TECHGNOSIS ERIK DAVIS

UPDATED EDITION WITH NEW AFTERWORD

TechGnosis

ERIK DAVIS

MYTH, MAGIC AND MYSTICISM IN THE AGE OF INFORMATION

TechGnosis IS STIMULATING and original, learned AND READABLE. ERIK DAVIS OFFERS a WIDE-RANGING AND CONSISTENTLY THOUGHT-PROVOKING GUIDE TO THE HIDDEN CIRCUITRY OF THE TECHNOLOGICAL UNCONSCIOUS. INVALUABLE' GEOFF DYER

INTRODUCTION
crossed wires

This book is written in the shadow of the millennium, that arbitrary but incontestable line that the Western imagination has drawn in the sands of time. It is also written in the conviction that one hardly needs to be decked out in a biblical sandwich board or wired to the gills with the latest cyborg gear to feel the glittering void of possibility and threat growing at the heart of our profoundly technologized society. Even as many of us spend our days, in that now universal Californiaism, surfing the datastream, we can hardly ignore the deeper, more powerful and more ominous undertows that tug beneath the froth of our lives and labors.

You know the scene. Social structures the world over are melting down and mutating, making way for a global McVillage, a Gaian brain, and a whole heap of chaos. The emperor of technoscience has achieved dominion, though his clothes are growing more threadbare by the moment, the once noble costume of Progress barely concealing far more wayward ambitions. Across the globe, ferocious postperestroika capitalism yanks the rug out from under the nation-state, while the planet spits up signs and symptoms of terminal distress. Boundaries dissolve, and we drift into the no-man's zones between synthetic and organic life, between actual and virtual environments, between local communities and global flows of goods, information, labor, and capital. With pills modifying personality, machines modifying bodies, and synthetic pleasures and

networked minds engineering a more fluid and invented sense of self, the boundaries of our identities are mutating as well. The horizon melts into a limitless question mark, and like the cartographers of old, we glimpse yawning monstrosities and mind-forged utopias beyond the edges of our paltry and provisional maps.

Regardless of how secular this ultramodern condition appears, the velocity and mutability of the times invokes a certain supernatural quality that must be seen, at least in part, through the lenses of religious thought and the fantastic storehouse of the archetypal imagination. Inside the United States, within whose high-tech bosom I quite self-consciously write, the spirit has definitely made a comeback—if it could be said to have ever left this giddy, gold rush land, where most people believe in the Lord and his coming kingdom, and more than youd guess believe in UFOs. Today God has become one of *Times* favorite cover boys, and a Black Muslim numerologist can lead the most imaginative march on the nations capital since the Yippies tried to levitate the Pentagon. Self-help maestros and corporate consultants promulgate New Age therapies, as strains of Buddhism both scientific and technicolor seep through the intelligentsia, and half the guests on *Oprah* pop up wearing angel pins. The surge of interest in alternative medicine injects non-Western and ad hoc spiritual practices into the mainstream, while deep ecologists turn up the boil on the nature mysticism long simmering in the American soul. This rich confusion is even more evident in our brash popular culture, where science-fiction films, digital environments, and urban tribes are reconfiguring old archetypes and imaginings within a vivid comic-book frame. From *The X-Files* to occult computer games, from *Xena: Warrior Princess* to *Magic: The Gathering* playing cards, the pagan and the paranormal have colonized the twilight zones of pop media.

These signs are not just evidence of a media culture exploiting the crude power of the irrational. They reflect the fact that people inhabiting all frequencies of the socioeconomic spectrum are intentionally reaching for some of the oldest navigational tools known to humankind: sacred ritual and metaphysical

speculation, spiritual regimen and natural spell. For some superficial spiritual consumers, this means prepackaged answers to the thorny questions of life; but for many others, the quest for meaning and connection has led individuals and communities to construct meaningful frameworks for their lives, worldviews that actually deepen their willingness and ability to face the strangeness of our days.

So here we are: a hypertechnological and cynically postmodern culture seemingly drawn like a passel of moths toward the guttering flames of the premodern mind. And it is with this apparent paradox in mind that I have written *TechGnosis*: a secret history of the mystical impulses that continue to spark and sustain the Western world's obsession with technology, and especially with its technologies of communication.

My topic may seem rather obscure at first, for common sense tells us that mysticism has no more in common with technology than the twilight cry of wild swans has with the clatter of Rock'em Sock'em Robots. Historians and sociologists inform us that the West's mystical heritage of occult dreamings, spiritual transformations, and apocalyptic visions crashed on the scientific shores of the modern age. According to this narrative, technology has helped disenchant the world, forcing the ancestral symbolic networks of old to give way to the crisp, secular game plans of economic development, skeptical inquiry, and material progress. But the old phantasms and metaphysical longings did not exactly disappear. In many cases, they disguised themselves and went underground, worming their way into the cultural, psychological, and mythological motivations that form the foundations of the modern world. As we will see throughout this book, mystical impulses sometimes bodysnatched the very technologies that supposedly helped yank them from the stage in the first place. And it is these technomystical impulses—sometimes sublimated, sometimes acknowledged, sometimes masked in the pop detritus of science fiction or video games—that *TechGnosis* seeks to reveal.

For well over a century, the dominant images of technology have been industrial: the extraction and exploitation of natural

resources, the mechanization of work through the assembly line, and the bureaucratic command-and-control systems that large and impersonal institutions favor. Lewis Mumford called this industrial image of technology the "myth of the machine," a myth that insists on the authority of technical and scientific elites, and in the intrinsic value of efficiency, control, unrestrained technological development, and economic expansion. As many historians and sociologists have recognized, this secular image was framed all along by Christian myths: the biblical call to conquer nature, the Protestant work ethic, and, in particular, the millennialist vision of a New Jerusalem, the earthly paradise that the Book of Revelation claims will crown the course of history. Despite a century of Hiroshimas, Bhopals, and Chernobyls, this myth of an engineered utopia still propels the ideology of technological progress, with its perennial promises of freedom, prosperity, and release from disease and want.

Today a new, less mechanized myth has sprung from the brow of the industrial megamachine: the myth of information, of electric minds and boundless databases, computer forecasts and hypertext libraries, immersive media dreams and a planetary blip-culture woven together with global telecommunication nets. Certainly this myth still rides atop the same mechanical behemoth that lurched out of Europe's chilly bogs and conquered the globe, but for the most part, *TechGnosis* will focus on information technologies alone, placing them in their own, more spectral light. For of all technologies, it is the technologies of information and communication that most mold and shape the source of all mystical glimmerings: the human self.

From the moment that humans began etching grooves into ancient wizard bones to mark the cycles of the moon, the process of encoding thought and experience into a vehicle of expression has influenced the changing nature of the self. Information technology tweaks our perceptions, communicates our picture of the world to one another, and constructs remarkable and sometimes insidious forms of control over the cultural stories that shape our sense of the world. The moment we invent a significant new device for communication—talking drums, papyrus scrolls, printed books,

crystal sets, computers, pagers—we partially reconstruct the self and its world, creating new opportunities (and new traps) for thought, perception, and social experience.

By their very nature, the technologies of information and communication—"media" in the broad sense of the term—are technocultural hybrids. On the one hand, they are crafted things, material mechanisms that are conceived, constructed, and exploited for gain. But media technologies are also animated by something that has nothing to do with matter or technique. More than any other invention, information technology transcends its status as a thing, simply because it allows for the incorporeal encoding and transmission of mind and meaning. In a sense, this hybridity reflects the age-old sibling rivalry between form and content: the material and technical structure of media impose formal constraints on communication, even as the immediacy of communication continues to challenge formal limitations as it crackles from mind to mind, pushing the envelope of intelligence, art, and information flow. By creating a new interface between the self, the other, and the world beyond, media technologies become *part* of the self, the other, and the world beyond. They form the building blocks, and even in some sense the foundation, for what we now increasingly think of as "the social construction of reality."

Historically, the great social constructions belong to the religious imagination: the animistic world of nature magic, the ritualized social narratives of mythology, the ethical inwardness of the "religions of the book," and the increasingly rationalized modern institutions of faith that followed them. These various paradigms marked their notions and symbols in the world around them, using architecture, language, icons, costumes, and social ritual—and often whatever media they could get their hands on. For reasons that cannot simply be chalked up to the desire for power and conformity, the religious imagination has an irrepressible and almost desperate urge to remake the mental world humans share by communicating itself to others. From hieroglyphs to the printed book, from radio to computer networks, the spirit has found itself inside a variety of new botdes, and each new medium has become, in a variety of contradictory ways, part

of the message. When the Norse god Odin swaps an eye for the gift of the runes, or when Paul ofTarsus writes in a letter that the Word of God is written in our hearts, or when New Age mediums "channel spiritual information," the ever-shifting boundaries between media and the self are redrawn in technomystical terms.

This process continues apace, although today you often need to dig beneath the garish, commercialized, and oversaturated surface of the information age to find its archetypes and metaphysical concerns. The virtual topographies of our millennial world are rife with angels and aliens, with digital avatars and mystic Gaian minds, with utopian longings and gnostic science fictions, and with dark forebodings of apocalypse and demonic enchantment. These figures ride the expanding and contracting waves of media fads, hype, and economic activity, and some of them are already disappearing into an increasingly market-dominated information culture. But though technomystical concerns are deeply intertwined with the changing sociopolitical conditions of our rapidly globalizing civilization, their spiritual forebears are rooted in the long-ago. By invoking such old ones here, and bringing them into the discourse and contexts of contemporary technoculture, I hope to shine a light on some of the more dangerous and unwieldy visions that charge technologies. Even more fundamentally, however, I hope my secret history can provide some imaginal maps and mystical scorecards for the metaverse that is now swallowing up so many of us, all across network earth.

You may think you are holding a conventional book, a solid and familiar chunk of infotech with chapters and endnotes and a linear argument about the mystical roots of technoculture. But that is really just a clever disguise. Once dissolved in your mindstream, *TechGnosis* will become a resonating hypertext, one whose links leap between machines and dreams, information and spirit, the dustbin of history and the alembics of the soul. Instead of "taking a stand," *TechGnosis* ranges rather promiscuously across the disciplinary boundaries that usually chop up the world of thought,

drawing the reader into a fluctuating play network of polarities and hidden networks. The connections it draws are many: between myth and science, transcendent intuition and technological control, the virtual worlds we imagine and the real world we cannot escape. It is a dreambook of the technological unconscious. Perhaps the most important polarity that underlies the psychological dynamics of technomysticism is a yin and yang I will name *spirit* and *soul*. By soul, I basically mean the creative imagination, that aspect of our psyches that perceives the world as an animated field of powers and images. Soul finds and loses itself in enchantment; it speaks the tongue of dream and phantasm, which should never be confused with mere fantasy. Spirit is an altogether different bird: an impersonal, incorporeal spark that seeks clarity, essence, and a blast of the absolute. Archetypal psychologist James Hillman uses the image of peaks and valleys to characterize these two very different modes of the self. He notes that the mountaintop is a veritable logo of the "spiritual" quest, a place where the religious seeker overcomes gravity in order to win a peak experience or an adamantine code worthy of ruling a life. But the soul forswears such towering and otherworldly views; it remains in the mesmerizing vale of tears and desires, a fecund and polytheistic world of things and creatures, and the images and stories that things and creatures breed.

Spirit and soul twine their way throughout this book like the two strands of DNA, both enchanting and spiritualizing media technologies. On the one hand, we'll see that technologies can serve as the vehicles for spells, ghosts, and animist intuitions. On the other, they can provide launching pads for transcendence, for the disembodied flights of gnosis. The different "styles" of spirit and soul can even be seen in the two basic encoding methods that define media: analog and digital. Analog gadgets reproduce signals in continuous, variable waves of real energy, while digital devices recode information into discrete symbolic chunks. Think of the difference between vinyl LPs and music compact discs. LPs are inscribed with unbroken physical grooves that mimic and re-present the sound waves that ripple through the air. In contrast, CDs chop up (or "sample") such waves into individual bits,

encoding those digital units into tiny pits that are read and reconstructed by your stereo gear at playback. The analog world sticks to the grooves of soul—warm, undulating, worn with the pops and scratches of material history. The digital world boots up the cool matrix of the spirit: luminous, abstract, more code than corporeality. The analog soul runs on the analogies between things; the digital spirit divides the world between clay and information.

In the first chapter, I will trace the origins of these two strands of technomysticism to the ancient mythological figure of Hermes Trismegistus, a technological wizard who will inaugurate the dance between magic and invention, media and mind. Tracing this hermetic tradition into the modern world, I will discuss how the discovery of electricity sparked animist ideas and occult experiences even as it laid the groundwork for the information age. Next, I will recast the epochal birth of cybernetics and the electronic computer in a transcendental light provided by the ancient lore of Gnosticism. Then I'll show how the spiritual counterculture of the 1960s created a liberatory and even magical relationship to media and technology, a psychedelic mode of mind-tweaking that feeds directly into todays cyberculture. Finally, I'll turn to our "datapocalyptic" moment and show how the UFOs, Gaian minds, New World Orders, and techno-utopias that hover above the horizon of the third millennium subliminally feed off images and compulsions deeply rooted in the spiritual imagination.

Given the delusions and disasters that religious and mystic thought courts, some may legitimately wonder whether we might not be better off just completing the critical and empirical task undertaken by Freud, Nietzsche, and your favorite scientific reductionist. The simple answer is that we cannot. Collectively, human societies can no more dodge sublime imaginings or spiritual yearnings than they can transcend the tidal pulls of eros. We are beset with a thirst for meaning and connection that centuries of skeptical philosophy, hardheaded materialism, and an increasingly nihilist culture have yet to douse, and this thirst conjures up the whole tattered carnival of contemporary religion: oily New Age gurus and Pentecostal crusaders, existential

Buddhists and liberation theologians, psychedelic pagan ravers and grizzled deep ecologists. Even the cosmic awe conjured by science fiction or the outer-space snapshots of the Hubbell telescope calls forth our ever-deeper, ever-brighter possible selves.

While I certainly hope that *Tech Gnosis* can help strengthen the wisdom of these often inchoate yearnings, I am more interested in understanding how technomystical ideas and practices *work* than I am in shaking them down for their various and not inconsiderable "errors." Sober voices will appear throughout my book like a chorus of skeptics, but my primary concern remains the spiritual imagination and how it mutates in the face of changing technologies. William Gibson's famous quip about new technologies —that the street finds its own uses for things—applies to what many seekers call "the path" as well. As we will see throughout this book, the spiritual imagination seizes information technology for its own purposes. In this sense, technologies of communication are always, at least potentially, technologies of the sacred, simply because the ideas and experiences of the sacred have always informed human communication.

By appropriating and re-visioning communication technologies, the spiritual imagination often fashions symbols and rituals from the technical mode of communication it employs: hieroglyphs, printing press, the online database. By reimagining technologies in this way, new meanings are invested into the universe of machines, and new virtual possibilities emerge. The very ambiguity of the term *information,* which has made it such an infectious and irritating buzzword, has also allowed old intuitions to pop up in secular guise. Today, there is so much pressure on information—the word, the concept, the stuff itself—that it crackles with energy, drawing to itself mythologies, metaphysics, hints of arcane magic. As information expands beyond its reductive sense as a quantitative measure of meaning, groups and individuals also find room to resist and recast the dominant technological narratives of war and commerce, and to inject their fractured postmodern lives with digitally remastered forms of community, imagination, and cosmic connection.

Of course, as any number of "new paradigm" visionaries or

Wired magazine cover stories prove, it's easy to lose one's way in the maze of hope, hype, and novelty that defines the information age. As any extraterrestrial anthropologist beaming down for a look-see would note, the computer has definitely become an idol—and a rather demanding one at that, almost as thirsty for sacrifice as the holy spirit of money itself. Since the empire of global capitalism is wagering the future of the planet on technology, we are right to distrust any myths that obscure the enormous costs of the path we've taken. In the views of many prophets today, crying in and for the wilderness, the spiritual losses we have accrued in our haste to measure, exploit, and commodify the world are already beyond reckoning. By submitting ourselves to the ravenous and nihilistic robot of science, technology, and media culture, we have cut ourselves off from the richness of the soul and from the deeply nourishing networks of family, community, and the local land.

I deeply sympathize with these attempts to disenchant technology and to deflate the banal fantasies and pernicious hype that fuel todays digital economy. In fact, *Tech Gnosis* will hopefully provide some ammo for the debate. But as both the doomsdays of the neo-Luddites and the gleaming Tomorrowlands of the techno-utopians prove, technology embodies an image of the soul, or rather a host of images: redemptive, demonic, magical, transcendent, hypnotic, alive. We must come to grips with these images before we can creatively and consciously answer the question of technology, for that question has always been fringed with phantasms.

One thing seems clear: We cannot afford to think in the Manichean terms that often characterize the debate on new technologies. Technology is neither a devil nor an angel. But neither is it simply a "tool," a neutral extension of some rock-solid human nature. Technology is a trickster, and it has been so since the first culture hero taught the human tribe how to spin wool before he pulled it over our eyes. The trickster shows how intelligence fares in an unpredictable and chaotic world; he beckons us through the open doors of innovation and traps us in the prison of unintended consequences. And it is with

a bit of the trickster's spirit—mischievous, riddling, and thoroughly cross-wired—that I shoot these media tales and technological reflections into the towering din.

third mind from the sun

When the Jesuit paleontologist Pierre Teilhard de Chardin shuffled off this mortal coil in New York City on Easter Sunday, 1955, few people noticed. Though the priest was known as a scientist of sorts, the writings that would bring him posthumous fame—incandescent and poetic speculations about cosmic history and the future of humanity—remained largely unpublished. The reason was simple: The essays of his that *had* seen the light of day were so weird that certain Catholic bureaucrats had begun to murmur about excommunication. Rather than take this drastic step, Teilhard's superiors simply prohibited him from publishing.

They also effectively banished him to China for many years, where he dated fossils, sifted through Gobi Desert dust, and helped dig up the Peking man. Teilhard was living in the East when his spiritual meditations on the history of Earth led him to write *The Phenomenon of Man,* a masterwork of mystical science whose giddily optimistic view of humanity's role in the evolution of cosmic consciousness has come to inform one of the most important questions that now tugs on hearts and minds around the planet: What is the nature of the new global space we now find ourselves within? Attempting to come to grips with the more cosmic and incorporeal dimensions of our networked world, a variety of techno-utopians, New Agers, and cybertheorists have crafted different visions of Gaian minds and global brains. But they all owe a debt to Teilhard, whose sweeping

vision of planetary consciousness can still leave one wondering if he did not indeed possess a prophetic eye.

Critics of Christianity often accuse the religion of institutionalizing a dangerous rupture between humanity and nature. But Teilhard argued the opposite: Humanity, including its art, gadgets, and religions, was part and parcel of the planet's evolutionary game plan. Though maintaining a measure of dualism between mind and body, Teilhard rejected the bitterness of Manichean myth and proclaimed "the spiritual value of matter." He saw evolution as the progressive unfolding of biochemical complexity, a process that, in turn, generated ever-greater organizations of consciousness. As evolution creaked forward from rocks to plants to the beasts of land and sea, consciousness simultaneously grew into ever more novel and complex architectures of mind, architectures that he believed were intrinsic and internal to material forms. Eventually, this twofold process resulted in the subjective dimension of the human brain that allows you to understand these words. Thus for Teilhard, the emergence of the human psyche and its collective networks of culture and civilization were more than serendipitous froth on the surface of Darwin's random soup. These structures of consciousness constituted the leading edge of the evolutionary wave of Earth itself, a planet that Teilhard saw, in a prescient intuition of James Lovelock's Gaia hypothesis, as a "superorganism."

Teilhard was not the most rigorous of scientists, however, and he lost major points with his embarrassing and rather murky involvement with the Piltdown man—the purported "missing link" discovered in an English gravel pit that turned out to be a human skull cap mischievously arranged with the jaw of an orangutan. On the other hand, Teilhard's evolutionary speculations were more than just the foamings of a preternaturally enthusiastic spirit, and other scientists of the early twentieth century anticipated some of his views. The brilliant Russian mineralogist Vladimir Vernadsky also regarded the Earth as a total living system, and held that planetary evolution was passing from a stage determined by biological laws to one molded by conscious human activity. The eminent biologist Sir Julian

Huxley, grandson of the great Darwinian cheerleader Sir Thomas Huxley and brother to the novelist and philosopher Aldous, held a similar position. Huxley argued that "It is only through social evolution that the world-stuff can now realize radically new possibilities. . . . For good or evil, the mechanism of evolution has in the main been transferred onto the social and conscious level. . . . The slow methods of variation and heredity are outstripped by the speedier processes of acquiring and transmitting experience."[237]

Teilhard had no doubts that this transfer was all for the best, because in the long run, human activity was going to awaken the physical planet itself. From its very beginnings, the Jesuit believed, the human mind wove itself into a collective matrix of culture and communication, an etheric web of consciousness that not only linked individual humans but was destined to cloak the entire biosphere like an onion skin. Teilhard called this cerebral crown of creation the "noosphere," a collective psychic entity that emerged from the same organic and symbiotic drive toward unity and complexity that initially led freelance chemical elements to band together as molecules and cells. In the noosphere, however, the binding units are not chemicals but human minds, the accumulated accretions of imagination, language, and thought. The noosphere itself evolves, and as it continues "adding its internal fibers and tightening its network," it will rope human individuals into increasingly collective forms of consciousness. Sounding a note that McLuhan would later trumpet, Teilhard argued that the noosphere's thick tangle of economic, social, and information networks would submerge us into "an enforced resonance" with all the thoughts, wills, and passions of our fellow creatures.

Hold on to your hats, though, for this evolutionary process will not quit until matter achieves the ultimate state of superorganization and complexity. At that point, Terra herself achieves consciousness, and collective humanity will kick up its heels for the final number in the Time and Space Review. With matter and mind narrowing to a single point of what technology gurus still call "convergence," we will find ourselves sliding down a

cosmic wormhole that Teilhard dubbed the "Omega point." At that node of ultimate synthesis, the internal spark of consciousness that evolution has slowly banked into a roaring fire will finally consume the universe itself. Christ will "blaze out like a flash of lightning," and our ancient itch to flee this woeful orb will finally be satisfied as the immense expanse of cosmic matter collapses like some mathematicians hypercube into absolute spirit.

At this point in his conceptual journey, Teilhard had clearly drifted far from the Galápagos Islands. The Jesuit offered empirical evidence for the rise of biochemical complexity throughout planetary history (an argument that nouveau Darwinians like Stephen Jay Gould resoundingly reject), but Teilhard's evolutionary road show boils down to a deeply Christian mysticism that is apocalyptic at its core. Though he tap-danced on the thin ice of heresy, Teilhard was thinking as a Catholic when he came up with the notion of the noosphere. "Catholic" literally means "deriving from the whole," and Teilhard's holistic vision of planetary consciousness derives from the orthodox image of the institutional Church as a universal spiritual body that seeks to absorb every unique human individual into its millennial flesh, topped with the head of Christ. Fans of Western philosophy will also recognize the dim shadows of Hegel's idealism in Teilhard's thought, with its similar hunger for absolute synthesis and its conviction in the ultimate absorption of matter into spirit.

Though it would be wrong to accuse Teilhard of practicing science, the man was certainly enthusiastic about synthesizing spirit with the technoscientific project of the modern world. In a revealing passage in *The Future of Man,* Teilhard argued that the mystical experiences undergone by the yogis of the East were actually emanations from the Omega point, but that the sages misinterpreted the message when they rejected the material possibilities of the world in order to cultivate transcendent reality. In contrast, Teilhard was a global perfectionist who believed that the divine progressively realized itself through the lumbering machinery of history, technological as well as natural. Teilhard's mysticism thus fused two contradictory vectors of the Western

spirit: the world-denying ascent toward transcendence and the headlong plunge toward the total domination of matter. "God awaits us when the evolutionary process is complete: to rise above the World, therefore, does not mean to despise or reject it, but to pass through it and sublime it."[238] Proclaiming that we move "upward by way of forward," Teilhard honed a kind of theological Extropianism. In this sense, Teilhard's work must be seen as a visionary response to one of the most pressing existential needs in twentieth-century thought: to find in the sloppy mechanics of evolution a positive basis for human life, some cosmic pattern or pulse that might enable us to see ourselves, our minds and cultures, as more than blind flukes doomed to bow down before the entropic second law.

With a winning combination of optimism, scientific enthusiasm, and mystical authority, Teilhard molded together Darwin and the divine. This synthesis of science and spirit, heretical to many on both sides of the divide, attracted legions of postwar readers, including Mario Cuomo and the New Age policy wonk A1 Gore. In *Earth in the Balance,* Gore's attempt to create a Green philosophy that won't clog the pipes of the new world order, the vice president hopes that Teilhard's "faith in the future" will inspire humanity to resanctify Gaia while taking technological responsibility for it. In his book *The Phenomenon of Science,* whose title consciously twists Teilhard's famous work, the Russian cyberneticist Dr. Valentin Turchin attempts to describe the laws that drive the emergence of new phases of evolution, or what he calls a "meta systems transition." Though eschewing Teilhard's mysticism for the language of equations, Turchin still concludes that technology is launching us into a new phase of cultural evolution, one which will lead to the creation of a cybernetic superhuman organism, possibly through the mediation of the Internet. Traces of Teilhard even appear in the work of physicist Frank Tipler, who claimed in *The Physics of Immortality* that the anti-entropic forces of the universe are driving all things toward the ultimate improbability: an "Omega Point" supermind that will banish the forces of heat death and place the cosmos under the control of consciousness.

You don't have to go as far out as Tipler to hear echoes of Teilhard in contemporary science. Like many thinkers attempting to construct an integral philosophy of mind and nature, Teilhard would have felt right at home with systems theory, that interdisciplinary tradition that has already reared a few of its hydra heads in this book. As we discussed earlier, systems theorists de-emphasize the usual reductionist tack of dividing the fluctuating webwork of reality into isolated chunks of stuff. Instead, they look at the world as a nest of holistic and interdependent processes, a cosmos characterized by pattern and flow rather than form and matter. Systems theory began in the early part of the century with the biologist Ludwig von Bertalanffy and the engineers behind cybernetics, and today finds one of its fullest expressions in the complexity theory that tantalizes scientists and researchers at places like New Mexico's Santa Fe Institute. Generally speaking, complexity theorists study systems, like the weather or the economy, that are neither excessively ordered nor wildly stochastic, but dynamically arise in the liminal zone that fluctuates between these two relatively simple conditions. Between the yin and yang of randomness and determinism, something like the Tao of becoming emerges: the propensity of certain systems to "self-organize," to spontaneously generate novel patterns of behavior at precisely the moment they appear to be slipping into chaos. Whirlpools emerge in turbulent rivers, chemical regularities pop up in soups of random particles, bees swarm, and ants create cities. The Santa Fe heavyweight Stuart Kauffman calls these kind of emergent properties "order for free," and however rigorously they are charted and described, they seem to manifest the creative mind of nature herself, a mind we may also meet when immersed in artistic labor or the sensual poetry of perception.

Aiming for a language of pattern and process universal enough to be able to explain everything from L.A. traffic patterns to the distribution of galaxies, complexity theorists deal with terms and definitions that are necessarily slippery. In fact, one of the Santa Fe Institute's grails is a rigorous definition of what exactly makes a system *complex* in the first place. As scientists

wander through a tangled forest of fuzzy guesses and abstract terminology, it remains unclear whether "complexity" is completely quantifiable or appears pardy in the eye of the beholder. According to the physicist and Santa Fe Institute associate Dr. Dan Stein, "Complexity is still almost a theological concept."[239] One suspects that this tricky, metaphysical air derives partly from the subtle cracks that complexity theory introduces into the mechanistic and reductive view of the universe that has dominated the Western world-picture for centuries. What Gregory Bateson called "the pattern that connects" invariably draws the human mind into the web. And indeed, some complexity theorists consider consciousness itself to be the ultimate emergent property, the ultimate face of complexity—and Teilhard would surely have agreed.

As we noted earlier, one of the great conceptual leaps made by cybernetics was to characterize both living creatures and artificial gadgets as systems of information flow. Today this breakdown between the made and the born is cascading into a paradigm shift. Once life and mind are described as properties of complex systems, then complex systems, whether biological, ecological, or technological, begin to take on qualities of life and mind. We find ourselves faced with the image of the "organic information machine," an image realized in the science of artificial life. By using powerfiil computers to simulate evolutionary processes, especially replication, mutation, and selection, Santa Fe researchers like Chris Langton are attempting to breed novel and unpredictable digital critters inside the superfast Darwinian boxing ring of their computers. With his Tierra program, the biologist Thomas Ray has created digital microworlds capable of evolving an impressive array of creatures and parasites that compete for the "energy" of CPU time. As you might expect, organic metaphors abound in the A-Life community, and scientists like Ray and Langton consider their progeny to be, in principle at least, living beings. When Ray booted up his program for the first time, he said that "the life force took over," making him the creator, or at least the midwife, to an altogether new order of life.[240] Like the Kabbalists whose knowledge of the

hidden Torah enabled them to create the mythical golem, the great android of Western esoteric lore, the wizards of artificial life use the spells of digital code to breed apparently autonomous beings on the other side of the looking glass. As the A-Life researcher Daniel Hillis proclaimed, "We can play God."[241]

Once again, we find a form of animism arising through the mediation of our most artificial and abstract of machines, a scientific animism bound up with the computers ability to act as a replicating demiurge. For though A-Life hackers may play God, the computer does the lion's share of the work. Indeed, like chaos theory and most complexity research, A-Life could not exist without digital computation. With their number-crunching prowess and their ability to conjure up graphic simulations that model millions of parallel elements, computers can reveal patterns and properties impossible to notice in earlier times, when a line of inquiry might result in nothing more than a spew of apparently random numbers or the outlines of impossible equations. In a review of James Gleick's popular best-seller *Chaos*, the mathematician John Franks compared the computer to the microscope, arguing that digital computation allowed access to heretofore invisible dimensions of natural and mathematical phenomena. In this sense, chaos, which is really a name for the order lurking in the apparently random, is the child of the computer. But artificial gods like Langton and Ray aren't just looking at the world through digital glasses—they are engineering the world they see, channeling the life force into the virtual worlds of computer code.

Given the pivotal role that computers play in our understanding of chaos, complexity, and artificial life, it is hardly surprising that these sometimes rather speculative sciences have also turned around and started to influence how people think about the social, cultural, and economic dimension of computers. In *Out of Control,* the flagship volume of this technological post-Darwinism, *Wired* editor Kevin Kelly argues that we are heading into a neobiological civilization defined by organic technologies, machinelike biologies, and the prevalence of networks and hive minds. In this Teilhardian world, evolution and

engineering become two sides of the same out-of-control force of adaptive learning and holistic feedback loops. Amassing loads of research, Kelly attempts to convince the reader that the spontaneous, symbiotic, and self-organizing capacities of complex systems amount to nothing less than an "invisible hand" of evolution—one that he thinks should be allowed to run riot. Instead of musty old governments, outmoded humanist philosophies, and moribund social institutions, the creative novelty of the universe itself should guide technological development, economic networks, and human culture. Kelly would bridle at the label of metaphysician, but he closes his book with some neo-biological rules of thumb, bumper-sticker slogans like "seek persistent disequilibrium" and "honor your errors" that he calls the "Nine Laws of God." Though Kelly himself is a born-again Christian, his God is in many ways the polar opposite of the top-down lawgiver of traditional biblical faith. Instead, his Nine Laws recall the process theology that has quiedy built up steam in some twentieth-century religious circles, a theology that supplants the transcendent one-shot Platonic Creator with a more Taoist and Heraclitan sense of creative evolution and constant becoming.

Like Kelly, Teilhard extended his evolutionary optimism to encompass the pell-mell march of twentieth-century technology. The Jesuit praised all those possessed by the "demon (or angel) of Research" because they recognized that the world is a "machine for progress—or rather, an organism that is progressing." Anticipating the conceptual fusion (and confusion) of the made and the born that characterizes so many cyborganic thinkers today, Teilhard argued that technologies are now directly participating in their own evolution. Machines will continue to beget machines with the persistence of biblical patriarchs, and their interlinking progeny will eventually intertwine into "a single, vast, organized mechanism." But unlike the materialist techno-Darwinians, Teilhard believed that the outward complexification of material form is always accompanied by the internal growth of consciousness. For Teilhard, then, technologies are not simply human tools, but vessels of the

expanding noosphere, the body and nervous system of a world consciousness striving to be.

As we saw earlier, electric infotech has been considered a kind of "nervous system" since the days of the telegraph, and, not surprisingly, Teilhard emphasized the role that electronic media played in the development of his technological "brain of brains." Writing in the early 1950s, he underscored the global reach of radio, cinema, and television, while also drawing attention to "the insidious growth of those astounding electronic computers." In a sense, Teilhard recognized the emergent outlines of a worldwide electronic and computational brain at a time when few engineers were even thinking about the possibilities of networked computers. Or as Jennifer Cobb Kreisberg bluntly declared in *Wired,* "Teilhard saw the Net coming more than half a century before it arrived."[242]

Cobb later expanded her theological ideas about the sacred pulse of technological development in her book *Cybergrace,* but it is no accident that her thoughts first appeared in *Wired.* From its first issue, the magazine's infectious and often absurdly gung ho enthusiasm for both the Internet and the global technoeconomy has been informed with a kind of secularized Teilhardian fervor. Along with Kevin Kelly's paeans to the coming neo-biological civilization, *Wired* regular John Perry Barlow is also a hard-core Teilhard fan, who announces in the magazine's pages that "the point of all evolution up to this stage is the creation of a collective organization of Mind."[243] And in an online interview, the magazine's cofounder Louis Rossetto tipped his hat to Teilhard and the Jesuit's influence on Internet culture. "What seems to be evolving is a global consciousness formed out of the discussions and negotiations and feelings being shared by individuals connected to networks through brain appliances like computers. The more minds that connect, the more powerful this consciousness will be. For me, this is the real digital revolution—not computers, not networks, but brains connecting to brains."[244]

Even trippier scenarios emerge from the brain of Mark Pesce, the VRML wizard we met in chapter VII. For Pesce, the

astounding growth of the Net over the last decade can mean only one thing: Teilhards noosphere is striving to know itself. In die capstone address before a VRML World Movers conference, Pesce explained that the noosphere, having saturated the electrical communication technologies of the pre-digital age, has begun to turn inward, ingesting "all human knowledge and all human experience." Using complexity-theory lingo, Pesce explained that, sometime in the early 1990s, the networked noosphere began an irreversible process of self-organization. "The first of its emergent properties was the World Wide Web, for it first needed to make itself comprehensible—that is, indexible—to itself." For proof of this rather mystical concrescence, Pesce pointed to the astronomical growth rate of the Web: "How else to explain a process that magically began everywhere, all at once, across the length and breadth of the Internet?" He called this phenomenon "the Web that ate the Net," and predicted that a similar transformation lies in the near future, when the Web will unfold into a three-dimensional cyberspace, courtesy of VRML or some other 3D Net protocol. "VRML is the porthole cut into the noosphere, the mirror which lets the seer see our self."[245]

Clearly, the notion that computer networks are booting up the mind of the planet is not a technoscientific scenario at all, however much the language of complex systems or artificial intelligence may help us get a handle on the Internets explosive, out-of-control growth or its possible mindlike properties. The leap from the global brain to the Gaian mind remains an essentially metaphysical move—which doesn't mean that the leap isn't worth hazarding. For whether or not we take Pesce literally, his vision of the online noosphere gives voice to a growing if inchoate intuition that computer networks and virtual technologies have opened up what amounts to a new category of knowing and being, a unique and unparalleled global space of intelligence, experience, terror, and communion. On the other hand, even if we accept the oudandish supposition that Gaia is indeed waking up and rubbing her satellite eyes, we cannot assume that this electronic consciousness will be unified to

itself, let alone achieve a state of mystical perfection. This is the lesson of Gibson's *Neuromancer* myth: The cyberspace AI that achieves technological godhead at the end of his first novel cannot maintain its omniscient infinity, and it fragments into the crafty polytheistic subroutines of Haitian Vodou. Or as Louis Rossetto put it, the emergence of a *single* global mind is no more likely than the discovery that a single human mind lurks within our own skulls: "We actually have a bunch of different 'minds,' which negotiate with each other."[246]

Rossetto's quip reminds us that the Gaian mind is really a story about our minds. In particular, it is about what is happening to those minds as we intertwine them through computer networks and global media flows, through beepers, faxes, satellites, and cell phones, through emerging electric structures of work, education, and play. And from this perspective—a neuron's eye view of the global brain, so to speak—the noosphere does not begin with a state of mystical absorption, but with an identity crisis. Nowadays, it no longer seems as if we own our own minds. From cognitive science to postmodern psychology, it seems that the self has lost its bearings; the subject deconstructs itself and the society of mind devolves into a rabble.

Technology plays a privileged role in this identity meltdown, as the massive influx of media and information overwhelms the containers of consciousness, particularly, it seems, on the Internet. As the MIT sociologist Sherry Turkle argues in *Life on the Screen,* a savvy ethnography of online society—the virtual self is fragmented, fluid, and always under construction. Many computer users play with the malleable qualities of online identity: inhabiting different characters, histories, and genders; multiplying the self into a host of handles and log-ons; engineering autonomous digital doppelgàngers. Turkle suggests that the multiplicity of online identity may actually enhance our ability to creatively explore and develop our personalities and relationships at a time of profound social dislocation; less generous observers might characterize the Internet as one cause of that dislocation, a false and fractured infinity that encourages people to avoid or postpone the ethical decisions, internal reflections,

and acceptance of limitations that frame a life and give it shape and depth.

At the same time, the very multiplicity and fluidity of online identity opens up the possibility of new forms of human communion. On listservs, MUDs, and bulletin boards, our thoughts and personalities are woven into communities of virtual intelligence, where we are defined as much by the links and networks we bring with us as by the peculiar discursive fingerprints we leave on information space. Online, we colonize each others brains, or at least the texts and images that flow through and shape those brains, and this mutual infestation breeds what Howard Rheingold calls "grass-roots group minds": new computer-mediated modes of collaboration, education, art, and decision making that may amplify and synthesize individual intelligence and creativity. In this sense, the Gaian mind is simply a mythic metaphor for a process that has begun much closer to home: the construction of networked environments and virtual spaces that knit our minds into transpersonal spaces of knowledge and experience potentially greater than the sum of their parts.

The cyberphilosopher Pierre Levy calls this process the emergence of "collective intelligence." In an optimistic and incisive book of the same name, Levy argues that computer networks, virtual environments, and multimedia tools will not simply amplify our individual cognitive powers, but will give rise "to a qualitatively different form of intelligence, which is added to personal intelligences, forming a kind of collective brain, or hypercortex."[247] This hypercortex is not just a new machinery of thought, but an *environment,* "an invisible space of understanding, knowledge, and intellectual power, within which new qualities of being and new ways of fashioning a society will flourish and mutate."[248] This "knowledge space" signifies nothing less than a new chapter of the human story, following on the heels of a number of anthropological spaces that humans have explored over the millennia: the nomadic earth of hunter-gatherers, the bounded territorial spaces of agricultural societies and the state, and the "deterritorialized" spaces

of commodity flows introduced by capitalism. Levy does not believe the knowledge space will erase these earlier environs, but he does hope that the digital terra incognita will allow us to overcome their limitations. Virtual interfaces and other forms of visualization will transform the collective networks of information into a navigable and nomadic "cosmopedia," a constantly unfolding space that will enable us to rise above the worlds of consumerism, political parochialism, and the mass media, and to develop the kind of radically democratic and transpersonal smarts we will need to confront the enormous difficulties that lie just around the bend.

Levy is a philosopher, and he does not invoke the sorts of mystical forces that animate the thought of Teilhard de Chardin and other Gaian mind visionaries. On the other hand, he recognizes that the peculiar qualities of information space and virtual reality resurrect metaphysical concerns and the spiritual imagination alike. In his chapter "Choreography of Angelic Bodies," Levy resuscitates medieval Islamic theology in order to apply Neoplatonic conceptions of the angel to the development of collective intelligence. As we saw in earlier chapters, Neoplatonist philosophers and mystics imagined the cosmos as a multistoried high-rise. The closer a level stands to the transcendent godhead, the more perfection and unity it has. As you might expect, our world is in the basement, a ball of multiplicity and confusion where the transcendental call of the divine intellect must battle the chaos of fragmentation, ignorance, and wayward human passions. As Levy explains, angels act as mediators and transformers within this hierarchy of spiritual reality; they collect the divine sparks of the level below them, including our world, and they fuse and direct these sparks toward the more synthetic planes of divine intelligence.

For Levy, the Angel that medieval thinkers glimpsed hovering above our world returns today as the archetypal image of the collective intelligence that technologies are now creating. Theology becomes technology, once again. But in a crucial theoretical move, Levy turns the metaphysical architecture of the Neoplatonic cosmos on its head, transforming transcendence

into immanence and redirecting divine intelligence back toward the embodied human world we actually inhabit. Once the Angel is recognized as virtual rather than divine, it no longer lures us onto the Platonic space shuttle of world-loathing transcendence, but instead reflects our own active and angelic intelligence back onto the earth. "The angels of the living unite to perpetually form and re-form the Angel of the collective, the moving and radiant body of human knowledge. The Angel does not speak. It is itself the aggregate voice or choral chant that rises from an acting and thinking humanity."[249] The Angel is not a tyrannical hive-mind. Our own angelic natures, our own active powers of intelligence, are amplified but not swallowed up by the "inverse cathedral" of the digital knowledge space.

Levy suffers from a typically Gallic love of abstraction, and the more you try to imagine how Levy's luminous vision of collective intelligence might actually unfold within the clamorous conditions of our workaday lives and technologies, the more difficult it is to hold on to. Contemplating such utopian and metaphysical possibilities in the light of today's information politics is like listening to the "Sanctus" of Bach's B-minor Mass on a cheap home stereo system: You feel swallowed up within a shimmering mathematical cathedral of the collective human voice, only to hear the glorious chorus fade into speaker buzz and the noise of car alarms outside. But Levy's attempt to imagine the new space of information through the Angel of the collective remains highly compelling. Livy acknowledges that spiritual and transpersonal possibilities continue to beckon the human mind, and that these possibilities have been triggered anew by our technologies—or rather, by what our technologies are doing to our minds. At the same time, Levy resists the temptations of transcendence, of the fallacy that technology or metaphysical truths will deliver us to the level above human. If a postmodern World Soul is indeed emerging from the electronic hypercortex of information networks, then we must make sure that soul keeps its feet on the ground.

In this sense, it's important to see the myth of the Gaian mind, not in the virtual light of collective intelligence, but in

the shadows of a more urgent and pressing condition: globalization. The telecommunication and computer networks that envelop the earth are only the most hardwired expression of what amounts, in the end, to a single planetary system blanketing Terra's multiple cultures and nations. Capitalism and communications have been shrinking the world for centuries, of course, but this new global space intertwines us as never before with its increasingly dynamic flows of capital, goods, immigrants, pollution, software, refugees, pop culture, viruses, weapons, ideas, and drugs. It is a world where warming trends spurred by industrial nations swallow islands in Polynesia, where governments pay more attention to CNN than to ambassadors, where a single bank clerk in Singapore can bring down a financial institution on the other side of the planet.

For Teilhard, Pesce, and other Gaian minders, the fact that the world is now wired into a collective web of interconnections suggests that evolutionary or even mystical forces are leading us into something like a global village. But as any anthropologist would tell you, villages can be pretty back-biting, oppressive, and paranoid places. Even Marshall McLuhan recognized the frightening claustrophobia of the global village he first described. As early as 1962, McLuhan argued that as the modern individual slips into the intensely participatory echo chamber of global electronic culture, we risk an eruption of violence, mental breakdowns, and societywide pathologies. "As our senses have gone outside us, Big Brother goes inside," he claimed, warning that unless we remain aware of this dynamic,

> we shall at once move into a phase of panic terrors, exactly befitting a small world of tribal drums, total interdependence, and superimposed coexistence. . . . Terror is the normal state of any oral society, for in it everything affects everything all the time.[250]

Mystical reports to the contrary, it seems that the realization that "everything affects everything all the time" is not always such a great release. For many global citizens anyway, the

perception of total interdependence brings with it a dark and paralyzing fear, at the root of which lies the awareness that there is *no escape*. That's why so many of our panic terrors today cluster around the threat of contagion: Ebola plagues, AIDS, computer viruses, soul-rotting media memes, deadly *E. coli* outbreaks, even the infectious financial downturns of 1997's "Asian flu."

Most ominous of all is the possibility that total interdependence will mean new forms of totalitarian control. Though thinkers like Teilhard and Levy go out of their way to avoid the suggestion that the global mind would transform the world into a high-tech anthill, such implications are unavoidable. The book jacket of Kevin Kelly's *Out of Control,* which is meant to reassure us that networking is definitely the way to go, pictures a swarm of half-virtual bees flitting about a honeycomb of MultiHyve computer monitors. Even the angels that Levy hopes will help save us from this fate have something of the Stasi to them. In Islamic lore, for example, the winged guardians operate as holy spy-cams, invisible witnesses that hover about us during our daily trials, recording all our actions in a file to be sealed unto Judgment Day. Now we have digitized these recording angels, who are now fit to track, reconstruct, and issue judgment on our identities and actions as we move through an infosphere of databases, electronic transactions, demographic tracking software, and surveillance cameras.

Given the collapse of most overtly totalitarian regimes on the planet, fears of the dawning surveillance society might be seen as nothing more than phantasms that stand at the gates of a new mode of collective interdependence, paranoid projections our anxious egos cast as they shuffle, willingly or not, into the global village. But these ominous specters also signify very real possibilities—and actualities. Every phase of human development has its dark side, but the midnight face of technological globalization is as black as pitch. Given the amount of globalist cheerleading we hear from politicians, marketeers, and the media, there is a pressing need for critical, skeptical, and suspicious voices in the global debate, though such voices must transcend the easy pessimism of many neo-Luddites, with their

Rousseauist fatalism and fear of change. Indeed, the social critics of the twenty-first century might even renew their own messianic and prophetic pact with the angels, recalling that, like Jacob, we are called to wrestle with these agents of the possible, not to emulate them.

Whether or not we feel that globalization is a "natural" phase of human evolution, the phenomenon is real, and we will need more than a hermeneutics of suspicion to nurture the productive and humane opportunities of these turbulent times. In a speech made at Harvard in 1995, Václav Havel described his quest for a deeper dimension of global political engagement. Acknowledging the emergence of a single planetary civilization, Havel pointed out that this civilization still amounts to a thin technological epidermis stretching over an immense variety of cultures, peoples, religious perspectives, and traditions, all rooted in very different historical experiences and geographic climes. Based on his own globe-trotting experiences, Havel argued that this diverse and often hidden human "underside" of the global village is now gaining a second wind, especially as the promises of secular modernity collapse. Even as the strip malls of global civilization spread, "Ancient traditions are reviving, different religions and cultures are awakening to new ways of being, seeking new room to exist, and struggling with growing fervor to realize what is unique to them and what makes them different from others." For perfectly understandable reasons, quite a number of these countries and cultures are rejecting many of the Euro-American political and social values that, to varying degrees, accompany globalization. Some of the fiercest opponents of McWorld resort to violent struggle, often deploying technologies—radar, computers, lasers, nerve gas—that owe their existence to the very civilization whose paradigm lies in their crosshairs.

Given all the tensions pulling beneath Gaia's new fiber-optic skin, Havel argues that we need to adopt a basic code of ethics and mutual coexistence, a strongly pluralistic perspective that will allow a genuinely open and multicultural society to flourish. But if we think that this code lies in commodity culture or

market discipline or Western legal concepts, Havel warns, then we might as well pack it in. An ethics capable of reorienting the world within its new global framework cannot be another "universal idea" churned out by the rationalist West; nor can it be programmed through social engineering; nor can it be crafted and disseminated like Coca-Cola ads or condoms. Speaking with a candor, humility, and personal authority altogether foreign to todays politicians, Havel called on humans to plunge much deeper into the spiritual dimension that undergirds all of our diverse cultural histories:

> We must come to understand the deep mutual connection or kinship between the various forms of our spirituality. We must recollect our original spiritual and moral substance, which grew out of the same essential experience of humanity. I believe that this is the only way to achieve a genuine renewal of our sense of responsibility for ourselves and for the world. And at the same time, it is the only way to achieve a deeper understanding among cultures that will enable them to work together in a truly ecumenical way to create a new order for the world.[251]

Havel is not asking anyone to abandon the noble features of the modern mindframe and return to tribal idols, absolute truths, or the consoling fairy tales we once told ourselves to keep the cold and dark at bay. Instead, Havel is gesturing toward a "post-religious" spirituality, one that can thrive in a pluralistic third millennium alongside science and technology and all that pesky capital. Wisely, he does not tell us anything about where this spirituality would come from or what it would look like. Instead, he simply asks a question:

> Don't we find somewhere in the foundations of most religions and cultures, though they may take a thousand and one distinct forms, common elements such as respect for what transcends us, whether we mean the mystery of Being, or a moral order that stands above us; certain imperatives

> that come to us from heaven, or from nature, or from our own hearts; a belief that our deeds will live after us; respect for our neighbors, for our families, for certain natural authorities; respect for human dignity and for nature; a sense of solidarity and benevolence towards guests who come with good intentions?[252]

This is not exactly the kind of stuff you expect from a man like Havel—a chain-smoking politician, an avant-garde humanist, and a hard-core Frank Zappa fan. But as with countless people across the world, Havel's gut tells him that we are at a crossroads, and that we will need the full range of human capacities to confront the catastrophes looming just around the bend.

Meet the Beast

In the mid-1990s, an amazing technological artifact started making the rounds of the electronic art shows and media exhibitions that now pop up from Helsinki to Buenos Aires. Created by the Berlin design group Art+Com, T_Vision brought the idea of a "virtual world" onto a new level of graphic realization. Here's the setup: you stand before a large screen on which hovers a fat, photo-realistic image of planet earth—an image seamlessly woven together from a twenty-gigabyte database of aerial shots, topographical information, and high-resolution satellite images. With a large plastic "earthtracker," you can rotate this virtual Terra like a basketball, in any direction you choose. Or you can use the "space mouse" to plunge toward a specific landmass, zooming continuously down into a shifting patchwork of increasingly localized high-resolution images. Spinning the earth, you feel like a god; plunging toward its surface, like a falling angel.

T_Vision provides a visceral experience of what Fredric Jameson would identify as the postmodern version of the technological sublime. As we saw in earlier chapters, we got our first big rush of the technological sublime in the late nineteenth and early twentieth centuries, when grand canals, electrical grids,

continental railroads, and the great bridges and dams could trigger an almost terrifying sense of grandeur and awe. But these monuments of industrial prowess no longer move us much; China's massive Three Gorges Dam now strikes us as an ecological disaster, a devastating act of nationalistic hubris. We are no longer enchanted by production, but by the reproduction of images and information. Our icon is not the dam, but the terminal screen, behind which lies an immense global matrix of databases, images, real-time information feeds, and communication networks—a matrix that is, quite literally, impossible to represent.

Because human brains cannot satisfactorily compass this hyperspace of collective information, it takes on the uncanny aura of the sublime, an aura that, in turn, enchants the screens and gadgets with which we attempt to interface with the new information environment. As Jameson writes, "The technology of contemporary society is therefore mesmerizing and fascinating not so much in its own right but because it seems to offer some privileged representational shorthand for grasping a network of power and control even more difficult for our minds and imaginations to grasp: the whole new decentered global network of . . . capital itself."[253] William Gibson's image of cyberspace dazzled so many because it suggested that individual "minds and imaginations" could navigate a virtual representation of these decentered networks and flows. The exalted grandeur of Gibson's image disguise its dark ironies, though one of *Neuromancer*'s Rastafarian characters sums them up in a word: "Babylon." Like Jameson, Gibson suggests that we may be approaching the apogee of technological alienation, a point that is sublime only because it is terrifying.

Though T_Vision does not explicitly represent the global networks of capital and communication, it does give us a hint of how the Gaian mind might start to interface with our minds. As some cyberthinkers argue, we will only begin to master the overwhelming confusion of networked information environments when we learn to build virtual architectures that can map the myriad data flows that currently define information space.

With T_Vision partly in mind, Mark Pesce argues that the handiest and most appropriate memory palace we might employ for this purpose is, of course, the globe itself. Given the amount of real-time data and satellite imagery already available on the Internet, it's not too tough to imagine a day when something like a real-time T_Vision will be accessible online; the resulting interactive global information system would be similar to the earth database that pops up in Neil Stephenson's *Snow Crash.*

With Teilhardian optimism, Pesce argues that by transforming the planet into the ultimate virtual database, we will bolster our awareness of the interdependent bonds that define the global community. Such an image would help us, for example, to "see" the environmental devastation that currently threatens to knock the biosphere out of whack, and to lobby global agencies and track the perpetrators with a newfound sense of urgency and commitment. On a more ethical, if not mystical, level, such an image might also hardwire the realization that the world and the people in it are cut of one cloth, and that all of us must learn to get along within the finite framework of spaceship earth. A1 Gore must have been nursing a similar hunch when he pushed for Earth-Span, a satellite system that would continuously beam high-resolution photos of the turning earth to Web sites and cable stations around the world. In this triumphant symbolic paradox, the abstract grid of media space, which is perhaps the most artificial and disembodied of human artifacts, would thus allow Gaia to reassert herself as the ultimate field and limit of the real.

The photographs of the planet that graced the early covers of *The Whole Earth Catalog* remind us that this utopian hope is not altogether new. Captured by NASA astronauts, images of the "big blue marble" floating against the inky abyss of space became ubiquitous pop icons in the late 1960s and early 1970s, and were embraced by many environmentalists and peaceniks as salvational images of ecological unity and human community. But as the deep ecologist and critic Michael Zimmerman writes, "The technical accomplishments required to build the

spacecraft from which to take those photos . . . were made possible by the same objectifying attitude that discloses Earth as a stockpile of raw materials for enhancing human power."[254] When Martin Heidegger saw NASA's first images of Earth on television in 1966, he proclaimed that "the uprooting of man has already taken place. ... This is no longer the earth on which man lives."[255] In other words, we cannot hope to discover a deeper sense of being and connection through a technological system that engages the earth as an object to be dominated and used, whether as a mass media image, a mine of materials, or a visual database. For many, T_Vision conjures up a Heideggerian wave of ontological nausea; the godlike blast of power and omniscience one tastes with the act of spinning a real-time image of the earth seems about as Faustian as multimedia gets these days.

Even more disturbing is the degree to which T_Vision draws its visual power from an essentially military model of surveillance, an abstract system of power, vision, and information control that Michel Foucault would have traced back to Jeremy Bentham's panopticon. As Foucault described it, the panopticon, a prison building whose peculiar architecture allowed guards to constantly observe prisoners in their cells, created an abstract space of surveillance that enabled authorities to control people, not through physical force, but by constantly reminding them that they were under observation—a fact that the prisoners themselves would then psychologically internalize. T_Vision globalizes this Black Iron Prison, or, more accurately, it presents a crude video game reflection of the planetary panopticon that already exists. With the spread of the Global Positioning System, the launch of commercial spy satellites like EarthWatch, and our heedless devotion to information retrieval by any means necessary, it is clear that the eye in the sky will only sharpen its focus as we spin into the twenty-first century. We indeed may bring light to the hidden things of darkness, but that only begs the question of who holds the light.

One defense of T_Vision and its inevitable descendants is simply that, given the reality of spy satellites and the privatization

of military surveillance, we might as well make the world's flows of information as open and democratic as possible. As one component of the politics of the "open society," this vision holds that social activists, environmentalists, and ordinary people will be empowered by, in essence, *spying back*. Perhaps this is the most realistic conclusion, but it remains a deeply disturbing one, because it acknowledges the extent to which privacy is becoming a thing of the past as we pass into a world of vast interlinked databases, James Bond spycraft, ubiquitous news cameras, and tracking devices for felons and children. Already the rituals of popular television reflect this profound mutation in social space, as the private tragedies and tribulations of ordinary people are laid bare for all to see in the voyeuristic videocam spectacles of *Cops* and *Real TV* or the talk-show tribunals led by Maury Povich and Montel Williams. We may yet find ourselves wired into a Borg-like collective beehive of information and image, an essentially totalitarian apparatus of perpetual surveillance without, as yet, a totalitarian command center.

Teilhard de Chardin also believed that human history was marching toward a vast collective society, one in which individuals would begin to resonate and fuse with the lives, emotions, and desires of their fellows. He even came to the rather disturbing conclusion that the various totalitarian regimes that slouched their way across the battlefields of the twentieth century were actually "in line with the essential 'trend' of cosmic evolution." In fact, Teilhard held that our only real hope lay in the absolute triumph of holistic collectivization. "If we are to avoid total anarchy ... we can do no other than plunge resolutely forward, even though something in us perish, into the melting-pot of socialization."[256] Assuring his readers that they will learn to love this rather creepy state of affairs, Teilhard proclaimed that true union actually differentiates us and that our plunge toward planetary convergence "must have the effect of increasing the variety of choice and the wealth of spontaneity."[257]

Though such promises strangely resemble the corporate hype that now sugar-coats the rapacious growth of transnational

capitalism, Teilhard is really speaking as a hard-core mystical Catholic, with a profound faith iiTthe collective body of awakened souls and the essentially open and evolutionary character of the universe. But the Christian imagination is a coat of many colors, and some of its patches take on far darker and more violent hues. Some Christians, especially those with a brute Protestant conviction in the rock-solid inerrancy of the biblical word, would concur with Teilhard that our headlong flight toward planetization is part of a master plan. But they would strongly disagree about the major actors involved. Knowing that you can't tell the players without a scorecard, they would reach for John of Patmos's Book of Revelation:

> I stood upon the sand of the sea, and saw a beast rise up out of the sea, having seven heads and ten horns, and upon his horns ten crowns, and upon his heads the name of blasphemy. (Rev. 13:1)

Meet Mr. Antichrist, the vassal of the dragonlord Satan. Though John's description resembles some Industrial Light & Magic monster movie morph, most fundamentalist prophecy buffs believe that this beast is actually a man, a supernaturally gifted orator who blasphemes the Lord, restores a number of ancient empires through political unification, and establishes power "over all kindreds, and tongues, and nations." The Antichrist is not alone, however, and soon after the beast comes up from his dip, John sees another creature sprouting out of the earth, a monster who wears the horns of a lamb and speaks like a dragon. This is the false prophet who will seduce "all that dwell upon the earth" into worshiping the Antichrist, apparently by dazzling us with "great wonders" that include fire that falls from heaven and various other sham show-biz miracles. But then things get *really* weird:

> And he causeth all, both small and great, rich and poor, free and bond, to receive a mark on their right hand, or in their foreheads: And that no man might buy or sell, save that he

> had the mark, or the name of the beast, or the number of his name. (Rev. 15-17)

As anybody with a decent collection of heavy metal CDs can tell you, the number of the beast is 666.

Levelheaded scholars would remind us that all this daemonic imagery poured out of John's skull at the end of the first century, when the addle-brained Roman emperor Domitian started hounding Christians again after decades of relative conviviality. The above passages almost certainly reflect the Christian horror of institutionalized Caesar worship, and their antiglobalist sentiments probably stem from the young cult's almost anarchistic rejection of Rome's arrogantly universal state. Using the number-crunching techniques favored by esoteric biblical exegetes, most scholars conclude that the beast himself was probably Nero.

But as we saw in the last chapter, the allegorical outlines of John's apocalyptic spectacle are so large and vibrant that they can fit almost any era—most certainly including the information age. The evangelical community first started getting worked up about computers in the early 1970s, when the striped, computer-friendly bar codes of the now ubiquitous UPC (Universal Product Code) symbols started popping up on salable goods. These weird sigils were interpreted by many as forerunners of the mark of the beast, and some Christians feared that we would soon be forced to have them etched into our flesh. Later scares along similar lines include reports that a Belgian computer called The Beast was being programmed with the name of every living earthling; that Procter & Gamble's man-in-the-moon logo proved that the corporation was in cahoots with the Church of Satan; that Saturday morning kid shows were witchcraft propaganda; and that the numerological value of "computer" is 666.

Such a paranoid style of reading the commodity symbolism and technological systems of contemporary society certainly qualifies as unintended eschatological camp, but these visionary suspicions nonetheless pack a certain imaginative punch. Paranoid

prophecy can generate vibrant examples of what William Irwin Thompson calls epistemological cartoons—superficially garish myths that allegorize more subtle and significant realities. For with their apocalyptic imaginations, Christian prophecy buffs draw attention to many of the technological transformations of society that the rest of us generally ignore, accept, or embrace without a second thought. In their exposé *The Mark of the Beast: Your Money, Computers, and the End of the World,* the evangelical brother team Peter and Paul Lalonde argue that a variety of cutting-edge technologies—debit cards, smart cards, smart roads, biometrics, databanks, microchip tracking implants—suggest a definite programmatic shift toward the world order of the Antichrist, a world order in which all movement, buying, and selling will be tracked and controlled. Unlike more hysterical purveyors of what they call "mark-of-the-beast malarkey," the authors, who also host the cable show *This Week in Bible Prophecy,* stick to solid information sources like *Card Technology Today.* More important, they place their factoids within a sociopolitical context not so far removed from the analyses promulgated by pessimistic social critics. Peter and Paul call it the "last days system"—a world in which cash disappears, information technology foments invisible and diabolical concentrations of power and wealth, and the vagaries of digital identity allow and justify invasive forms of electronic social control and the insidious spread of surveillance devices.

By using the apocalyptic imagination to interrogate the infrastructure of the information age, the Lalondes and their ilk do more than give voice to the powerlessness, anxiety, and fear that many postmodern citizens feel. Their prophetic paranoia also punctures the blasé belief that the current technological metamorphosis of everyday social reality is simply business as usual. Through their wild eyes, we glimpse how readily we have handed over little freedoms in the name of safety, efficiency, and convenience—and how little choice in the matter we actually have. With every electronic transaction, we are projecting our identities into a virtual labyrinth of interlinked databases stuffed with financial, medical, legal, and travel information. From

debit card swipes to identity authentication to electronic ticketing to automatic toll roads, we now leave bread crumbs of bits along every trail we take.

Even if the Lalondes' image of a bat-winged Big Brother seems ridiculously over the top, their concerns about our beastly virtual economy are not. With the collapse of the Soviet empire and the dismantling of the old totalitarian states, the capitalist world of global trade, consumer media, and international finance is indeed poised to dominate "all kindreds, and tongues, and nations." The idea that smart cards are a tool of the Antichrist, or that European Union bureaucrats are restoring imperial Rome, is simply a popular allegory of this capitalist imperium. Clearly, conspiracy theories that claim to describe some secret, invisible, and deeply unwholesome cabal lurking behind the rhetoric of the New World Order are basically delusions. But they are often oracular delusions, dream communiqués from the historical subconscious. The "occult" qualities of the current shift in global power have little to do with the Illuminati, the Trilateral Commission, or the secret rites performed in the Bohemian Grove. With the meltdown of the nation-state and the virtualization of the economy, power now transcends the visible space of representative democracy. It disappears in broad daylight, a vanishing that is aided by the bewitchments of a media industry dominated by fewer and fewer major corporations, and which devotes much of its time, consciously or not, to what Noam Chomsky calls "the manufacturing of consent."

The dark vision of the last days system puts a markedly different mythic spin on globalization than the Gaian mind does, and its lineaments are worth keeping in mind as the machineries of capitalism extend their extracting claws into every fold and crevice of the planet: the deep sea floor, the Communist fortress of China, the genes of rain forest plants and peoples. For now, it is clear that profit, and not cosmic evolution, is the driving spirit of planetization—its major metaphor, its omnipotent and universal truth. As the techno-logic of the market increasingly infects all spheres of human existence, from politics

to education to the family, it achieves an unparalleled domination. Boundaries of time and space that once kept the demands of the market at bay are dissolving into an enveloping sea of silicon, as information technology extends the competitive empire of work into the nooks and crannies of our personal lives. The message of those arcadian TV spots showing folks hanging out on tropical beaches with their laptops and cell phones is simple and tyrannical: We are only free and fulfilled when we remain on the grid, on schedule, on call. According to the philosopher Gilles Deleuze, Foucault's disciplinary panopticon has already been superseded by a more invasive and perpetually morphing mode of coercion. "The operation of markets is now the instrument of social control and forms the impudent breed of our masters. Control is short-term and of rapid rates of turnover, but also continuous and without limit. . . . Man is no longer man enclosed, but man in debt."[258]

While making millions richer, the worldwide economic polarization that electronic capital has helped produce may prove calamitous for humanity as a whole, especially for that half of the population who has never even picked up a phone. In societies across the globe, the widening gap between rich and poor has taken on an intensity so neofeudal in flavor that a few gloomy prophets have dubbed our future the New Dark Ages. Social critics direct our attention to the darkening landscape of inner-city decay, social breakdown, and the gangster of capitalism in Russia and other Eastern European countries. In developed nations, hard-won labor conditions and social safety nets are being undermined in the name of efficiency and profit, while developing countries are witnessing the explosion of industrial shantytowns so foul they make the grinding poverty of village life almost seem like Club Med. For all the hearty entrepreneurs who can bootstrap themselves and "surf the chaos," the hard-core beneficiaries of globalization remain the electronic elect that Arthur Kroker calls the "virtual class": an oligarchic transnational elite with so little connection to local cultures, real workers, or immediate ecosystems that they might as well live in orbit—or at least a gated, privately patrolled, and

totally wired citadel. You don't need to be a science-fiction writer or a futurist in a bad mood to picture how chilling this volatile, undemocratic, and profoundly unbalanced condition might become.

Of course, it's easy to get bent out of shape by the ominous image of the New World Order, of brain lords and cyborg drones, not to mention the already cliched bogeyman of the global multinational corporation. Many pragmatists claim that global trade agreements like GATT, NAFTA, and the Maastricht Treaty promise nothing more harrowing than the McWorld described by social theorist Benjamin R. Barber: a plastic purgatory of global chain stores, fast food, cable TV, CDs, freeways, fax machines, billboards, blue jeans, cell phones, and computer monitors. Given the genocidal horrors that have marked the twentieth century, one suspects there are worse planetary fates than finding ourselves inside a global mall of rootless cosmopolitans more keyed on consumption than conflict. Over a century ago, when industrial capitalism waxed triumphant and Western gunboats kept the restless natives in check, a contributor to *Cosmopolitan* magazine wrote that:

> [T]oday the inhabitants of this planet are rapidly approximating to the state of a homogenous people, all of whose social, political and commercial interests are identical. Owing to the unlimited facilities of intercommunication, they are almost as closely united as the members of a family; and you might travel round the globe, and find little in the life, manners and even personal appearance of the inhabitants to remind you that you were remote from your own birthplace.[259]

Needless to say, this family of commerce is white, urban, and Western under the skin, its global sway dependent on the extraordinary violence and racism of colonialism. But the key McWord here is "homogenous," a term verily prophetic of the flattening effect that today's global shopping center introduces into the myriad lifeworlds of humankind. What thrilled the

Cosmo writer, the possibility of traveling everywhere without ever leaving home, rightly strikes many of us with horror, because that everywhere increasingly feels like nowhere, an immense labyrinth of chain stores, strip malls, and major airport lobbies.

Whether or not the planet itself can handle globalization is another question. Any serious observer must find herself questioning the sustainability of our extractive, industrial, and agricultural practices, our levels of consumption, and our myopic insults to the biosphere. All the cool commodities in the world cannot compensate for a future that promises a massive extinction of plants and creatures, the devastating loss of topsoil and rain forest, a cornucopia of pesticide-laden monocrops and lab-engineered Frankenfoods, and the climatic instabilities of global warming. And while globalization may thrust some social groups and regions into relative affluence, such prosperity could prove to be an ecological time bomb if the exuberant consumption patterns of the West are simply replicated on a global scale. Of course, globalization has also been accompanied by a growing awareness of the bio-physical limits that hamstring spaceship earth. People across the world are opening their eyes to the larger circle of life that humans can neither escape nor afford to ignore. Unfortunately, international eco-conferences seem so far incapable of mustering the will for substantive stewardship, even as global regulatory agencies like the WTO ditch the progressive environmental standards of many Western countries in the name of "restraint of trade." The global economy has also created an even more propitious climate for rapacious multinationals and corrupt local officials to accelerate their plunder, precisely because they operate on an international scale that's nearly impossible to regulate or police. While some believe that breakthrough technologies will swoop in like Superman to save the day, many of the "soft path" technological solutions to ecological problems that already exist remain unexploited because of corporate resistance and political inertia.

One irony in the rise of ecological thought is that its organic models and holistic metaphors are also used to justify the

unfettered excesses of the global market and its technological engines. Many technolibertarians and proponents of the "new economy" espouse a kind of "market animism" that takes shape along neo-Darwinian lines. Exploiting the language of systems theory and emergent properties discussed earlier, these enthusiasts envision a self-organizing and infinitely expanding economy built on feedback loops, symbiotic technologies, decentralized control, organic information flows, and, of course, the absence of "artificial" intervention by states and regulatory mechanisms. As John Perry Barlow forcefully put it in a post to the nettime listserv:

> Nature is itself a free market system. A rain forest is an unplanned economy, as is a coral reef. The difference between an economy that sorts the information and energy in photons and one that sorts the information and energy in dollars is a slight one in my mind. Economy *is* ecology.

The British critic Richard Barbrook calls this kind of rhetoric "mystical positivism," because its appeal to cosmic forces is couched in scientific terms. Barbrook points out that hymns to the coral reef economy not only obfuscate the manipulative power of financial elites, but ignore the immensely productive role that states, regulatory agencies, and other rationalized public institutions can and do play in the information economy. Nor can nature be blamed for the rapid and decisive spread of neoliberal market economies through the post—cold war world, as if global capital was a jungle finally reclaiming the archaic, bloody temples of the nation-state. Many countries whose economies are now splayed before the hungry eyes of global investors got that way through the perfectly artificial politics of debt; once in thrall to international agencies like the World Bank and the IMF, the governments of many developing countries have been basically forced to accept neoliberal market policies that, in many cases, line the pockets of the international banking community rather than address the immediate social, political, and ecological needs of the country in question.

But perhaps the market animists are right. Perhaps the global economy is in some sense alive, and the undeniable creativity, resiliency, and profit-making power of the market are evidence of the emergent properties of neo-biological evolution. After all, interest has always been a kind of artificial life; even Thomas Aquinas, who lived at a time when usury was considered a sin, recognized that "a kind of birth takes place when money grows from [other] money." Of course, Aquinas did not embrace the dynamic disequilibrium of modernity's socioeconomic transformations, which would have struck him as perverse. He believed that the self-multiplying power of money "is especially contrary to Nature, because it is in accordance with Nature that money should increase from natural goods and not from money itself."[260]

Obviously we cannot and should not return to the static cosmology of the Middle Ages, but we still might ask ourselves what sort of monsters are breeding in our midst. Take, for example, the volatile and increasingly virtual global financial markets, whose jangling nervous system consists of metastasizing information networks whose combined traffic probably dwarfs the bitstreams of the Internet. Over a trillion dollars circulate through foreign exchange markets every diurnal spin, and less than 5 percent of this frantic activity represents actual cash transactions; the rest of it zips through an abstract digital hyperspace of volatile feedback loops whose instability and interdependence make them both profitable and potentially catastrophic. Money has gone gnostic, detaching itself from the fleshy vehicle of material goods and production to become a metaphysical chaos of pure information. This is great news if you can run with the bulls, but when the economies of entire nations can be deconstructed in a matter of days, it is increasingly unclear what all this activity has to do with building a better world. As the old animists of the bush would remind us, the fact that the environment is alive doesn't mean that it's always got our best interests at heart.

Or as Gilles Deleuze put it in the early 1990s: "We are [now] taught that corporations have a soul, which is the most terrifying

news in the world."[261] One particularly scary sidebar to this news report is the postmodern return of social Darwinism, the noxious nineteenth-century philosophy that used the idea of the "survival of the fittest" to justify the robber barons and appalling working conditions of the industrial revolution. Nowadays, "selfish genes" and the amoral search for "fitness" are invoked to justify the social policies (or lack thereof) of technocapitalist evolution. Some libertarians and market animists believe that, once freed from progressive pieties and the illusions of social engineering, the market itself will act as an enormous selection mechanism, naturally sifting innovative humans from the unambitious ones, the superbrights from the slothful, the transhuman from the luckless and all-too-human.

That such a sad doctrine could return to the margins of the wired world only indicates how desperately we need to revivify the social imagination, a revival that may very well demand a rekindling of some basic "religious" convictions about the purpose of life and the value of individual souls. When Julian Huxley argued over half a century ago that the mechanism of evolution had passed into human society, he did so not because he thought we should start emulating the slow and sloppy excess of natural selection, with its drunken symbiosis and wayward violence. Instead, we could and should attempt to *redeem* that process:

> As far as the mechanism of evolution ceases to be blind and automatic and becomes conscious ... it becomes possible to introduce faith, courage, love of truth, goodness—in a word moral purpose—into evolution. It becomes possible, but the possibility has been and is often unrealized.[262]

Teilhard de Chardin also saw mans awakening to the reality of evolutionary processes as the opportunity for a profound social transformation. Though committed to a deterministic vision of natural evolution so expansive it included the second coming of Jesus Christ as well as multicellular organisms and TV sets, Teilhard never abandoned the ethical foundations without which

mysticism so easily coagulates into cosmic cant. As Teilhard proclaimed toward the close of *The Phenomenon of Man,* "The outcome of the world, the gates of the future, the entry into the super-human—these are not thrown open to a few of the privileged nor to one chosen people to the exclusion of all others. They will open only to an advance of *all together,* in a direction in which *all together* can join and find completion in a spiritual regeneration of the earth."[263] For the mystical paleontologist, the merciless Darwinian picture of evolution as a selfish, purposeless, and amoral process could never tell the whole story, precisely because it left out the inner spirit of humans and things, the breath and breadth of mind and soul that fills, and fulfills, creation.