

Virtual Reality and Electronic Highs

On Becoming Virtual Octopi

Terence McKenna

Magical Blend

Winter 1990

Looking like a cross between a T'ai Chi master, a navy frogman and the Terminator, a man harnessed to electronic leads and fitted with a strange piece of headgear slowly turns and gestures. The pointing hand and the ballet of sign language, combined with an air of intense concentration, give the unmistakable impression that the person is far, far away from the brightly lit San Francisco Bay Area laboratory in which he stands. You might almost say that he seems as if he were in another world.

And you would be right. Before you stands a true astronaut of inner space, a researcher who is in the process of going where few have gone before. But look quickly — what is today the visionary dream of the techie few will very soon be reality for the rest of us. Virtual reality, that is.

Is it mechanistic multimedia masturbation or a doorway swinging open on the flower-strewn fields of the romantic imagination? A tool for discovery and navigation in new aesthetic domains, or the final trivializing of the drive to be mindlessly entertained? These are the questions that I asked myself one morning recently as I drove toward a rendezvous with one of the mavens of virtual reality, the redoubtable Eric Gullichsen of Autodesk. Then of Autodesk, currently a free agent. For as I was to learn later that day, not even virtual reality is immune to corporate change and upheaval. Gullichsen and his associate Patrice Gelband are now virtual guns for hire. The status of Autodesk's future commitment to research and development in virtual reality is undecided.

Corporate intrigues aside, worlds are being created by such pioneers in the virtual reality (VR) field as Jaron Lanier and the Autodesk special design team Gullichsen headed. It was logical that Autodesk should be a leader in the VR field, for their AutoCAD software has based much of its appeal on the idea that the user can actually "walk around" in a high-resolution three-dimensional simulation of two-dimensional blueprints. Pursuit of this idea grew naturally into the idea of computer-generated worlds. And Lanier and VPL, his corporation, have been the persistent leaders in the field of body and hand imaging in VR.

The magical gloves and body stockings that are the keys to entry into virtual reality remain Lanier's speciality.

What is virtual reality? It is a technology currently under development by NASA and private companies in the San Francisco Bay Area on the West Coast. It began with the modest intent of simulating the experience of flying high-performance fighter aircraft under combat conditions. Think of it this way: you are the Defense Department. Would you turn over a fighter plane costing upward of one hundred million dollars to some apple-cheeked hayseed so he can learn to fly it? If you spend the cost of one plane on simulation and thereby prevent even one crash you are saving a lot of money and possibly human lives. And one hundred million dollars buys a lot of simulation!

What I saw at Autodesk was considerably more modest than the classified government efforts. Gullichsen estimated that the whole VR apparatus could be recreated for around \$50,000. Chicken feed in the world of high-tech research and development. The fifth-floor lab was a sparsely furnished office approximately fifteen by twenty feet with a humongous high-resolution color monitor and a quite ordinary computer workstation. Introduced around, I was asked if I had any questions. Figuring I had done my homework, I suggested we cut to the chase.

The glove, wonderfully redolent with all the associations that are carried by black silk gloves everywhere, was slipped onto my hand. I had found it difficult to visualize the motion sensors that I knew were stitched onto the back of the gloves on top of each flex point. They appeared to be small blue beads. The whole thing fitted smoothly. I was asked to close and open my hand while the software sensed and entered the flex values of my particular hand. Next came the helmet, looking like a fancy overweight scuba mask. Once on, it put a Sony Watchman color miniscreen about an inch from each eye; a slight discontinuity between the screens created the impression of three-dimensional space.

Once everything was in place I could see the fuzzy, but colored and recognizable, outlines of a cartoon version of an office. Hovering in space in front of me was what appeared to be a foreshortened spaghetti fork. This, I was told, was the virtual image of the glove I was wearing. Sure enough, wiggle thumb, leftmost tong of spaghetti fork wiggles. No Roger Rabbit appeared, but as I pondered the mechanics of the glove I burst noiselessly and effortlessly through a wall and into a burnt-sienna space that seemed to, and probably did, extend to infinity. Eric explained about pointing. I had been pointing without realizing it. Pointing is how you get around in VR, or cyberspace, as the true believers call it. When you point at something you move toward it. When you open your hand the motion ceases. It is that simple. The eye goes where the finger points, and the image of your gloved hand comes along and can be used to "pick up," by intersecting, objects in VR. After a few moments the lag time in the refreshing of the images, the weightlessness, the newly insubstantial nature of objects and the newfound power of my right index finger were all familiar enough to me that I could slowly make my way around the office without moving through walls and objects or taking off through the ceiling or the floor.

In short, I got it. Talking with Eric and his associate mathematician, Patrice

Gelband, I had the eerie feeling that this might be what it would have been like to stop by the Wright brothers' bicycle shop to shoot the breeze with Wilbur and Orville about the latest ideas concerning lift ratios of airfoils. These folks are onto something. They know it and I will wager that soon the whole world will know it. We are on the brink of another leap in evolution, folks. It is only a short step from fighter simulations to simulations of architectural models that you can literally "fly the client into," and it is only a slightly longer step from a 3D blueprint of an imaginary office to the simulation of the Taj Mahal on a moonlight-flooded summer night — in virtual reality.

If all this sounds too far out to be true, or like a rehash of Philip K. Dick's novel *The World Jones Made*, then that is just the universe's way of telling you that you haven't been keeping up. Remember the feelies in Aldous Huxley's science fiction dystopia *Brave New World*? Everyone went to the feelies and held onto a knob on each side of the velvet cushioned seat and was conveyed away to the latest risqué and ribald fantasy that the schlockmeisters of future pop culture had prepared for public consumption. Of course, we have had the operational equivalent of the feelies since at least the introduction of television, and the effect of having vast narcotized masses of people hooked on a drug whose content is culturally sanctioned and institutionally controlled is certainly debatable. The creeping shit-for-brains disease that seems to have become endemic in America has been blamed on TV by some. However, on one level television and now virtual reality are nothing more than the latest instances of neoteny, the carrying over into adulthood of infantile physical or behavioral characteristics. Let's face it, the world is a complicated place; if millions of people choose to retreat into an electronically reinforced state of semi-infantilism it may end up making the total system ultimately easier to pilot into safe harbor.

Virtual reality is easy to denounce in the same breath with MTV and perhaps HDTV — upon which it will in some degree depend. But the fact is that VR is more than simply further movement down a primrose path strewn with *The Price of His Toys* catalogs. It is a technology that will not only allow us to make more and better art; potentially it is a technology that will dissolve the boundaries between us and allow us to see the contents of each other's minds. There is also the possibility that improved forms of communication, states of near telepathy among participating human beings, can be coaxed out of imaginative use of the technology. Because of what VR is intrinsically, there are several ways in which it could be the basis of an entirely new kind of communication between people.

Each age takes its self-image from the animal world. The 19th century, with its obsession with the power to reshape the earth and abolish distances through the new technology of the steam engine, took as its guiding image that of the thoroughbred race horse. The early 20th century focused on speed, conquest of the air and the integration of human beings and machines into an ever more lethal symbiosis. This process found its realization in high-performance fighter aircraft; the animal image was that of the raptor, the relentless bird of prey.

Jaron Lanier is fond of saying that in virtual reality one can choose to be anything: a piano, for example. Fine — having surveyed the smorgasbord

of morphogenetic options offered by Mother Nature, I would choose to be a virtual octopus. Many people, once informed, would make the same choice. I believe that the totemic image for the future is the octopus. This is because the cephalopods, the squids and octopi, have perfected a form of communication that is both psychedelic and telepathic; a model for the human communications of the future. In the not-too-distant future men and women may shed the monkey body to become virtual octopi swimming in a silicon sea.

Consider: nature offers the example of the octopus, a creature in which well-developed eyes and an ability to change the color, banding and general appearance of the skin surface have favored a visual, and hence telepathic, form of communication. An octopus does not communicate with spoken words as we do, even though water is a good medium for acoustical signaling; rather, the octopus becomes its own linguistic intent. The octopus is like a naked nervous system; rather, a naked mind: the inner states, the thoughts, if you will, of the octopus are directly reflected in its outward appearance. It is as though the octopus were wearing its mind on its exterior. This is in fact the case.

The octopus literally dances its thoughts through expression of a series of color changes and position changes that require no local linguistic conventions for understanding as do our words and sentences. In the world of the octopus to behold is to understand. Octopi have a large repertoire of color changes, dots, blushes and traveling bars that move across their surfaces; this ability in combination with the soft-bodied physique of the creature allows it to obscure and reveal its linguistic intent simply by rapidly folding and unfolding different parts of its body. The octopus does not transmit its linguistic intent, it *becomes* its linguistic intent. The mind and the body of the octopus are the same and are equally visible. This means that the octopus wears its language like a kind of second skin; it appears to be and becomes what it seeks to mean. There is very little loss of definition or signal strength among communicating octopi. Indeed, their well-known use of "ink" clouds to conceal themselves may indicate that this is the only way that they can have anything like a private thought. The ink cloud may be a kind of correction fluid for voluble octopi who have misspoken themselves.

Like the octopus, our destiny is to become what we think, to have our thoughts become our bodies and our bodies become our thoughts. This is the essence of a more perfect Logos, a Logos not heard but beheld. VR can help here, for electronics can change vocal utterance into visually beheld colored output in the virtual reality. This output can then be manipulated by tools still uncreated, tools to be found in the kit of the VR hacker/mechanic soon to be. This means that a three-dimensional syntax, one that is seen, not heard, becomes possible as an experience in VR. You may ask, what is the point of being able to see one's voice, even in virtual reality? The point is that others will be able to see it as well, that the ambiguity of invisible meanings that attends audio speech is replaced by the unambiguous topology of meanings beheld. At last we will truly *see* what we mean. And we will see what others mean too, for cyberspace will be a dimension where anything that can be imagined can be made to seem real. When we are in the act of seeing what is meant, the

communicator and the one communicated with become as one. In other words, the visible languages possible in VR will overcome the subject/object dualism as well as the Self/Other dualism.

In trying to imagine the futures onto which these doors open, let us not forget that culture and language were the first virtual realities. A child is born into a world of unspeakable wonder. Each part of the world is seen to glow with animate mystery and the beckoning light of the unknown; but quickly our parents and our siblings provide us with words. At first these are nouns; that shimmering pattern of sound and iridescence is a “bird,” that cool, silky, undulating surface is “water.” As young children we respond to our cultural programming and quickly replace mysterious things and feelings with culturally validated and familiar words. We tile over reality with a mosaic of interconnected words. Later, as we grow in ability and understanding, the culture in which we find ourselves provides conventionalized relationships for us to model. Lover, father, investor, property owner. Each role has its own rules and its own conventions. These roles, too, tile over and replace the amorphous wonder of simply being alive. As we learn our lines and the blocking that goes with them, we move out of the inchoate realm of the preverbal child and into the realm of the first virtual reality, the VR of culture. Many of us never realize that this domain is virtual, and instead we assume that we are discovering the true nature of the real world.

Musing on this in a recent interview, Jaron Lanier observed: “I think virtual reality will have an effect of enhancing and, in a sense, completing the culture. My view is that our culture has been abnormally distorted by being incredibly molded by technology. . . . Virtual reality, by creating a technology that’s general enough to be rather like reality was before there was technology, sort of completes a cycle.” Lanier’s remarks concerning the field that he helped to create have an eerie aura of unfocused prescience. He is groping toward a bigger reason for doing all of this. He speaks in terms of a nonsymbolic language and in terms of bifocal glasses with real reality on top, yesterday’s VR on the bottom. He oscillates between the profound and the quirky; but the idea that VR completes a cycle of neurotic behavior that is as old as our use of tools is interesting. VR asks us to imagine a future in which there will be virtual realities within virtual realities. A man slept, and while asleep dreamed he was a butterfly. Upon awakening, the man asked himself, “Am I a man who slept and dreamed he was a butterfly, or am I a butterfly who sleeps and is now dreaming he is a man?”

The promise of VR is that in the near future we will walk the beaches and byways of twice ten thousand planets, a virtual new galaxy to explore whose name will be Imagination. The rest of our lifetimes our busy mind’s eye is culturally destined to peer out at thousands of shimmering realities: Angkor Wat and the volcanoes of Io, many of our own memories and the memories of others who have shared this or that engineered vista or thrill.

My take on all this is different. I wish all these folks luck. I think that we can look forward to terrific pornography based on this technology, to simulations of fixing broken machinery in outer space and tidying up inside radioactive zones. Surgeons can already operate on virtual cadavers in one advanced medical

teaching facility. But somehow I am haunted by a deeper hope for VR. After all, technology has already proven that it is the drug most palatable to the Western mind. Could not VR allow us to blaze a high trail into the wilderness of the human imagination? Then, where each went, would all be free to follow through the miracle of instant VR replay? Can the riches of the imagination be made a commodity that can be sold back to the consumer, who is also their producer? Selling the self should be the easiest of tasks in a society as narcissistic as our own. And speaking of drugs, just where on the spectrum of the cultural pharmaphobia can public and governmental attitudes toward virtual reality be expected to fall? Is VR to be seen as a “safe and harmless substitute for drugs” or is it an “electronic illusion from hell”? It is a dreary comment on the current infantile state of public dialogue that there is little doubt that we will be subject to both claims in the debate ahead.

Certainly VR represents a technology of escapism that dwarfs the modest intent of the opium smoker or the video game addict; but on the other hand, so does modern film. Through color photography most people on earth have vicariously experienced sufficient data to allow them to create virtual reality fantasies based on imagination and media-fanned expectation. It seems highly unlikely that the development of VR will be treated as the spread of a new drug; rather, it is now seen as a new frontier for marketing and product development. Indeed, the non-destructive nature of VR means that the talent of many artists, designers and engineers can be absorbed into VR projects with no impact whatsoever on ordinary reality. Finally, virtual reality, with its capacity for virtual replay of constructions of the imagination, may hold the key to the accessing and mapping of the imagination. The dream of artists, to be able to show the fabric of their dreams and visions, may be fast approaching virtual reality.

The more extreme, inventive and avant-garde of the VR constructions are likely to resemble experiences with psychedelic plants rather than more conventionalized forms of art. The doorway to the realms of dream and the unconscious will be opened and what had been merely symbolic representations of eccentric individual experience will become that experience itself. Does Lanier’s “non-symbolic communication” have anything to do with the visible languages of the DMT ecstasy? It was this less than obvious question that had got me interested in VR in the first place. My experiences with shamanic hallucinogens, especially ayahuasca use in the Upper Amazon Basin, had shown me the reality of vocal performances that are experienced as visual. The magical songs of the *ayahuasqueros*, the folk *medicos* of the Indians and mestizos of the jungle back rivers, are not song as we understand the term. Rather, they are intended to be seen and to be judged primarily as visual works of art. To those intoxicated and adrift upon the visionary reveries unleashed by the brew, the singing voice of the shaman has become a magical airbrush of color and organized imagery that is breathtaking in its alien and cosmic grandeur.

My hope is that virtual reality at its best may be the perfect mind space in which to experimentally explore and entrain the higher forms of visual linguistic processing that accompany tryptamine intoxication. In other words, the VR technology can be used to create a tool kit for the construction of objects made

of visual language. These objects would be experienced in the VR mode as three-dimensional things; manifolds devoid of ordinary verbal ambiguity. This phase shift is a move toward a kind of telepathy. The shared beholding of the same linguistic intention in an objectified manifold is a true union. We become as one mind with this style of communication. Language beheld could perhaps serve as the basis for a deeper web of interlocking understandings between human beings that would represent a kind of technically aided evolutionary forward leap of the species.

The near future may hold a public utility that will provide cable access to a hyperdimensional ocean of visibly expressed public thoughts. This service will be delivered over cable simply because the very large computers necessary to create moving, real-time, high-resolution virtual realities will be state-of-the-art mainframes, for the next few years at least. A kind of informational network that one can actually enter into and control through the use of visual icons. Is this not true of cyberspace? I believe that it is, that it is what cyberpunk prophet William Gibson was thinking of in his novel *Neuromancer* when he introduced the notion of cyberspace:

[A] consensual hallucination experienced daily by billions of legitimate operators, in every nation. . . . A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data. Like city lights, receding.

My hope for virtual reality would be that exploration of such new frontiers of language and communication could be built into research strategies from the start. Then the loop from the trivial to the archetypal might be appreciably shorted as the VR option becomes well known.

A major career option of the near term is that of professional cyberspace architect/engineer. Such folks will design and direct the construction of virtual realities and scenarios. Gullichsen, in an article for *Nexus*, wrote:

The talents of a cyberspace architect will be akin to those of traditional architects, film directors, novelists, generals, coaches, playwrights and video game designers. The job of the cyberspace engineer will be to make the experience seem real. This job is as artistic as it is technical, for experience is something manufactured spontaneously in the mind and senses, not something that can be built, packaged and sold like a car or a refrigerator.

Consciousness is no better than the quality of the codes that convey it. VR may hold the possibility of an icon-based visual language that could be universally understood while being much more wide-spectrum in its portrayal of emotions and spatial relationships than is even theoretically possible for spoken language. But we will not find the fountain of pure visual poetry if we do not look for it.