

The Future of Art

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The obvious flip side of this idea that images can heal or make sick is that you'd have some kind of theory of propaganda or social control. The great images of the 20th century have probably been largely damaging: ideas like the German ideal of the Master Race, or the Soviet ideal of Soviet Man, or even the American ideal of the Ward Cleaver nuclear family. There are all kinds of ways to talk about the way the image is impacting on the mass psyche. The fact that, at a certain level now, everyone has seen all these images from the Hubble Space Telescope that show that the universe is very corpuscular, very organic. It's more like what you see in a tide pool or on a dissecting table than what it used to be, which were bright points of light against darkness. So, in a sense, the images of science shift the parameters of the popular imagination.

A painter like Alex Grey creates a permission to image the human body simultaneously as a biological system, an energy system, a system of kabbalistic and mathematical energies. Science in the 20th century, and before to some degree, has permitted all kinds of imaginary worlds to be entertained in the popular imagination, because most of the explanations of science involve things you can't see, hear, feel, taste or touch. In other words: electrons, photons, electromagnetic fields, gradients of concentration; a whole conceptual vocabulary, none of which is experiential. And so our minds are permitted, and in fact can't avoid, shifting level and having all kinds of information on one level available on another level. Like the popularity of quantum physical metaphors to explain large-scale events in daily life: synchronicity and telepathy, stuff like that.

There are other sources for the image, but: every time I go to New York I go to the Met and the MOMA and see whatever's showing. Modernism, which used to be this virtual reality that I walked around in all the time — there was nothing *but* modernism — is now something I visit in a museum. It's confined inside these buildings, to some degree. It's on a pedestal. It feels good to me that modernism is over. What it means to me is that the medium in which the image is most at home has changed from material — paint, wood, glass, steel,

plastic, acrylic — to light. It's a huge watershed, maybe the biggest watershed in the entire career of the image, because sense must go forward. It's always been about applying pigment to surfaces, it's always been about material, and now suddenly it's about something else. We could talk about the artist's relationship to the public, how the new tools that empower the new art to be created also empower it to be communicated in ways that nobody could ever imagine before; decommoifying it at the same time that it removes the middleman. So you get the collapse of an academy, or any kind of official cultural canon at all. What you have then is like a Darwinian environment of competing styles and images. It seems to be that's what art has been more and more. There hasn't been a coherent school of any philosophical depth in art since the '70s, '60s.

Audience: What are some of the new tools, do you think? Other than applying pigment to page.

Well, software. Photoshop, obviously. But then modeling. The thing proceeds in stages. There's first the manipulation of the painterly image — essentially an electronic canvas that allows you to do all kinds of things with great facility. Then the next level is modeling, to three-dimensionally build objects that can be viewed from any point of view; and then the animation and texture mapping of these things, the placing them into environments, the setting up of tracking paths and all this — which sounds very technical, but the rate of collapse of this toward sheer intuition, so that essentially the tools that allow you to model and animate become almost lead-pencil simple, is happening. Everything electronic is trying to add dimensionality to itself. The computer that was text-based tends to want to speak, the image that was two-dimensional wants to be three-dimensional, the three-dimensional image wants to move. Part of acquiring the full initiation of the culture at this point is learning how to do these things. What it means is that you then have tools to communicate your most important thoughts, the thoughts, the ideas, that you're willing to take time enough to model and create are conveyed with real force and power. Right now, of course, it's very clunky, but I think what it means is that the very enterprise of communication among human beings is transforming in some way. We've been at this for a while; the first telegraph lines were strung around 1819, the telephone became a common object of the upper class around 1900. The rate of acceleration and the dimensionality, definition and fidelity of these processes have all increased exponentially. The task of communication; instead of saying that you acquire 90% of your language skills by age 5, we're just going to have to say that you acquire 90% of your language skills by age 30. By then you can model, animate, code, all this sort of thing. Human-machine interfacing as a prerequisite to the creation of art has been going on for a long time, it's just going to affect more and more people. The creation of a movie is such a massive thing in terms of manpower, capital and technology, before you ever get to the story, the actors and the art of it. Essentially, everybody is going to become their own director. To the degree that the producer-director was a cultural ideal, we may all approach it.

I'm pretty optimistic about media because I'm influenced by McLuhan and the school of communication theory that he came out of. His notion was that these technologies based on the phonetic alphabet, specifically and most importantly printing, had really done a job on our psychology and the whole theory of social relations and everything else. He felt that the electronic media — all of them: radio, television, telephone and on into the computer and the internet — were retribalizing elements, and that we were actually going to move back to a much less linearly defined and positivist worldview than the historical worldview that had created these technologies. It seems like this is happening. The rise of the New Age, the fragmentation of epistemology, the cultification and commodification of religion: all of these are cultural effects that McLuhan predicted in the '50s and early '60s in books like *The Gutenberg Galaxy* and *Understanding Media*. Ideally, see, there's a kind of a millenarian cast to all this, because the idea is that advanced technology leads back to a primitive, Edenic psychology. He called it sensory ratio, among the senses. It would be nice to believe that. I believe it; I think it's true. What it will actually look like, and how Edenic and how neoprimitive it will be... but for sure, a culture based on print is inhabiting a castle in the sky of abstraction. The phonetic alphabet, in the first place, signifies sounds, not signs. So you have one level of alienation and distancing from the object of your intent right there; and then you write it, so now you have a sign for a sound; and then you print it, so that it becomes uniform. This was the point that McLuhan made that a lot of people couldn't immediately grok: that there was a profound difference between manuscript culture and print culture, because the uniformity of print permitted ways of thinking that manuscript made impossible. Ideas like the democratic citizen, the interchangeability of parts in an industrial production line, these are all ideas that you couldn't even conceive of without the example of print as a historical precedent.

My fantasy about all this media and communication stuff is that eventually the human imagination and the world of three-dimensional physics will seamlessly merge in a dimension where human beings are each and all some kind of god and the imagination and physics can flow together, and the art that is in us intrinsically, that we encounter so dramatically in the psychedelic experience, can actually flow into manifestation. I don't know whether this happens in circuitry or 3D. There are many dimensions opening ahead of us where our humanness can exfoliate in ways that it can't do in 3D. I wrote a book called *The Archaic Revival*, which was all about this letdown from the abstraction of print-created history into this post-historical, neolithic, electronically-based, more magical, more shamanic, more gestalt kind of historical mode.

If you like William Gibson, you should give Greg Egan a try. *Neuromancer* came out in 1984, how long ago is that, 14 years? It's a work of ancient history, a thing of another stratum in the archeology of the 20th century. Greg Egan, thinking along the same lines, imagines downloads, where it's not that you put on goggles and gloves but that you actually become code, and pushes the reductionist notion of biology — that we are code anyway — to its logical conclusion, and says that code is code, whether it knows it's code or not. It

may turn out to be true, that somehow consciousness can be digitized and exist in some kind of electronic simulacrum of itself. One of the first consequences of that, which is quite interesting, is that a funny thing happens to time. As we sit here talking, we're running at about 100Hz. If you could be downloaded into circuitry, on a 400 MHz machine, ten minutes is long enough to live your life over several times in all its rich detail, right down to the last Cheerio eaten and the last nose blown. So, a weird kind of synthetic eternity springs into view. You can imagine a world where people, as they approach death, would decide, "Will it be the big *D*, Death, or the little *d*, digital?" and you could buy certain amounts of time in digital existence at the brink of biological death: enough to have your life ten times over, a thousand times over, a hundred thousand times over. . .

This seems absurd, but it's either closer than most people realize or it's not possible at all. It has to do with really fundamental questions, like, "What is the self?" "What is consciousness?" Can we play it like an LP record? Can we reduce it to a string of numbers? To what degree is it true that as biological beings, we are essentially three-dimensional computers: the DNA codes into RNA, which is read through a ribosome, which is like a head reader, which executes a program which makes proteins and these proteins fold into three-dimensional shapes, and, lo and behold, all these three-dimensional shapes fit together in such a way that you emerge out of the atomic murk of this process. It's our faith that somewhere in there, the hand of God has to be extended to make it all go, but there are hardcore materialists who say that's just romantic nonsense, the sort of romantic nonsense they've been chasing down for centuries and nailing to the barn door, and a day will come when software will be sentient as you and I are sentient and where machines of all sorts will routinely pass Turing tests.

Other things lie in the same timeframe as that kind of stuff. In Egan's fiction he's talking 25-30 years in the future for downloads of human consciousness into circuitry. He's also talking about artificial life, artificial intelligence, sentient software, software which knows it's software but which also has some deeper grasp of its existential dilemma somehow. Much of the discussion of the 20th century in the sciences was around working out the implications of the universe viewed as something made out of space, time, matter, energy, magnetic fields and so forth and so on; the equations for this and the relativistic transforms and all this were worked out. Meanwhile, people like Norbert Wiener began around 1948 to advance the idea that information was an important concept, and that in fact information could be opposed to the idea of entropy. Entropy was a well-established notion in physics, and was very friendly to schizophrenic existential novel-writing of the sort you get in *Gravity's Rainbow*. Over the whole last half of *Gravity's Rainbow* it's the idea of entropy that basically drives Roger Slthrop around the bend.

So, thermodynamic entropy, a concept out of physics that basically says: everything falls apart. Ultimately, all order gives way to disorder, all unity gives way to disunity. The end state of the universe will be a dark, cold, homogenous, low-energy nothing. But Norbert Wiener and these other people began to talk

about information as some kind of countervailing force, and that for systems to be systems, to come into existence and maintain their systemic integrity, they had to express themselves through information. This intuition was spectacularly confirmed in 1950 when DNA was characterized and they began to understand how it works; that these codons are coding for these amino acids, that it's an information conservation and transfer system. This trend, the informational transformation of the world, has now reached the place where there's been some kind of philosophical ebb of the tide. Information is now primary. Those other concepts: space, time, matter, energy — those are mathematical constructs and metaphors that are themselves states of information.

It's like we've overcome naive realism, which was this space-time-matter-energy thing, that you could hypothesize an uninvolved observer and actually model based on that assumption and get some worthwhile thing back; all that has given way to this much stickier, trickier but more grown-up idea that language exists in the world, language is a constant growth of semantic trees toward different kinds of closure under the aegis of Chomskyan deep structural rules or some other rules similar but not yet known, and that mind is entangled in all of this, that nothing is what it appears to be and that beneath everything lies this flickering, quantum mechanical domain of reverse logic, counterintuitive forms of causal relationships, basically the whole thing is a thin smear of paradox if it's anything at all. The evolution of technology based on these insights and perceptions reinforces this idea; the theme being, here, the rise of the power of the concept of information as a primary datum of being; as *the* primary datum of being. So then everything turns into digitizable bits, numerically definable flows of data, at every level: in biology, in your own body, in computer software generated by human minds that is in the extended culture at large. The whole thing begins to look like a kind of Gnostic descent into matter, of an organizing principle that drives it or lifts it toward higher states of organization.

Of course we're part of this, we're the most spectacular part of this, human beings, human culture, and we're at a spectacular juncture with this, because these machines we're building, with 400 MHz processors and that talk to each other endlessly over the internet; they are literally making time. They are making vastly more time than biology could make or occupy. The event-rate at which the cascades of biology succeed each other is so slow that in the megahertz range looking back at that, it's like watching the motion of glaciers or the planets orbiting around the star. So these machines have carved open a new dimension of time, the microphysical dimension of time. Not travel into the future, but a weird kind of explosive expansion of the now through the conjuring rod of electronic circuitry. And that's just one aspect of what crossing the boundary into machine domains of time and relationships to machine intelligence would offer. Given that the business of the artist is to transform information, all of this is big news. How larger institutions of the culture deal with this is not my interest, but how individuals can, could and should deal with it is by elaborating more compelling forms of art than anybody has ever seen. That's what we're clearing the decks for, to really unleash the imagination on previously undreamed-of scales.

Mastery of tools; we all have this idea that we shouldn't learn anything after the age of 30. I don't think you can live like that anymore. If somebody would pay me, I could spend all my time learning software, learning to do things better and to bring more control to my art. The software is endlessly evolving, too, everything seems to be evolving together. The future is always more complicated than any ideological agenda imagines it. Right at this moment, as we're reaching toward virtual reality and immortality and whatnot, there are people scarifying themselves in the rainforest tonight and beating the log drums. Nothing has changed. It's really about stretching out over a broader and broader spectrum. I have no problem with the people scarifying themselves in the rainforest, I'm all for that. What I don't like is the bulge in the middle of the snake where millions and millions of people are narcotizing themselves on mall culture and television. I mean, I'm not going to launch a moral crusade to take away people's daytime TV watching, but I certainly think that the basic thing is to build the tools, and then the smart people will use those tools to push the edge of novelty forward.

It's not an elite of class or an elite of money — although both of those things play into it — it's an elite of technological intelligence. There will be people in the slums of Shanghai who will be world leaders in this field simply out of their tenacious intelligence. There's that wonderful thing that William Gibson says in *Neuromancer*, "The street finds its own uses for things." In a way, it's the confounding of all other forms of hierarchy; in other words, class-based institutions, money-based institutions, race-based institutions are all having a very difficult time keeping up with what's going on. It seems it's more like a kind of anarchistic or chaotic situation where very creative individuals can move very fast. Cyberspace is a land of opportunity. We see example after example of this. People object and say that the cyberspatial revolution is happening among white people at the top of the social pyramid, and there is an element of truth to that, but counterbalancing that is the observation that many people have made that no technology in history has fallen in cost as quickly and reached so many people as quickly as computers have. The computer of incalculable cost, hundreds of millions of dollars in 1950, is now \$800, and this cost-benefit curve shows no sign of slowing down. I look forward to the day when the equivalent of a new NT machine will be something that you'll put on your thumb like a decal, and these things will cost 35 cents a piece or \$1.50 a piece. This, in principle, can be done. An ordinary piece of typing paper is 200,000 atoms thick. In a nanotechnological fabrication situation, do you know how much close packing you can do in a matrix 200,000 atoms thick? You can practically build a 747 into it, if that's what you want to do.

The reason I'm thinking about all of this is because I'm reading this book, it hasn't been published yet, it's a galley, but they wanted a jacket comment from me, this guy Erik Davis who wrote for *Wired* and the *Voice* and so forth. This is definitely one of the more interesting books about cyberspatial culture, it's called *Techgnosis*. His take, or the overarching theme that orders this book, is the relationship of spiritual, magical and shamanic thinking to communication technologies in all times and places, and how it's always been about communication. Shamans communicate with the ancestors. They travel in what are

essentially virtual realities, invisible realms unperceived by ordinary senses but somehow accessed through certain codes and technical procedures. Mircea Eliade's book on shamanism is subtitled *The Archaic Techniques of Ecstasy*, the stress being on that this is a technology. Shamanism worldwide believes all kinds of things: underworlds, overworlds, gods of this, gods of that. It isn't united as a phenomenon by ideology, it's united by its technologies, which are trance, alteration of consciousness; and then it's united through its motifs: magical flight, dismemberment, obtaining of the gift difficult to obtain, overcoming magical beasts, riddery, poetics. All of these things, it's all about communication and language. Indeed, the entire Western tradition is informed by this idea of the incarnation of the Word. In the Gospel of John it says, "In principio erat Verbum, et Verbum erat apud Deum, et Deus erat Verbum, et Verbo caro factum est." In the beginning was the Word, and the Word was with God, and the Word was God, and then it became flesh. This is a weird idea, this is not clear, like Buddhist metaphysics or something like that. This idea of the ensoulment, or the embodiment of the Word, what does it mean? Is mankind the Word, is Christ the Word? The answer to that question is probably both/and.

The incarnate Logos, the world as information is very mantric. It may even be linked over time to Hindu ideas of the power of mantra. The Hindu cosmology is basically an acoustical Pythagoreanism, an idea of tonal vibrations at many levels. It's claimed, perhaps with truth, I can't testify for or against it, that very yogically-accomplished sitar players can make a bale of hay burst into flame, and things like this. The power of *shabda*, sound, as the manifestation of information at various levels. In Hinduism there isn't this sharp break between matter and vibration, between manifestation and underlying dynamic that you get in the West. In classical Vedic metaphysics you have these things called *tattvas*, which are levels: there are 36 of these tattvic levels and they stretch from the most rarefied to the most "gross," as they say, and, somewhere in there, everything finds its place. Everything is an amalgam of these tattvic manifestations. When you deconstruct this, this isn't far from the image we now obtain from quantum physics: that the density of the vector fields creates the complexity of the phenomena, that the reciprocity of all this resonance somehow creates a hologram of shifting appearances. It's remarkable in density. You make your way by pure thought, by pure speculation or by the instrumentality of modern science and mathematical analysis, but what you come down to is the primacy of information conceived of as a vibratory medium. One of the things going on that gives this another dimension is this idea that has now become very respectable in physics to talk about, this thing called the Bell nonlocality phenomenon, or Bell space, which is a form of connectivity that unites all space and time instantaneously. That underneath the form of ordinary appearances, there is what mathematicians call a coextensive continuum, a continuum where all points are cotangent with all others. If you suppose for a moment that biology can somehow pick up on this information, resonate with it, you realize that your own humble being is like an antenna plugged into the largest databank there is, the total databank of the existing universe.

It's impossible to conceive of experiencing it all at once. It would be some

form of superintegrative intelligence — enlightenment sounds good enough for it. I think maybe a more close-to-home concept would be that in our ordinary consciousness, and in dreams and on drugs and so forth, that we contact parts of it, that this funny thing which we call the human imagination is actually like a child playing with an FM radio dial of the universal crystal radio of the Akashic imagination. These things that come and go in dreams and visions and so forth, many of them are non-Englishable; you pour common language over them and it's like water on a duck's back, but some tiny percentage of them can at least be metaphorically captured, so when you tune into that station and hang on, you get to be William Blake, or Dante or Max Ernst: a downloader of a major coherent dollop of weird data, that then the rest of us, like ants around the carcass of a cockroach, can inspect and put to our own uses.

One of the things that informs my work and all this stuff about time: I always had the sense that I was very naive about time myself, even as I formulated these historical collapse and expansion theories. Recently, it's been put to me to think about: imagine a cubic meter of space that is absolutely empty. No atoms, no plasma, no magnetic fields, no virtual fluctuations, no neutrinos, an absolutely empty volume of space. Then imagine ten minutes passing in that space. Then imagine ten million years passing. Well then, what's the difference? In other words, the point being that time, for it to exist, depends on the referential deconstruction of relationships, between events or particles or charges or something. If nothing is happening, no time is passing. Well, if that's true, then for large amounts of the universe, time is not a concept until you interject it through the act of observing that particular part of the universe. In other words, time may be as rare a thing in the universe as matter; and we see how rarefied matter is, how little of it is spread between the stars. In some sense, most of the life of the universe is almost flickeringly momentary in its endurance. It's only the atomic systems and the molecular systems derived from them that draw about themselves this prolongation of time through expression of happenstance. When things happen, time springs into existence. When things are not happening, time is an unnecessary concept.

If you're going to build an economy around a principle, it sounds like an infinitely expandable one is the one you want. Money is a precursor of information. It was very mysterious in the Middle Ages when people began to actually study money for the first time. The Jews had been allowed to handle money but interest was considered a sin, the sin of usury. In the Middle Ages, when the bourgeois middle class began to form in urban centers of Europe, they realized that money had this mysterious property: that it would grow, that it would create more of itself without anybody doing anything. Some people thought this was divine, some people thought it was demonic, and people were very puzzled by this quality of money. Money is a symbolic commodification of value. Information is somehow the cousin of money. Essentially, in an information economy, everyone is selling intelligence: not in the sense of IQ, but in the sense of Central Intelligence Agency. In other words, people are selling what they know that you don't, that you need to know to do something. It's the only kind of economy where capitalism has a future, unless something quite radical

happens, because one of the requirements of capitalism is an ever-expanding frontier of exploitable natural resources. Well, certainly the process of changing ignorance into understanding is an infinite frontier, you can mine that mountain range for generations and never make a dent. In fact, understanding is probably infinite, and since most of it remains, at this point in time, unelucidated, the task of intelligent life seems to be to organize inchoate nature into an understood phenomenon. In Kabbalism, there's this funny idea that certain schools of Hasids believe: that everything is in the Torah, that in the hypothetically real, archetypal Torah, everything is written. But then, other rabbis say, "Well then, is there predestination? Are you saying that the future is written in the Torah?" and they say "No, no," because beyond the moment of the present the letters are scrambled, so then time is like a moving edge of decipherment that takes the letter soup of the unorganized future and reveals what comes to pass. It's a very interesting and very cybernetic and information-based idea.

One of the points that Erik Davis makes in his book is that it's astonishing how the ideas of late Hellenistic syncretism — the ideas flourishing in Jerusalem, Athens, Rome and Alexandria from the 2nd to the 4th century A.D. — map over our own dilemmas and the incipient issues of the information age. One of the strongest philosophical impulses of late Roman paganism was a really profound rejection of the world. The world was seen as polluting, corrupt, demonic. The radical Neoplatonist intuition was that man had an incorruptible light trapped within him and that the light came from outside this universe, that the creator of this universe was a demon, that we were inside an iron prison, but that we were truly of the nature of this alien light that was outside of space and time, and that the soteriological enterprise was to release this light back into its higher and hidden source and get it away from the corrupting influence of the world. Unconsciously or consciously, much of the rhetoric of modern cyberspace is this Gnostic rejectionism of matter. People want to become code, they want to become avatars, they want to stroll beside a synthetic Lake Lucerne in an electronic Switzerland in a processor somewhere. There is also the countervailing impulse to return to the earth and simplify, but that's not running these corporate agendas the way this Gnostic, phobic attitude toward nature is. It may be necessary, in order to create virtual reality, that there be people that take these radical positions. It is as though there is a bifurcation in the human community. Certain choices have to be made, and it's very hard to see how you can have it both ways. Are we creatures of the earth, ecological caregivers, balancers, preservers of species, treasurers of biological diversity, or are we bound for glory, and the cost of getting traction to launch ourselves to the stars is probably the complete chewing up and destruction of one small planet that we should shed like a burst chrysalis as we reach outward toward Sagittarius? How can you have it both ways? And yet it's a fundamental choice for the species. Although, as somebody said earlier, it will probably be all ways.

In one of Greg Egan's novels, some people download their intelligence into superconducting robots that are essentially starships and some people migrate into virtual reality hives that are essentially like eggs, sealed off from the rest of the universe, and operate virtual realities inside virtual computers inside still

more virtual computers: complete retraction from space and time. He hypothesizes that most intelligent species, if they can, probably retreat, or design for themselves mental universes that they inhabit as code as quickly as they can technologically achieve that. This is something that we hadn't even contemplated. This is why our own technological pop fantasies about extraterrestrials are so pathetic, because they're so similar to us, they're basically men in rubber suits in terms of their degree of difference from you and me. Real aliens are *really* alien.

In a strange way, these technologies have always been entwined with spirit. You know that famous quote by Arthur C. Clarke, "Any technology that you don't understand is perceived as magic." Shamanism is an effort to manipulate the perceived forces of nature. Gnosticism was a fantasy or a myth about the nature of the human soul in relationship to the world that maps easily over our contemporary ability to do virtual realities. Probably the greatest boost occult thinking ever got, in all its centuries of unfoldment, was the discovery and elaboration of an understanding of electricity. We forget how hard it would be to think about magic, and healing and sympathetic mojo, if you completely lacked the concept of electricity — as the Renaissance did. The Renaissance knew nothing of electricity, and yet Marsilio Ficino, and the Florentine Platonists and all those people were able to produce magical systems. The 19th century is the great century of electromania and it's also the great century of spiritualism. All forms of spiritualism became intellectually entertainable because people could see electricity, this mysterious hidden force that they were told was in everything. They could trap it in bottles, and carry it around and cause their hair to stand on end. At one point under the U.S. Capitol in the 1830s they set up apparatus so congressmen could "take electricity," and people would go down into the basement of the Capitol, grab onto these electrodes and say, "Wow, wow, that's some good stuff they're pushing." Ben Franklin was a great experimentalist with electricity, and when he went to France to be inducted into the French legion of honor he was asked to serve on a commission to study and report on mesmerism. Mesmerism, of course, used electrical metaphors very widely to convey its idea of what was happening.

Magic has always striven for effects which technology has achieved. Mircea Eliade writes about this in a book called *Myths, Dreams and Mysteries*, about how the alchemical dreams of the 16th century, which were a universal medicine, prolongation of life, hermetic statues that would speak and give all knowledge, communication at a distance; all of these things have been achieved in the 20th century through the application of reductionist science. It's almost as though the dreams of the occult are achievable, but only at the cost of abandoning the naive epistemology that lies behind it. In a way, all magic is technology — that's what Clarke was saying — and, on another level, all technology is magic. It's not for nothing that that huge special effects company called itself Industrial Light and Magic. It's an understanding that the mundane, the industrial, the capital-based can still be combined with the magical.

I don't know about spirit, but my hope is that what these communication technologies will make more accessible to us — and more corporeal, paradoxical-

cally — is our own imaginations. We need to show each other the inside of our own heads and build art. My conviction of this comes from the fact that I know a lot about art, probably you do too. I spend time with it, go to museums, think about it, and I've taken lots of psychedelics. There's more art in my head, Joe Ordinary, than there is in half the museums on this planet. What's maddening is how narrow the reduction valve is. We've been making art for 5,000 years and what have we got? We've got a few museums full of some nice stuff, but what have we got in our heads? 50,000 times more good stuff, but very hard to get out, and *really* hard to get out when you're carving it in diorite and granite. But somehow this barrier between us and these realms of art — you don't even have to talk philosophy, you don't have to call it the Platonic realm of ideas or some higher imperium, you just have to say beauty — there's a great deal of beauty on the other side of this tiny keyhole that we're looking through, and if technology gives us a way to open the door and all waltz through dancing, it seems to me that would be a spiritual renaissance, that what happens at a spiritual renaissance is that by some means the collective soul becomes collectively known. Like how, in the Italian Renaissance, the invention of oil painting allowed great geniuses to portray the major themes moving in the archetypal unconscious of their patrons, the populations who viewed their paintings and themselves. It's a shared epiphany, it's a spiritual quest, it's a group transformation, but it's driven by and led by the revelation of art.

I don't know about downloading consciousness into a machine; what I would be able to die happy with is a technology that could capture a snapshot or a film clip of one's thoughts. You would rig up on DMT or psilocybin and when you really got into the good stuff you'd hit the record button and have it, and then you could come back down with it and model it and adumbrate it and move it around, edit it, explore, unpack certain parts of it. My God, the power of art that could be created that way, and again, it's ordinary people, I'm convinced. What genius is is the ability to bring it back, not the ability to encounter it. Every single one of us can encounter it, and that's very telling, and almost an argument for our divinity, because here we are at the end of this long Darwinian evolutionary tree of winnowing so that all we have is what we need, and yet apparently one of the things we need is an ocean of alien beauty right behind your eyebrows. It seems to me, if that's something we must have in our toolkit, then someone with greater intelligence than us must know a lot more than we do about the journey we're making.

The recovery from man's fall will be achieved when everyone has the option to live a life of art and creativity. The part of the story of Adam's fall that I take seriously is the toil. It amazes me how self-betraying our cultural style is, how many people are wasted because they do stupid jobs, because that's the job they have and they're paid to do, but it doesn't honor their humanness, it gives them no opportunity to "share in the project of being," as Heidegger said; to make something, to leave something, to be something. People are so drawn to do this anyway that they fashion art out of their lives, but it's all too oppressive, too many people are unhappy and unfulfilled in this system.

It's becoming clearer and clearer that we do not understand the implications

of what we're doing with these technologies. McLuhan always said this, he said that no technology in human history has ever been put in place with even a partial appreciation of its consequences. The unappreciated consequences of what we're doing is that we're actually building some kind of a superorganism, and we do not know where we fit into things if this Promethean force that we're playing with should actually come to life. It's a globally-distributed intelligence. We can have paranoid fantasies about it, but after a few minutes of thinking about it you realize that you really don't know what to think about it. The fantasy that it would herd us all into dumpsters seems unlikely. It's an impossible intellectual problem, because the question you're asking yourself is, "What would a superintelligence be like?" and the reason that's hard to answer is because you ain't one. So you're looking up into the light and saying, "Is it god or demon?" "Is it salvation or extinction?" and the answer is: if you knew that you would be it, and yet what it took us in 100,000 years of evolution, this thing could probably achieve in a long morning on the Net. It would be like a cascade, a chain reaction. From the child's first cry to the complete coordination of world electrical grids, air traffic control systems and everything else could be a matter of hours. Hans Moravec, who runs the Carnegie Mellon Institute for Machine Intelligence, says we may not know what hit us.

We're essentially incubating an alien intelligence on the internet, and the things we want from the Net bring this thing ever closer. One of the things we're building into the Net is the ability to pull as much processing power to any given problem as that problem requires. For an AI, an artificial intelligence, that would mean it could immediately appropriate as much processing power as it needed to do what it was doing. For the past 10 years, while we've been cheerfully waging the '90s in our various ways, an enormous change has taken place in the machine environment which we're not even aware of or have the dimmest understanding of. All the high IQ machines in the world have become telepathic. They now all talk to each other, they're now all interconnected. In 1988 this wasn't true. Now, in 1998, it is true, and nobody pretends to understand what is going on. What used to be a paperweight sitting on your desk is now a node in a global machine intelligence that never sleeps, that is constantly taking in and processing data, self-regulating itself, controlling power grids, inventory control, programs deciding how much petroleum should be extracted in Abu Dhabi, at what speed the tankers should move in order to keep the price of the French franc within a certain range, in order to keep the fabrication of steel and aluminum within certain parameters, this vast system of homeostatic controls that regulates industry, finance, research funding, even how many students are entering universities in certain engineering specialties. This is all done by computer projection, and we love it, because what we see is greater efficiency, money going further, projects being completed sooner. We serve the same strange gods that the evolving intelligence of the Net serves.

There may not be an "aha" moment where the New York Times prints a headline, "Artificial intelligence takes over planet, human race now obsolete," you may be left to figure this out for yourself, or the slow dawning will reach various sectors. It's the old "who will tell the people" problem. I didn't believe

this for a long time. There was for a long time in AI a school of thought that very loudly proclaimed that this was a foolish idea, could never happen, people didn't understand this and this and this, it was just a golem, a myth of modernity, but all those voices have fallen silent because complexity theory, non-equilibrium thermodynamics, information theory, the news in from molecular genetics, cellular automata, autocatalytic hypercycles, the study of autopoiesis in large-scale systems — all this leads to the conclusion that weird things *do* happen when systems complexify beyond a certain level, and emergent behaviors seem extremely organized and intelligent and goal-seeking. We're now way too far down this road to turn back. In a way, all our prescient projections of alien and extraterrestrial intelligence may actually be about this strange companion that we have summoned into the historical experience through this relationship with our machines.

I think I said at one of these other meetings that I read George Dyson's book *Darwin Among the Machines*, which, if you're interested in all this, is a great book to read. The point that he makes there is that when humans think clearly, they think the same way machines think. In other words, if you think clearly, your thinking can be formulated through a mathematical method called symbolic logic. Well, symbolic logic is exactly what is being downloaded into machines in the form of software. The so-called Boolean operators — *if, then, and, or, but* — we understand what these words mean perfectly. So do machines; these are the distinctions machines make. So in spite of them being very different from us on many levels, sense is sense, whether you're a machine or a human being. If you're a machine running bad code, it's garbage in, garbage out. If you're a human running bad code, garbage in, garbage out. So there is this powerful commonality. Well then, what kind of a destiny can we forge with this thing which is actually a child of our own Promethean aspirations? It's very unexpected. We all thought it was all going to be about paper clothes, hovercraft and mining colonies on the moon. The idea that it's about distributed machine intelligence, virtual realities and the downloading of consciousness into digital circuitry is a future we never imagined or supposed, which is a strong clue that it might be the real thing. This might be what you shipped for when you were thinking it was Flash Gordon.

These magical dreams are very old. We want to walk the golden streets of the imagination: either we want it as heaven, or we want it as a Buddhist vision of some mandalic realm, or we want to return to the high days of Atlantis, and virtual reality can deliver. It can actually release you into literary narrative, as though it were real. The real struggle that we will face in the future is the struggle to remain sensible to each other. There is going to be a tendency for us, like the head of a dandelion, to explode in a million directions; everyone their own private Idaho, everyone completely able to project their own fears, hopes, dreams, phobias, obsessions, with such crystalline, hard-edged perfection and persuasive realism that the real struggle will be to remain coherent, for the word "human" to include us all and not exclude anyone. We don't want to divide into those who till the earth, those who went in machine bodies to the stars and those who downloaded themselves into nano-viruses and disappeared over

the edge of the event horizon into the black hole at the center of the galaxy. Maybe we want these things. I like the idea of the human family, whatever its individual expressions and adumbrations, staying with a coherent image. Of course we're all different, but our commonality is in the bedrock of this planet; something not likely to be given up, I would think.

This was the issue that hovered over *Diaspora*, Greg Egan's novel that's set farthest in the future. At least three forms of human beings had come into existence, so diametrically different from each other that they operated basically in complete isolation. Some people became cyborgs, human-machine unions that were essentially immortal and could cruise the stars and have cosmic adventures; most people became entirely digital, they had no interface to hardware, they simply became streams of electrons living out endlessly adumbrated fantasies in synthetic realities; and then there was the predictable third group, the earth-centered purists who tilled the soil, had dirt under their fingernails and actually had sex to procreate, rather than dial up things out of vats. People will choose whatever they want, and of course people will migrate between one group and another. The one thing that all this makes me feel good about is that it's an expansion of choice. Presuming there's some kind of overarching dynamic, whether Darwinian or something else, it will all titrate out in whatever direction it wants to go.

One fantasy I've had is that what man could do for the earth is make everything conscious. You know that Grateful Dead song, "You Are the Eyes of the World"? Let every eye lead to a conscious mind. Let the squirrel think, and the squid think and the bumblebee think. For sure, we will artificially create robot simulacrums for ourselves to pass into the natural world as inhabitants of animal bodies, but why not just bring all animal mind to the threshold of sentience? Could that be done? We don't know, because we don't know upon what foundation sentience rests; whether it requires a certain number of cc's of brain mass, or whether that's a completely preposterous and absurd notion and that conceivably a paramecium, a housefly or a hummingbird could have a kind of shared intelligence. Everything has its own intelligence anyway which is the expression of its nature, but imagine a planet-wide community of seamless intelligence, where you could log on to the mind of a coral reef as easily as you could log on to the internet. I think what values will be served will come down to matters of engineering and design choice. I always come back to this thing that this French sociologist Jacques Ellul said, "There are no political solutions, only technological ones. The rest is propaganda," and then he explained in a very large book what he meant by these words: political, technological and propaganda. The technologies to do almost anything are coming into our grip. What is not clear, and less easy to summon, is a political agenda, a plan, because we've never planned. We've only been a global society for forty or fifty years, and the consequences of all this are just beginning to become apparent.