes them as “one of the more visual psychedelics” (1996:414).

^{xvi} A French term meaning “end of the century”, the term *fin-de-siècle* was used during the twentieth century to refer to the art of the 1890s, especially the art practised by the so-called ‘decadents’ who made ample usage of drugs such as hashish and opium (Delahunt 1996:1) When used in art-criticism, *fin de siècle* often connotes the idea of a style or movement on the decline, about to give way to completely new forms of expression (1996:1).

^{xvii} “I link virtual reality to psychedelic drugs because I think that if you look at the evolution of the organism and self-expression and language, language is seen to be some kind of process that actually tends toward the visible”, notes McKenna (in Rushkoff 1994:57). “My experiences with shamanic hallucinogens ... had shown me the reality of vocal performances that are experienced as visual”, writes McKenna in *The Archaic Revival* (1991:234). He continues: “the magical songs [of the shamans] are intended to be seen. ... To those intoxicated and adrift upon the visionary reveries unleashed [by hallucinogens], the singing voice of the shaman has become a magical airbrush of colour and organized imagery that is breathtaking in its alien and cosmic grandeur. My hope is that virtual reality at its best may be the perfect mind space in which to experimentally explore and entrain the forms of visual linguistic processing that accompanies any [hallucinogenic] intoxication. In other words, the VR technology can be used to create a toolkit for the construction of objects made of visual language. These objects would

be experienced in the VR mode as three-dimensional things; manifolds devoid of ordinary verbal ambiguity. This phase shift is a move toward a kind of telepathy” (McKenna 1991:234-35).

^{xviii} Zindell's conception of the manifold is based on quantum geometry. In quantum physics, the mathematical concept of the manifold describes a topological space that merges concepts such as “convergence, connectedness and continuity [into] a flexible and coherent description of the physical space-time continuum” (Durdevich 1998:1). Navigating such a complex space requires the twisted mind of a shaman entering the convoluted hallucinatory reality of the dreamtime. “When a pilot faces the manifold and his mind becomes as one with the ship's computer ... Then the pit [of the lightship] is like a crystal cave lined with sapphires and firestones and other precious jewels”, writes Zindell (1996:50). “The pilot's mind fills with the crystal-like symbols of probabilistic topology ... sparkling mental symbols that the pilots call ideoplasts. Only then will a pilot perceive the torsion spaces and Flow-tow bubbles and infinite trees that undermine the manifold. ... Only when a pilot opens his mind to the manifold will the manifold open before him so that he may see this strange reality just as it is and make his mappings from star to star” (1996:50).

^{xix} Zindell catalogues the imagined senses of a cyber-shaman: “in Danlo, the inner cybernetic senses were deep and keen. There was his sense of Shih, a sort of master sense allowing him to perceive the relationship between information and knowledge, between knowledge and wisdom. With shih he might drink in the information crystals and know by the tastes of sweetness or bitterness which paths to take through the data spaces. ... There were his senses of iconicity and syntaxis, and gestalt, where information would just ‘pop’ into his mind with all the suddenness of a soap bubble swelling into its colours. And, of course, the senses of fractality and fugue, and above all fenestration. ... In all cybernetic spaces there would be windows to pass through, clear arrays of information opening onto ever new arrays, window after window, layer upon crystalline layer” (1996:395).

^{xx} “Cyber-gnosticism – the belief that matter was evil and that mind or soul could be redeemed from flesh and saved for ever in some cybernetic paradise” (Zindell: 1994:589).

^{xxi} “In 1937, Alan Turing, Alonso Church, and Emil Post worked out the logical underpinnings of useful computers. They called the most basic loop – which has become the foundation of all working computers – a finite state machine. Based on their analysis of the finite state machine, Turing and Church proved a theorem now bearing their names. Their conjecture states that any computation executed by one finite-state machine, writing on an infinite tape (known later as a Turing machine), can be done by any other finite-state machine on an infinite tape, no matter what its configuration. In other words, all computation is equivalent. They called this universal computation. When John von Neumann and others jump-started the first electromagnetic computers in the 1950's, they immediately began extending the laws of computation. ... Evolution and learning they declared, were types of computation. Nature computed [and] if nature computed, why not the entire universe? ... Oxford theoretical physicist David Deutsch reasons: ‘The universe is not a program running somewhere else. It *is* a universal computer” (Kelly 2002: 183-184). If the universe is a computer, continues Deutsch, then it can conceivably be re-programmed (184). Zindell's Architects, who believe that humans are able to reprogram the physical universe into a state of ‘perfection’, carry this notion forward to its ‘logical’ and apocalyptic conclusion.