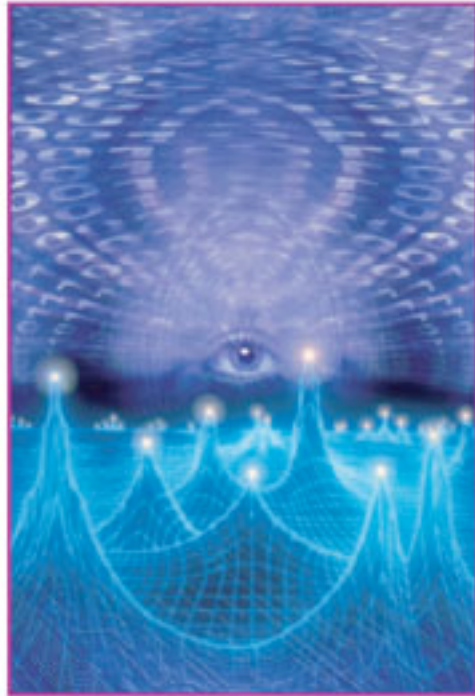


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PARADOX NEVERENDING: PSYCHE AND THE SOUL OF
THE WEB: A CONVERSATION WITH DEREK
ROBINSON

LEIGH MELANDER

The World Wide Web is a place (and nonplace) of paradox. It is an Indra's Net of jeweled global connectivity between autonomous individuals, an image of empowerment, interdependency, and communication, but with dark shadows of entrenched hierarchies, corporate commerce running amok, legal and illegal attacks on individual privacy. It generates both rhapsodic praise as a tool for re-inventing and re-imagining the world, and equally strong condemnation as an "addiction" that substitutes for the rewards and challenges of real life, a zombie-like virtual existence in the mind of the machine.

It offers some of the purest entrees into the world of ideas and some of the most egregiously crass mass media manipulation. It offers philosophy and pornography, side by side. The Web is a place where clever marketing can vault unknown individuals and companies to stratospheric fame and fortune overnight, while some of its most ingenious creative thinkers can stay anonymous, playing with ideas without finding the need to sing their own praises.

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Derek Robinson is one of those thinkers. He taught Photo Electric Arts in the Integrated Media Department of the University of Ontario and researched technology for a “voice puppet” interface for people with severe motor deficits at the University of Toronto’s Adaptive Technology Research Centre. He has engaged in extensive research in bioinformatics, an interdisciplinary approach to biology through applied mathematics, biochemistry, artificial intelligence, computer science, and statistics to make complex life sciences data more understandable, known most broadly through the Human Genome Project. His bioinformatics research was presented at the International Joint Congress of Artificial Intelligence in 1993, and the “coincidence sets” algorithm developed through that research was utilized as a core component of the bioinformatics software suite developed by Molecular Mining Corporation, Kingston, Ontario. With web luminaries Jason Classon, Stewart Butterfield and Caterina Fake, Robinson helped develop *Game Neverending*, which morphed into the popular photo-sharing site, Flickr, which allows people from all over the world to upload photographs and videos into virtual photo albums. He imagined early versions of “reciprocal syndication” — automated, live hyperlinks that connect web pages together, such as those found in social networking sites like Facebook, while a simple browser-based rich text editing demo he wrote helped define Web 2.0 (the re-imagining of the World Wide Web as a lateral, co-created medium rather than a static construct of owner-created websites that has birthed the explosion of all of the social networking sites like Facebook, MySpace, Flickr, Gather, and joint knowledge construct sites like Wikipedia) as a more democratic, two-way “read-write” medium, where the users are also the content creators. He is also active in the conversation about the next dreamed iteration of the web, the Semantic Web, which is building the technology necessary for computers to organize and share information based on linked meaning, allowing people to share content beyond the boundaries of software applications and websites.

Derek Robinson is his own dance of paradoxes: an imaginer of connectivity, an internet philosopher, a gentle anarchist who has been a witness to the birthing of several of the most creative technology applications in the last decades. His involvement with the philosophy of technology goes back to the mid-1970s when for a time he was, he

says with characteristically self-deprecating Canadian wit, Marshall McLuhan’s pet rock. And you have never heard of him.

For Robinson, that is as it should be. His world of technology is the world of ideas, of possibilities, and a humanistic connection that celebrates the dance between individual and collective without being caught up in the race for money or celebrity. He doesn’t seem to mind their absence. For him, the point is interaction, much like in *Game Neverending* that he helped design, where no one actually wins and success remains undefined.

I met Derek about a year ago, online, through another colleague who was interested in online community. Over the course of that year, we have had many conversations about *communitas*, imagination, and the soul, and where they intersect with technology. Like the Internet and like psyche both, our conversations are spiraling and nonlinear.

The following is one of these conversations, conducted, appropriately enough, on Skype, the internet/phone system that removes the need for long distance phone lines and allows conversers to share voice, text, image, and even live pictures of one another as they speak. It is a short course on the history of the psyche of the internet, its goals and shadows, beginning with Bishop John Wilkins’ and members of the Royal Society of London’s efforts to catalog all of creation to the coming newest iteration of the Semantic Web, the next generation beyond Web 2.0—working towards making meaning of all of this information we are wildly posting and collecting, weaving context and interconnectivity of ideas. Intertwined with these underpinnings, we played with the question: where is psyche in the Web? How does it reflect soul and open us to new psychological possibilities?

We begin at the beginning, imagining the birth of the Web.

LEIGH MELANDER (LM): Where do you think the soul of the idea of the Internet was born?

DEREK ROBINSON (DR): I think some of its earliest antecedents were in the ambitions of 17th and 18th Century scholars and mystics to define a perfect or Edenic language—for example, Bishop John Wilkins’ artificial language of self-illustrating words whose

definitions or ontologies, what they mean, could be read directly from their syllables and graphic signs. The Royal Society and other communities in the early modern period wanted to catalog and map everything, everywhere. Leibniz had the idea for a synthetic logical language that would be so clear and so free of ambiguity that people could resolve their conflicts by sitting down and saying “Let us calculate.” It’s a beautiful, rational, idealistic, and probably impossible thought. But it certainly helped inspire the logicians and engineers who created the computer age in the mid-20th Century.

Umberto Eco’s book, *The Search for the Perfect Language*, traces the history of this ideal. On the cover of the book is a picture of the Biblical Tower of Babel. The Web, in particular the Semantic Web project of Tim Berners-Lee who invented the WWW in 1991, aims to undo the curse of Babel: it aims to allow each of us metaphorically to speak our own language, while understanding the thoughts of those around us. It began as a utopian search for connection, towards understanding, overcoming human differences through knowledge.

(LM): In its earliest iteration, the Internet was imagined by J. C. R. Licklider as a “Galactic Network,” in work commissioned by the American Defense Advanced Research Projects Agency in response to paranoia about the Soviet’s success with Sputnik—the U.S. Military seeking ways to better its communications in the arms and space races and to develop a communications system that would outlast a nuclear strike. But then it fairly quickly moved into academia?

(DR): I think a great central archetype of the Web has been that of a global brain—this is from the title of H. G. Wells’s book published in 1937, *The World Brain*. Wells was inspired by the work of European documentarians like Paul Otlet, a pioneer in what is now called information science, and by the new technology of microfilm, to imagine a worldwide effort to create a new permanent Encyclopedia that would unify all humanity, or at the very least preserve our common heritage should the rapidly approaching world war bring about the total collapse of civilization. This had also been a big part of the motivation of Leibniz and Wilkins and the other artificial language projectors, 300 years before.

One of the Web’s shadows is the threat of oligarchic control: the ability of nation-states and/or corporations to eradicate the very concept

of privacy. Like with what they’ve taken to calling “biometrics,” the way our steps can be traced through stray bits of DNA, the way ants leave lingering trails of pheromones. A world without privacy. But there’s also a way in which this is quite wonderful and liberating, too—“even the president must sometimes stand naked.” At some point, people will have to drop the pretence and admit their incorrigible humanhood.

But mostly it’s about making connections.

(LM): Why do you think these connections are important? Is there psyche in these connections?

(DR): Oh, yes—now the tribe is global. The effort is to connect the tribe. How can we reach out to one another, gaining understanding from each other’s ideas and perspectives? And how can we archive those connections and conversations without exerting editorial control on which conversations are important? Is it possible?

What interests me about this is taking a lesson from anthropology—it’s the anthropologists’ dilemma, when they’re out “in the field” in some remote settlement, recording stories, customs, and language, but their very presence threatens and hastens the destruction of the way of life they are recording. It becomes archival, something for the museum, the cabinet of curiosities—but in the same stroke, it also becomes something for all of humanity. Something is lost and something is gained.

But it’s only gained if we succeed in keeping it—one of the challenges of digital media is that it is so fragile and transitory. Magnetic tapes from even 20 years ago, from remote-sensing satellites or the Voyager Mission, say, are already falling apart, the bit-rot is setting in—we don’t have any machines that can read them, they’ve lost the Captain Marvel decoder ring, it’s just jillion dollar garbage. If something is on paper, it might endure 500 or 1000 years, but digital technology changes so quickly we’re losing much of what we’ve gained. Library card catalogs and newsprint archives which have served generations of scholars are destroyed and replaced by an expensive proprietary piece of software that’ll be obsolete in five or ten years—people are being so shortsighted, it’s like they don’t care, they’re not thinking, they’re just doing a job. It’s not like they’re being paid to think...

But, digital media is noncommittal as to content. You can capture cultural memory in every sensory modality, at least in principle—we've got a ways to go on scents and tastes, but it's coming—the digital medium is incredibly omnivorous, vicarious, and precarious. That is its paradox: digital media provides us the opportunity, in its scope and possibility, to begin to archive cultural history and consciousness laterally, but the medium itself is so transitory.

I think that's interesting in itself. I remember a science fiction story from the 1950s, written by a librarian, where all of human knowledge had been committed to a little crystal about the size of a grain of sand—then of course they lose it, oops! Marshall McLuhan used to talk about how you only become conscious of something when you lose it. Only when you emerge from it into some other thing can you understand what was important about the first thing. This is an amazing psychological move. So the paradox circles back on itself—perhaps part of digital media's value, as well as its limitation, is its fleeting life cycle. Maybe it can help us to suss out what is important to us by illuminating what we have lost.

(LM): Circling back a little, that's one of the great critiques of the Web—the vicariousness—that we aren't actually engaging in anything, but are just receiving.

(DR): Yes. That's a great question. Where is the living there? Where is the being?

Having direct experiences, personal experiences, a sense of engagement is so much on many people's agendas currently; I think it is a quest for the spiritual. I think there is a convergence on what that sense of direct, nonconceptual, immediate experience means, where art, mysticism, and spirituality all collide. There is a phenomenology with this that plays very interestingly in the "nowness" of the Internet. You are there—you're eyeing it—it's some kind of shared moment.

Stewart Brand, who created the *Whole Earth Catalog* (which incidentally at one point in the 80s morphed into something called the *Whole Earth Software Review*) insisted that the modem was the most important development of the computer age. His gang really moved forward with the idea of the Web as a relational and psychological force—they were the "macramé and brown rice," counterculture types who were also developing video games.

They really created the first sense of virtual communities, which started with the old bulletin boards and now are the forums, listservs, and social networking sites of the Web. Personal computers became relay points for grass-roots, many-to-many communication.

(LM): What's next on the horizon with this kind of communicating?

(DR): I am excited about the imminent availability of multi-touch displays and the wall-sized flat screens that had been promised by our science fiction friends for a long time—an interactive flat surface where you can use fingers as cursors, with both hands, drawing things spatially in depth. And endowing computers with rudimentary senses, pattern recognition, eventually this will go far beyond anything we're seeing today, in the direction of sensory and cognitive enhancement or augmentation. Not quite sci-fi cyborgs, but when it happens it will seem so ordinary that we simply wouldn't see it in those terms. It's like, is Stephen Hawking a cyborg? In the 1990s, I was working on an assistive technology "voice puppet" for people with major speech disabilities; this was technology that required a kind of simple "mind reading" capability on the computer's part to read intentions from fairly subtle physiological clues. Some people find that scary.

Again, this is a sword with two sides—in the hands of the "evil oligarchy," it could be pure 1984—it could easily become the TV that watches you as you watch it. Piracy, child porn, terrorism, there will never be a lack of reasons for inviting the thought police to watch everybody's every word and every move. This global panopticon has grown up around us. But the flip side of the flip side is 100s of millions of cell phones with 100s of millions of video cameras built in, which make it much harder for governments to act in certain ways without raising an immediate global outcry. And I hope to see greater use of remote sensing and digital telemetry in the foreseeable future, documenting perfidious acts of corporate polluters, for example.

(LM): One of the paradoxes I'm caught by is the privacy issues that you're talking about in relief with the anonymity of the Web—with screen names, for example, you can be who you want to be.

(DR): I think this is one of the places where psyche can be most playful on the Web. It can shape the nature of our interactions and

they can become more playful. We can have more of a sense of “putting on” a persona as a normal way of being, the way theater people do, the way performers do. I’m thinking of this generation of kids growing up with their online lives; there is no one more concerned with their authentic self than a teenager! But this kind of adopted persona can open up the multiplicity of that authentic self, allowing us to explore our multiple selves.

Of course, this brings us back to the question of spirituality. Which self are we talking about? Little self? Big Self? But there is more mutability, more flexibility.

This brings me to a fond, fond wish for the future of the Internet and how human beings relate interpersonally and intrapersonally.

(LM): A fond, fond wish! The best kind...what is it?

(DR): We’ve lived with bureaucracy since the time of Hammurabi, long ago and far away, when certain systems—empires, armies, priesthoods, book-keeping practices—first got established. The anthropologist Jack Goody talks about this in his book *The Domestication of the Savage Mind*, and Bruno Latour, the philosopher of science, always comes back to how long-lived certain cultural practices have been, these ingrained and unquestioned ways of being.

Our practices get coded—in archetypal ways—think of a Table or Grid of rows vs. columns, things against their qualities, and how this orthogonality or rectilinearity becomes part of how we view the world. There’s the bureaucratic context—“bureau” means “table” after all! Tables are often hierarchical, like a book’s Table of Contents, which is serial, linear, step-at-a-time, logical, “a thing either is or it isn’t” kind of thinking. No ambiguity. Tables impose their own order, they demand there be no gaps, no overlap, they subtly coerce people into chopping up reality to fit the table’s needs, not the human needs. Isn’t that just like bureaucracy though? I mean, apart from all those good and wonderful things bureaucracy has done for us, of course! Like that bit in Monty Python’s *Life of Brian*, about the Romans ...

And maybe they are only cultural habits because we’ve been inside our own culture for so long. We become a culture of certain practices, and those practices are dictated too often by the needs of bureaucrats, such as simplicity, non-ambiguity. It would be stunning, revelatory, if people could just get human with one another. If we could simply

acknowledge the person on the other side of the table as human, going both ways, from both sides.

I think that the Web can help people do that, like in the title of the Richard Brautigan poem, “All watched over by machines of loving grace.” It’s this kind of Whitmanesque fantasy, an image of aroused multitudes who will, through the fierceness and purity of the fraternal love of human for human, beat these digital swords into ploughshares and so prevail against the air-conditioned nightmare of industrial civilization that the artists and poets have been railing, wailing, and howling against.

I worked in pattern recognition for years. There really isn’t any technical obstacle to realizing Brautigan’s dream. We really can all help each other, and the software could even help with it, but there are still those powerful forces of darkness and ignorance arranged against us. For example, there is constant pressure to make the web a place innately of capitalism. The major internet service providers are currently fighting to create a financial gateway for email delivery—under the guise of protecting us from spam, they’re interested in selling email accessibility to their members to the highest bidder, thereby shaping who gets to communicate to whom, about what, and when. It’s not a far leap for anyone in power to dictate the same thing—be it companies or governments, ideologues, or religious institutions. You can shut down the revolution that way, by shutting down ideas.

(LM): So this could be a revolution? What kind of a revolution is it?

(DR): Oh, sideways! Definitely lateral.

I spent a lot of time working with indexing, and where you’d find indexers was in the field of library science, which was divided into “lumpers” and “splitters” — cataloguers and indexers, which were like two different species that don’t really belong on the same planet. Or it’s like there’s one schizophrenic little boy playing on the beach, delighting in building up sandcastles and then flattening them, smooch. We have a psychological urge to build things, to see the splendor in connectivity, and a similar urge to separate or destroy. We get caught by the idea that these things are mutually exclusive.

But the index is about flatness, no hierarchy. You tear down the towers even as you build connectivity. This is something that the Semantic Web will have to deal with: how you assign connections and

make meaning while staying in the anarchic splendor of everything being equal and equidistant.

I think this relates to psyche in a very profound way, seeing the mind as an associative matrix, if you like. This comes, of course, all the way from classical philosophy going back to Aristotle, up to the latest in cognitive science and neural modeling. The Web is this vast associative matrix as well. Look at Google—that's the power of the index, lateral connections, all edge and no center.

This is very profound, and certainly I'm not alone in noticing it, but if people actually get this ground into them from living with it every day, using Google, learning to think the way Google thinks, having it rubbed into our pores this way, maybe that could really change things, change the collective consciousness ...

(LM): This is the multiplicity of psyche?

(DR): Yes! And it plays out in an extremely important way.

We live, mostly, in a logical, linear, self-narrativizing, rationalizing, and objectivizing mode of cognition—this narrative that is, by turns, our guide and our pet. Sometimes we lead our little thought monkey, and sometimes it leads us. Most people are completely self-identified with it, even if many of them aren't even aware that it's there. It's so intimate, it's so much who we take ourselves to be.

But, it breaks down when confronted with the a-logicity and a-locality of a network. It gets shaken out of its self-absorption. Circular causality breaks the logical, rational, hierarchical, categorical mind. Not permanently, but long enough to stop and question "the general in the head," as Deleuze and Guattari put it. It challenges the linearity of general's logic: X is true, so it follows that Y is true. In circular causality, X is also true because Y is true!

In the history of ideas, it took an incredibly long time for people to get the idea of feedback. The great mathematical physicist James Clerk Maxwell wrote an essay in the mid-19th Century about feedback, and no one understood what he was talking about. It wasn't until the 1940s-1950s that people began to understand the idea. Now it's part of the lexicon, so that's real progress!

This is key—this is Indra's net. Everything is operating in relationship to everything else. We still have trouble with this. The logical, rational part of the mind sees it as vicious circularity that makes

everything seize up and stop. Remember the Star Trek episodes where some planet-sized computer was going to destroy the USS Enterprise? But Captain Kirk would come up with some logical paradox, and the computer would blow its circuits, couldn't figure out how to deal with it. Our brains are the same way, they get caught here. Actually, I think that this is just about the only thing that logic is good for, convincing itself to commit *hara-kiri*.

Rudolph Arnheim, the art theorist, talks about this in a wonderful way, using colors. There's a logical paradox in how we perceive colors. The world that you see when you open your eyes is a bunch of color patches, even before the various shapes begin to articulate and mean something. Each patch of color gets its sense, the color it is, from the colors of its neighboring color patches. But those patches only get to be the colors they are, the colors the eye sees, from the combined effect of the colors of the color patches adjacent to them, and so on and so on. Ultimately, all the color patches depend on all the other color patches. Therefore, logically, it's a vicious circle, an impredicative definition that can't possibly work. Colors can't exist, and we can prove it. Yet there they are!

It's the same with the words in a sentence. The meaning of a sentence obviously depends on the meanings of the individual words that make it up, but each word can take any of several possible senses, and which of them is the correct sense depends on the meaning of the sentence where the word appears, the entire context—the hermeneutic circle. The mainstream of linguistics got stuck there for 40 or 50 years. They just said, "Semantics? We're not even going to go there." Caught in that reductivist science world view. Houses are made of bricks, bricks are made of houses. Except in biological systems and ecological systems and cognitive or semiotic or symbolic systems, bricks *are* in fact made of houses. Christopher Alexander talks about this at great length in *The Nature of Order*, and from the reception he's received it's obviously still an uphill struggle getting the message across.

People resist it because it threatens their sense of stability and security. There's no solid ground if everything rests on everything else and it all keeps shifting, the landscape keeps dancing, as Stuart Kauffman would say. Science has rediscovered the creative power of circular causation, mutual determination, self-organizing systems, over

and over again—but knowing how things are, intellectually, isn't the same as getting it viscerally, in the bones and gut.

And, on some level, it's all semantics. Meaning is completely co-determined, relational. This is psyche, a move towards soul. Symbols have meaning because of their co-determined contexts. Archetypes as well. Charles Sanders Peirce once said humans are signs, we get our meanings from the people around us, their lives, acts, and words are living signs to us, as ours are to them. In the Web, particularly as we move forward to the Semantic Web, everything has this co-determination. The structure of the network animates and literalizes the archetype of circularity, the sacred hoop of humanity's ecological interdependence and interbeing. And it happens in this apparently disorganized, spontaneous, anarchic, zen, be-bop kind of way, without a bureaucracy telling it to be that way. So, there's a sense in which the dynamic connectivity of the Web really does furnish a pretty good model of the circulation of "thoughts" in the noosphere, Vladimir Vernadsky and Teilhard de Chardin's imagining of the coming global brain that is the next evolution past the biosphere, where the collective conscious begins to shape the world around us. Even if information scientists might still prefer to call this "citation indexing."

(LM): Do you think this anarchic move is a soul move?

(DR): Absolutely! I think it's about intuition. How we're presented with, in the liminal ... the way things come to us, there's something on the other side that places things there, and then we can find them, if we have a relationship with the liminal. These things can be anything that exists outside the comfort zone of our constructed worldview and understanding, from ideas to belief structures to physics that we haven't yet comprehended. Anything! We can see these sideways, out of the corners of the eye. The things that get passed between belong to this circling, non-logical, non-rational way of understanding that arises from many things happening all together, from co-determination and mutual constraint.

Our stream of consciousness, consecutive, single-stepping rational mind, doesn't deal with this very well. And there is a reason for that barrier—well, many reasons—but one reason is that the things that entail multiplicities are happening on the other side. Outside of self-narrative focal consciousness. That's the work of consciousness, I think:

to shine light into this great creative darkness there. To go spelunking! And maybe the Internet is helping make that structure more apparent—that infinite sphere whose center is everywhere and circumference nowhere. It's all center, and at the same time it's all edge, and it's all the same place, nowhere and everywhere.

And I think we're reaching for it. For example, the Web is swallowing television completely. I was just visiting my brother, and he turned on the TV to see what stories *60 Minutes* was offering that night. As soon as he saw what they were, he turned to his computer to seek out his own sources rather than accepting the editorial vision of one news organization. He is literally seeking that decentralization, finding the center in the array of editorial voices that are speaking about one particular news event.

And again, this is a place where the corporate/governmental forces are fighting to define what we can gain access to. There's just a lot of inertia there, many people's livelihoods are wrapped up in certain obsolete ways of operating, the command and control mindset and division of labor, the institution of work—a lot of people are subjugated to that.

(LM): Can the anarchic revolution survive? Can soul survive in this battle over who controls the Web?

(DR): On technical grounds, resisting power, I think it can resist. The vulnerability is the ISP, the Internet Service Provider. There is definitely pressure right now for a wedge to be driven by sovereign governments in the service of corporate powers/entities. They're working to close it up and entrench for all time the Thousand Year Reich of continuous surveillance, the ultimate police state. There is new legislation in Canada, for example, to make it illegal to have anything to do with any technology, to have technical knowledge that could possibly be used to break digital rights management. It's Mickey Mouse, king of the world...where the freedom of the individual's computer mouse is dictated to by the corporate Mouse and all that implies.

On the other hand, like with the Great Firewall of China, people are having quite a bit of success punching holes in the wall, breaching the state censorship and evading their scrutinizers, being able to communicate anonymously and securely.

What we sometimes called “democracy” or the public will or consciousness can sometimes get aroused and “do something.” That public opinion, the mass mind—no, not a mind—that great brute beast, the Mob, can make change happen. Why and when does change ever happen at that large level? What would it take to make a change on that level, at a time when it seems national governments are working towards an unlimited ability to spy on their citizens for their “own protection”? This is still very vexatious.

Salvation might come out of Africa. The power structures there are so screwed up, and that’s where they’ve planted the one laptop per child program, with its integral networked wifi or mesh networking, where every computer acts as both a radio receiver and transmitter. It sidesteps the ISP problem pretty much, because they have no presence there, and therefore no power. This technology, which empowers each computer to be its own internet service provider, could be implemented around the world, and we will have made the ISPs irrelevant.

Everyone has or will soon have a cell phone, even in Africa. I think that’s ultimately where the overthrow of hierarchy is possible—not laptops—the laptops will disappear into cell phones. And the Web infrastructure will eat the cell phone networks—within three years, mark my word, you heard it here first! —then the few rich guys who own cellular communications won’t have a power source any more, because they don’t own that infrastructure. No one owns it, unilaterally.

(LM): I know one of the things you’ve been working on is the ability for people to use their own computers to create self-regulated private networks. This could sidestep the ISPs as well, couldn’t it?

(DR): Together with the mesh wifi, yes. Decentralization is inherent to the design of the Internet, making it very difficult for any combine or cartel or government to impose centralized control. Virtual private networks are self-elect communities, virtual constituencies that stand separate from the public net, whose participants can communicate securely and anonymously, safe from prying eyes, thanks to digital cryptography.

The present organization of the Web is based on semi-centralized server farms with persistent addresses, who you pay to host a web site for you, and the server computers are distinct from the “clients,” our desktop or laptop computers we use to browse and instant message

and do our email, and which tend to move around a lot and lack permanent addresses. The trick is to get every client computer to also act as a server to the computers it’s connected to. That’s how the Internet is *in fact*, however the client-server architecture has been layered over it, so now we have to layer another peer-to-peer layer above *that* layer.

The content of the Web—the text, images, and multimedia, the secure permanent archival storage of people’s personal documents, and the indexing and search functions—all of this can and should be massively decentralized, massively replicated and encrypted, atomized, shared out as zillions of massively distributed fragments between everyone, everywhere. It’s the natural architecture of the Internet—a massively decentralized, peer-to-peer digital network—and there are mathematical reasons, combinatorial reasons, why this architecture is so powerful. Abstractly considered, it’s the same architecture that nature uses in immune systems, nervous systems, ecosystems, and the genetic, enzymatic, proteinomic dance-steps coded into our cells. And it’s the multiplicity of the psyche as well.

And then people who belong to more than one community can intersect. That’s the beautiful picture, the multiplicity of psyche again. It allows for local concerns, local issues, local solutions, and also global ones. The global is also local. It’s all in the many-to-many connectivity. There’s no top cop.

But an important thing, I think, is how it breaks public discourse into many local communities that partially intersect or overlap. People as connectors for other people. It’s kind of like China, which has been held together by the gossips for 6,000 years. Everyone is informed about what’s going on; everyone’s business is that sweet little old lady’s business. There’s a recent book by Cory Doctorow, *Little Brother*, a novel aimed at the “young adult” market which spells out all the technical details behind making this work, it’s this pulpit-thumping sermon on the necessity of mesh wifi, peer-to-peer networking, and cognitive liberty. Great stuff! So the picture is all these Little Brothers prevailing against the great, big, scary Orwellian Big Brother.

I am really excited, too, by the multi-touch tables. You could be with someone, with a group of people together, both virtually and physically, and blending the two. It seems wonderful, doable, and ties in with local power generation and distribution, the local economy,

barter, micro-banking, home schooling, and so on. Locality is only going to get more important. The worst offenders for global warming are jetliners. It looks as though we're going to have to give those up. Blimps, maybe, or sail boats. It will be slower!

(LM): This reminds me of something I was thinking about speed and the Web—I was thinking that it is part of our growing addiction to all things fast. However, with this idea of slowness, I'm also realizing that it also invites a kind of slowness, of mythic time. I find that when I get into a forum that I love with people that interest me, I can spend hours reading, writing, and feeling fed without realizing it.

(DR): Oh, yes. And, at a slower pace, the world starts to appear differently. Marshall McLuhan, who had this wonderfully ironic and rhetorical way of looking at things from a vantage somewhere way back deep in the manuscript culture of the twelfth or thirteenth century, said that speed reaches such a pitch that slowness emerges as something exotic, to be nurtured and reveled in.

We're seeing that, in the Slow Food movement, the Slow City movement—I'd like the Quiet City movement! But there's a connection, between slow and still and quiet.

The Web can invite that. And, as you've found on the forum you frequent, it can open up very intimate, very democratic, very multiple ways of solving problems. While it has limitations because we're not in the same room, it also frees us up from bodies that react to other bodies in ultimately inconsequential ways that distract "mind essence."

(Though, in defense of bodies, I will say that 50 percent of Web traffic is pornography. I think it's all to the good! We are so gendered, so sexed, it makes so much trouble for us. I think the more sex that we can actually see, the more people may come to understand how in its thrall we are. Not that we need more Calvin Klein billboards in the world! But it's got to eventually dawn that there's no one to blame here—we didn't make these desires, they're just there—part of the territory. Bless Grandpapa Freud!)

But, about lateral communities. I was very impressed with a woman I went to for physiotherapy, very curious about this extraordinarily gentle approach she was taking. She told me that she and a group of online friends are discovering physiotherapy, articulating it, making it up as they go, discovering new facts about physiology and how the

nervous system works. It's a true academy, with no professor leading it, no authority figure, but instead people—some of them academics and scientists, and others not—drawn together through common interest and love of learning.

This mythology of democracy fuels the Web. I heard a speech once to Google employees about all of the impeccable technical reasons why the only way forward to make efficient use of the technology is this absolute anarchic structure. This is the architecture that I'm working on in my own project. If we're lucky, this may be the way that it's done. Laughing at the clowns who want to control it! Who are these idiots?!

(LM): I've seen references to the Web as a literalizing of a global collective unconscious. Does this make sense to you?

(DR): Completely! And I think it can go much farther than it has. We've been waiting forty or fifty years for good speech recognition software. It's impending, and I think it will change everything. This goes back to the co-determination we were talking about earlier, the bricks and houses, parts and wholes. Speech scientists got stuck on the idea that phonemes logically must come before the words, because words are made out of phonemes, therefore the first problem to solve is disambiguating the phonemes. However, phonemes are actually much *more* ambiguous than words! Progress is being made—a lot of it was simply to do with memory, it requires very large databases containing vast numbers of specific instances of things, organized associatively by sounds, meanings, and contexts, every which way.

In the big, big picture, once there's good speech recognition and direct real-time translation, the curse of Babel will be undone, which may partially compensate for the thousands of languages and cultures lost to the centuries-long onslaught of globalization.

I think this is one of the places where human culture will thrive, and the collective unconscious will find new life. Of course, we'll have to do a lot of it over the dead bodies of lawmakers bent on protecting and enforcing copyright. But that is already unraveling, and people are saying we don't care, we like these movies, these books, these tunes. This is our culture, and how is this different from a public library? The stakes are for human culture. Most of the individual content creators actually don't receive monetary rewards, certainly not commensurate with the time they put into their work, which is always the great

argument for copyright. Take the music business, for example—Courtney Love wrote an amazing article about copyright, artists, record labels, and how the idea that copyright benefits the artist is nonsense, it's all for the benefit of the big media combines.

And this brings me to another fond “liberty idea.”

(LM): A fond liberty idea? This is even better than a fond, fond idea...

(DR): It's the death of the expert. I would love to see the death of the expert. Any human being, just as they are, with the natural endowment of gifts and graces, ought to be capable of looking after things more directly and naturally in areas ruled by what Ivan Illich used to call the “disabling professions.” Why do I need a doctor, who's acting as a functionary on behalf of insurance and pharmaceutical industries, looking at me like I'm a piece of meat while prescribing some radical new drug or exploratory surgery or therapy? Help! I could use a healer, but I don't need that! I wonder how much of a lawyer's work could be replaced by access to a decent search engine and a library of precedent cases. Or, the long-running conversation about vernacular architecture and urban planning, how people have been building homes and towns for centuries without explicit regulations and expert interference? Looking at squatter communities, the *favelas*, shanty towns, people who can't afford architects or planners, who don't need bottled water and at some point may lose patience with governments which continue to sporadically bulldoze their homes and communities.

What's exciting about this is people finding new ways of figuring individual responsibility for themselves. This freedom comes about in conjunction with caring for others, necessarily.

Using what Illich called “tools for conviviality,” people together are surely capable of solving the problems of the world. This seems to me like it's the only way, because the world's problems are so pervasive, so numerous, so massive, and they are always local and they're always global. It's not that there's a lack of knowledge or solutions; there are plenty of solutions, but they aren't being deployed, mostly, I think, due to bureaucratic and professional structures left over from a different time, a different world. This is Frances Moore Lappe's point about global hunger. It's about organization and logistics, not about there

not being enough food. We don't have time any more for those kind of costly, centralized top-down ideologies.

And of course, the human soul is fed by the sense of active personal agency given by banding together, working together on things that matter directly.

We've got to be Taoists, I guess. The changes we require are going to be so radical.

(LM): And virtual communities can be part of the answer?

(DR): Utterly. We think about the Internet, on the surface, as being about efficiency and speed. But what it really brings us is the gift economy, new ways of being useful to our kind. Human beings fundamentally need to be useful. And play, we also need to play, of course. The Net brings new ways to play—with the clan and guild structures of online gaming communities, the game itself is, in a sense, only a pretext for community building, camaraderie, self-discovery of learning to work together as a team to achieve a common purpose. Except this isn't “work,” it's play. But it might also provide a glimpse of what “work” may become in the kind of pluralist, decentralized, locally self-reliant but globally connected world that, with luck, might emerge from the present disorder.

But beyond that, there is something very extraordinary about things that don't become unvirtual—it's the big dreaming—the sharing, the viral connections, the soul, and the endless paradoxical knot of the mutual determination of the living signs we are.

Merleau-Ponty wrote about this. He said the fundamental thing about human cognition, human perception, is that it is, in the first place, about what other people are perceiving. We humans are so imbedded in this circularly dependent, multilateral, collective bringing forth of reality. This shared dream of purposes and values. The web weaves this in a remarkable way, and we're just on the edges of what that weaving can become.