

## THE VIRTUAL REALITIES OF TIMOTHY LEARY

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Unlikely as it seems, this former Harvard psychologist and LSD guru is a player in the computer world. He is considered a fatherfigure and spiritual advisor to many of today's hackers and cyberpunks — those nerdy misfits who, as we need to remind ourselves, are often the vanguard of innovative technology.

The history of Dr. Timothy Leary is extraordinary. As he himself summed up in a Rolling Stone interview I conducted, "I have actively experienced seven decades of accelerated change. I've surfed each of the waves of the 20th century with reasonable success and an enormous amount of fun. In the Forties, I was in the army for five years and in school on the GI bill for five years. What could be more apple pie? In the Fifties, I was a button-down young professor with kids, a suburban house, drinking martinis. In the Sixties, I dutifully, diligently turned on, tuned in, and God knows, dropped out. What was the alternative? Turn off, tune out, blindly conform?

"The Seventies was the decade of the political prisoner. Nixon threw the dissenters in jail. I was the first one to go to prison. Then, after Watergate it was the Nixon gang's turn. And how can you go through the Eighties and Nineties without focusing on the computer and information revolution?"

Somewhere on his journey Dr. Leary was introduced to William Gibson, the science fiction writer who is credited with launching the cyberpunk movement which holds that information technology will allow us to invent artificial realities based on our imagination. Science fiction, from Jules Verne to Gibson, has always portrayed a future world based on the imagination of individuals. But the stories lose their credibility when the real world leaves the far-flung visions behind. Who today wants to read imaginings about a world in which men climb into tin-can spaceships and blast into space and land on the moon where they find six-headed amethyst-hued beasts breathing fire? We've been to the moon. We know what's there.

But some visionaries, in fact, create the future. A kid imagines super-powered computers, no bigger than a toaster, in homes throughout America. At the time it sounds like more science fiction. A decade or two later personal computers are everywhere.

These days, futurists imagine cars that need neither wheels nor roads. They envision world travel without the need to leave one's living room. They see kids dressed up in space-age goggles and gloves that control real and virtual worlds and access limitless information. No one knows which future is the one to bank on. But that doesn't stop people like Dr. Timothy Leary. Dr. Leary, at 69, is a student of the future.,

Dr. Leary is an unlikely player in the computer world, yet he is in the center of one of the vanguard wings of future technology. His interest in Gibson sparked a quest for more ideas about where technology might be taking us. Leary became a spiritual advisor/father figure/collaborator and buddy of many of the young geniuses working on some of the most outrageous technologies. Some of which will indeed be the future.

Years ago, before there was a Silicon Valley, when computers barely fit into large rooms, before he became well known as the LSD guru, Dr. Leary was a respected psychologist and teacher. While associated with Harvard and Millbrook, he experimented with new tools to use in psychotherapy -specifically, psychoactive drugs. When the drugs filtered into widespread use in the culture, it became associated with an entire sensibility. Leary became a spokesman for the movement, synthesized in a phrase he coined: "QATFY": "Question Authority, Think for Yourself." The world would never be the same. The magical mystery tour that followed-

characterized by buzz words such as "Turn On, Tune In, Drop Out", Baba Ram Das, Abbie Hoffman, Herry Rubm, "Be Here Now" — included a run for political office, stints in jail and flight from the law. He recounts the romp in his autobiography, Flashback, recently released.

To find that Leary is now obsessed with the latest turns in high technology is not exactly what we might have expected. Or maybe, as he sees it, it makes perfect sense. Regardless, Dr. Leary emerged as a vibrant, dynamic teacher in the purest sense of the word: while he instructs, he remains committed to continue absorbing and learning.

He engages everyone he meets — educators, scientists, a waiter in a restaurant. He is the consummate listener. He fires questions in rapid-fire succession insisting on intense meaningful conversation in place of social banter. He drinks in the information, processes it. That is why UPSIDE sought him out — to learn some of what he has discovered while hanging out with some of the most far out and interesting members of the people creating the future.

Dr. Leary lives with his wife, Barbara, high above L. A. in a home with a sweeping view of Hollywood and Beverly Hills. His house is filled with art given to him by his friends such as Helmut Newton and Keith Haring. There is a huge Kenny Sharf sculpture and, in a case, a board with holes blasted through it by paint fired from a shot gun, by William Burroughs. There is also a poster of the Los Angeles Dodgers pitcher Tim Leary (no relation).

Leary speaks at some breathtaking MIPS. As I turned on the tape recorder at the start of our interview — the first of several sessions — he smiled, rubbed his hands together, and looked right at me with sparkling eyes. He said, "Your life has just taken another turn ..."



Upside: To use the words of one of your fellow travelers, the times they are a changin' ... Let's start with the general: What's in store for us as we hit what you call the roaring 1990s?

Dr. Leary: In the industrial age the organization was the key. In the electronic society stage, the individual becomes more important. The basic unit is the singularity. Electronic realities are personalized. The electronic society involves individuals linked into many fastmoving, ever-changing fields, networks. Put in crass, crude dollar terms, this means that the market here is the personal operator-consumer. It means that sales of intercom, entertainment hardware and software for the individual in the home is going to become much bigger than sales of hardware and software to businesses and organizations. Indeed, in ten or fifteen years, virtual realities gear and the supplying of information modules to feed them will be the main business of the information society. The industrial age was about the company-people as part of companies, as components, creating products that could only be made by a big company. Now it's all about the individual. Oil and coal are limited resources easily controlled. No one can control information. Everyone has access.

Upside. How will that impact the high technology fields?

Dr. Leary: Here's an analogy, Motor transportation started at the institutional level-trains, steam boats. There was no individual access of operation. It took centuries before we figured out that the genetic goal and, incidentally, the big market — was to create a consumer-worker class by manufacturing individual transportation appliances. The automobile culture was born.

The first stage of motor transportation always was production and sales of big vehicles to the institutional market.

Trains and steam boats dominated the early industrial society and then trucks and buses. In this Paleomobile stage there was no individual ownership or use of those motor-monsters. It took two centuries before Henry Ford democratized this industry with his concept of the personal train. He understood that the big market in wheels was gonna be the individual operator-driver. Which, incidentally, created what archeologists will call the Neo-Industrial Stage. The consumer-worker society. To the point that today the average American house has more varied and complicated mechanical equipment than the most advanced factory did in the year 1900.

Let me use another analogy. Consider the money spent on sports. Fifty years ago, back in the Paleo-Industrial stage, working people did not participate actively in sports. Professionals filled the parks and stadia. The wealthy and the aristocracy played individual sports like tennis, golf. Even swimming and skiing were for the snobs. But in the last three decades the big profits in sports have been made providing sports equipment and clothing for the average person to suit up and get out there whacking and hacking around the way he sees the stars doing at Wimbledon, Pebble Beach and Sun Valley. Today the average person spends much more money on running slices, sports jackets, athletic equipment than he does on tickets to passive watch-only events. The enormous profits from the individual consumer market are impressive. But more important are the human values. By empowering individuals to perform actively what they see their idols doing on TV gives a sense of independence and self respect. People who pride themselves on their personal achievements will be smarter, more autonomous and resistant to authority.

Upside: But how do these metaphors about sports and boats apply to the high-tech industries?

Dr. Leary: My company, Futique, is applying the same principle of customizing, personalizing, providing hands-on tools to convert films, videos and books into intercom programs for the home screen. At the present these Paleo-Industrial linguistic conglomerates — film studios, TV producers and book publishers — make money by selling mass-assembled factory-made finished products to passive consumers. Isn't it obvious that the big money in films, TV shows and wood-pulp books will come when the average Jill and Joe can purchase inexpensive telescreen gear to do at home what they watch the stars and directors put on the screen?

At present the average American passively watches the boob-tube seven hours a day. Computer users are learning how to create personal realities on the screen, but usually this is a lonely procedure. They sit by themselves peering into Cyberia. Intercom, telescreen software will allow consumers to edit graphics, icons, sounds, text into fast-feedback collaborative-competitive screenplays or multimedia mind-performance games.

Upside: For example?

Dr. Leary: Our program Inter-Screen involves interplay between the initiator-designer and a reactor. Like server and receiver in tennis. The Initiator selects, from the disk-archive, a sequence of text, graphics and sound and pitches questions. The Reactor boots up the disk and

reacts to the fast-moving pitches. Each response is scored in terms of eleven indices of mental performance—both content and style. Say the Electronic Book being performed is Huckleberry Finn. The text, graphics, icons stored in the disk-archives come from the Mark Twain book. The consumer boots up our disk and gets to match wits with Mark Twain. The CD version will allow for storage and manipulation of some digitized film clips. In two years we'll have the computer hooked up to your VCR so you can use any film and use our program to cut, splice and edit in your own sequences. By 1996, the conversion to virtual realities will be in high gear.

Upside: Now we're in Back to the Future Part XVIII ... Let's back up: virtual reality.

Dr. Leary: Using new equipment — a glove and cybersuit, which are just glorified key boards or mice, a way of using your body to give signals to the computer, and goggles, we will explore digital, virtual realities. There is an entire industry growing up out of this. People I am working with are developing the suit, glove and goggles.

Upside: Have we been ingesting anything interesting this morning?

Dr. Leary: Okay. Listen: Consider the feudal person, unaware that he lived on a planet loaded with natural resources like fossil fuels, which could power machines which would create more complex machines and produce chemical-electrical energy. Telephone, telegraph, teletype, cars, jet planes ... Today, at the end of the industrial age, at the dawning of the cybernetic age, most digital engineers and most managers of the computer industry are not aware that we live in a cyber-culture surrounded by limitless deposits of information which can be digitized and tapped by the individual equipped with cybergear.

Upside: Why?

Dr. Leary: Because it is the electronic future. There are no limits on virtual reality. It's all about access to information. The donning of computer clothing will be as significant in human history as the donning of outer clothing was in the paleolithic. The production, marketing and distribution of hyper-text reality supplies, the digital information, will be as important as the production, marketing and distribution of food, metals and handmade artifacts in the Social Age and the distribution of oil, electricity, and natural gas in the Industrial Age. By 2000, every human being over the age of five will be wearing cybergear and will require a constant flow of info-realities, digital data stored and accessed in hyper-text, open-architected repositories. Think of these as mountain ranges of archives, oceans of digital libraries, jungles of digitized images.

To convert this raw cyber-data into packages that can be accessed and processed by the individual will require new electronic architecture and design engineering. In the past our species built "artificial" habitations starting from grass-huts, cabins, towns, houses with plumbing, mansions, cathedrals, skyscrapers. This time the materials are not materials like wood and stone — but electronic patterns and iconic forms. I couldn't have even spoken these last sentences three years ago. These new concepts of "artificial reality", virtual reality, cyberspace introduced by Myron Kruger and Jaron Lanier and William Gibson have changed our notions of two-tiered reality -mind vs. matter that have obsessed philosophy for centuries.

We must cheerfully admit our status as primitives being pushed by electronic technology into this new environment. And no matter how spacey and hallucinatory it may sound, we come to two unquestionable facts: the average American now spends seven hours a day peering through the window into the electronisphere, and 600,000 kids used their power gloves to stick their hands through that window last Christmas.

As a beginning, we can see that the market for next Christmas is requiring teams of linguistics, psychologically sophisticated writers, and special effects wizards to design new module language sequences will, among other things, create global information exchange networks which will quickly multiply human intelligence and eliminate much misunderstanding. The lettered sentence "The boy fell out of a tree" only has a general meaning to another person who understands English. The person suited up in cyberwear hooking it to infobanks can immediately call up the icons from the info-bank showing a five-year-old kid falling out of a palm tree into a swimming pool and send it to five friends in five countries who are sharing cocktail hour together in a cyber-reality telescreen lounge.

Upside: As far as hardware is concerned, what will be the difference because of a cybersuit as opposed to a keyboard?

Dr. Leary: The lenses are key. Without the lenses, the glove and suit are fancy ways to control impulses to the computer. But with the goggles, you no longer are looking from the outside into a screen. You enter the screen.

Up-side: And the Nintendo powerglove is a version of what you're Meriting? Dr. Leary: It's a first step. Another obvious and immediate step in constructing electronic realities will be to hook up the personal computer to the VCR — so that the individual can pull off action sequences to edit and combine. Personal computers will become editing machines — not just words and numbers, but for images and sounds.

Upside: Thus far, few in the industry are convinced that virtual worlds have much practical relevance outside, perhaps, entertainment. You obviously disagree.

Dr. Leary: Right now, not in 2010 or even 1995, Jaron Lanier can hook you up and you are in an office that doesn't exist. The glasses he is working with are goggle-sized, Japanese companies are now producing lens screens that are postage stamp-size. They communicate in hi-def reality so you really can't tell, even out of the side of your eyes whether what you're seeing is material or electronic. What I imagine are flip-down lenses like baseball outfielder's sunglasses. You'll have them on at all times. IBM has a simple version in development. It will work with Nintendo systems. With a set of goggles and a glove on, you will play virtual handball. They say it may be out for Christmas 1990.

Upside: But that's kid's entertainment again. Is that where the market lies?

Dr. Leary: Not at all. Autodesk is working on a product that will allow engineers and architects to walk around buildings — virtual buildings. Doctors will be able to travel through the body of the patient. Let's meet for lunch in your kidney. We'll plan surgery from there ...

Upside: Virtual Fantastic Voyage.

Dr. Leary: Computers are already used as simulators. Virtual reality hardware and software are already being used to create simulations that include multidimensions and, in fact, a kind of reality you could never get with a flat screen. A flight simulation becomes completely realistic flying. When you turn your head and look backward you'll see what you would see back there in a real cockpit.

Upside: Is the high-technologies industry planning well for this future?

Dr. Leary: The men that are running the computer industry now don't really see the future. It's not their job to see it. They're still masters of the industrial age and industrial age politics. Industrial age means bigness and quantity. The future is about smallness, deconstruction of

information to make it accessible; the individual rather than the megacorporation; the community rather than the country. William Gibson is an extremely gifted, intelligent writer of science fiction. He's prophetic about much of where technology will lead us, although with different conclusions than I've come to. In a book, one of his characters in his imagined future is asked what country she is from. She knew only that countries were lines and colored forms on a map. All that matters in the future are cities and companies. Cities are going to be information centers, just like the great city states in Italy in the past, Genoa and Florence and Pisa and Rome. They will be clusters-of-information centers that will be beaming to each other. Anyway, the future of technology requires a completely other way of thinking. The big companies in the field now come from the factory age: You take metal, oil, paint, glue and whatever and you make a car or a piece of software, or you make hardware. In the information age, the process is almost inverse: You dissolve these structures. Information becomes the metal, paint and glue.

Upside: If that's true, isn't that a threat to the big companies? Once the technology and the information are out there, it's very much like solar energy: How do you monopolize the sun?

Dr. Leary: Well, people will absolutely try and control it and some will profit hugely from it. A different kind of company will be the basis of the industry of the future. I've talked to financiers who agree that in ten years, the movie, television and book publishing industries will be like the coal, oil and copper industries. They'll be producing crude stuff-raw, fresh digital information — that will then be refined and distilled -so that every 14-year-old kid can decide, "Hmmm, I want that two minutes from Gone With The Wind, and this is the thing we did last night, remember, over at the party." And with it he will make his own programming, control his own world to a degree no one can imagine now.

The movie, TV and book industries, which are low grade, crude information resources, simply provide raw material to the software refining and distilling people. Anything that's in the form of a book. The way we're doing it now is to come up with software that will use these bits and pieces of information from wherever.

Upside: How will the information be accessible?

Dr. Leary: That's where people like Ted Nelson come in. Ted Nelson is a brilliant prophet who has been talking about these ideas for years. Ted coined the term hypertext in 1974. His idea was that we would have libraries of information at our disposal, but you would want to go through it quickly and efficiently. Of course, that's exactly where we are 15 years later. Nelson is basically a librarian. A dozen years before Hypercard for the Macintosh, he had a conceptual program that would file and cross reference and search out data. Now of course the technology to do it is out there and he's working on a way of packaging all the information out there. His utopian notion is that you're going to have McDonalds-like franchises where you will walk in and plug in and get whatever information you want.

Upside: That's utopian? Just what we need are more franchises.

Dr. Leary: Well, you'll get information instead of that metabolic carbohydrate shit. That's good, because at least you've got the notion of individual access, but I don't know if it will take that form. His idea is that you will need information purveyors to control discrimination and royalty payments. I think it may be more directly accessible. You just will have to plug in through your cybersuit in the future, and using your glove controller, and [Dr. Leary uses his thumbs and forefingers to make glasses] your goggles to see where you're going, travel to anywhere in the information universe you want to travel.

Upside: If not through Nelson's franchises, how?

Dr. Leary: Right now, in any building, there's a bank of four to six phones or 20 or more phones ... In the same way, in the future, everywhere you go there'll be little slots that you plug into.

Upside: Which connects you to databanks?

Dr. Leary: Yes! There will be one on every block-places to plug in like there are pay phones.

Upside: How do you pay for the information?

Dr. Leary: Most of it will eventually be free, or essentially free, like water. There'll be a tax for your town.

Upside: It sounds pretty incredible. I've got the feeling most of Silicon Valley would sort of smirk and make jokes about too much LSD.

Dr. Leary: The Japanese aren't making jokes, If we don't get with it, we'll be buying the hardware and software from them as well as paying them royalties.

Upside: Is there an inherent limitation because of existing technology -telephone lines, for example, cannot carry enough information to bring movies directly into the home.

Dr. Leary: That will definitely change. Phone wires will be as antiquated as buggy whips in ten years. We will rely less and less on such limiting technology. Portable phones will be as accessible as Mickey Mouse watches in ten years.

Upside: Once we get our cybersuits, how will we use them?

Dr. Leary: Producers are not going to flood passive viewers with finished products. This is very important. Each individual will be intercommunicating with the entire universe of datas, funneled through our com-links with each other. There will be input from as many sources and as many people as he wants. He'll scramble and chop it up and use a bit of it or nothing and he'll share it with his friends. The 14-year-old kid in San Francisco will have five flirtatious love affairs going simultaneously -with a beautiful actress in Berlin, some girl in Brazil, virtual love affairs, virtual friendships, virtual competitions.

Upside: But will these people be real people, digitized people, or conceptual people?

Dr. Leary: Well, that brings up some new paradoxes of philosophy: There are now three realities: MateReality, Neuro-Reality and Electronic Reality. In the latter two anything you can think of, dream of, hallucinate can be created. And communicated electronically. As Jimmy Hendrix sang, "I'm a million miles away and I'm right here in your windowpane as Photon the Clown with a 95-foot-long triple penis made of marshmallows." You enter physical reality when you take off your cyberwear clothing and meet in the flesh. In the cyber world, you'll be having competitions, love affairs, exchanges, chess matches, debates, research projects; you'll be skiing down whatever mountain with all these wonderful people and everybody will more and more be communicating with global language of icons. Literacy will be as quaint as baby talk. And then, maybe, at a certain point, you will take off your cyberspace suit. Then you can actually touch.

Upside: Is there a negative to all this bopping around in virtual reality? It's a bit Orwellian gone wild. You're saying we'll be spending all of our time in a fantasy world.

Dr. Leary: Not all of time. Probably a third of our time. Right now the average American spends seven hours a day passively glued to the tube, their nose and their eyes sucking it in. That's terrible. Now, use those same seven hours interacting. You're learning. Intelligence will multiply by the increased scope of environments you explore, the games you play, the new people you meet, the new languages you learn, your increasing facility in accessing and processing icons, when you start dealing with people in Japan and Russia and having access to unlimited people and unlimited resources. The Library of Congress will be available at any time at any place, along with today's Pravda, the professor of whatever — all part of your world, never mind the people you'll be traveling with, interacting with. And we're certainly not giving up intimacy. There will be all these new levels of intimacy. Whole new aesthetics and ethics will develop, even in the virtual world, so you don't bust into anyone else's virtual world, for instance. There's going to be virtual piracy and virtual rudeness and virtual sex, so that a whole new level of intercourse is going to happen here: "I want to show you my source codes, because I love you." And then, maybe, we'll take off all our real clothes. God knows it's happening. I'm not smoking my pipe here.

Upside: And we thought computers were only good for desktop publishing and word processing.

Dr. Leary: The brain is geared to operate in a digital world. Your brain is bored, bored, being limited to the static, impoverished stimulation of the 1990 household. You convert the physical worlds into clusters of electrons, and you get clearer sound, clearer pictures, and, importantly, the incredible ability to move R and change I and swirl A. Take a piece of Beethoven, press a button and you've got 3300 violins all playing. Brain reality is basically quantum-reality. All material really is frozen information, whether it's a chair or a human liver or a swastika. Humanity struggled to build artifacts: The first stone knives — Paleolithic hand stuff — and the metal tools and then hand communication and machines and machine communication and then machines which can get down to the digital. When most people think about electronics, they think about television sets and hardware. Electronics means only one thing! Information, packaged at the speed of light. And the machines are simply containers and transformers of it.

Upside: How does this new direction affect where we stand vis a vis Japan?

Dr. Leary: The industrial revolution is the climax of humanity's ability to process matter into complex manufactured finished products. The terror; the "smoking factories nightmare", which the industrial age poses, which Blake saw, which Mary Shelley saw, was that of the robotization of the human being. The human being in Japan and in Germany has become, in a way, what they envisioned: an efficient smooth, wonderful cog in an incredibly precise liquid machine. It's wonderful. If you've ever been to Japan and watched the Japanese work, there's no bullshit about it. It's all been said before: They're team-players. From my hotel room window, I watched 20 Japanese unloading some big stuff off trucks, and they had the moves of the Lakers. There was no worker there lying around thinking about what he was going to do to his girlfriend when he got home. These guys took pride in their jobs. They were moving and passing these enormous tons around like they were ballerinas. So Japan has the ability to work in ways we cannot. But, as Sony's Akio Morita has said over and over again, they don't have the psych-ware, we have the headware. The software.

Upside: Meaning?

Dr. Leary: The software is our creativity, imagination and individual thinking. just as oil and metal and coal come from certain geographic, geological places, there's only one place that this software comes from, and this is the key: it's the individual fucking human brain. When you build a factory that moves smoothly, you limit individual creativity. It's a contradiction to



that system. There is no tradition of individual thinking, there's no enmity here. The Japanese and the Germans and the four little dragons are going to come over here and set up factories for building machines in our east coast, midwest and south. But to get the natural resources to keep the electrosphere working they will come to the Pacific coast — from San Diego to Bellevue, Washington.

We westerners are the intrepid, courageous natives who can explore the brain and weave together our native structures of electrons. This has already happened in Hollywood. They are the colonial British as we are the native Pacific Coast Indians. For \$ 24, they want to lease our brains. They want our accelerated electric skills. By the way, that's what my 1960's research in psychedelics was all about. Explore and colonize your brain. And that's what my Futique mind-wear programs are about. You digitize your ideas and reprocess them and zap them back and forth to others. America has the basic natural resources of the Information Age. The tradition of individualism, innovation. Just like Japan has no oil or metal, their culture just doesn't nurture any individual thinking. This is not local chauvinism. The American west coast is a breeding platform for restless innovators from every continent.

Upside: In this scenario, how do we do better than the Indians who sold Manhattan?

Dr. Leary: We're in a wonderful position of friendly cooperation with Germany and Japan, because they're going to come here to exploit our natural resources. You know, you can't indoctrinate creativity. You can't teach a sense of humor, that fast, relativistic ability to juggle ideas around smoothly and swiftly. But we know the importance of our individual brain resources. In the Information Age, everything turns on the individual. One individual who knows how to use her head, is more important than a dozen committees. By the way, Good Old Gorby figured that one out. The English translation for "glasnost" is "think for yourself and question authority".

Upside: How would we best take advantage of that?

Dr. Leary: Take their hardware and do what we do best. Provide the software for it. Right now the software for Nintendo is essentially Japanese little men jumping up and down and kicking. It's a disgrace that we haven't taken advantage of it. There are 26 million of those machines out there. We've come up with so little software to help our kids use these incredibly powerful tools!

Upside: But hasn't Nintendo successfully kept control of its licenses to prevent a lot of American companies from producing software?

Dr Leary: They need good software for their hardware! Just like we need Arabian oil to fuel our cars! This is where virtual reality comes in and that's where my intercommunication, interscreen software comes in. Instead of just making a warrior jump and kick on the screen, my programs can put the consumer in there making love to Marilyn Monroe, or playing tennis with Lendl.

Upside: But how do we keep control of the ideas if the Japanese are often better at manufacturing and perfecting them?

Dr. Leary: In the Electronic Age you don't control information. It keeps mutating and growing and evolving so rapidly.

Upside. Do people really want this stuff? Aren't we already suffering from information overload?

Dr. Leary: Ask Gutenberg. They said, "Johann, there's no market out there for your stuff, there's no individual market out there for printed materials. Why bother?" Within 50 or 100 years, every town in Europe had a printing press, everyone was learning how to read and write. When some engineers went to the directors of IBM and said that they should develop a personal computer, they were told, "Why would people want computers? What would they do with them?" It took jobs and Wozniak to have the vision that computers would be used by everybody. And now, people say to me, "Oh, the average guy doesn't want to work to put stuff on screen." That's bullshit! The average person is equipped with a brain that's starved for electronic food. The brain is an addictive organ. Once you get it kicked into high gear, you ain't gonna bog it down on routine tasks.

Upside: Is it a little idealistic to say that people want to make their own programming. Aren't we a pretty lazy group; enjoying those seven hours in front of the TV?

Dr. Leary: Sell the new stuff to kids. Forget about the adults. The kids don't want to sit passively back and watch someone else's programming. When they have the choice, they'll get involved. Ask a kid if he wants to play Nintendo or watch cartoons? They want to do both. Combine both in an intercom program. The basic idea is that kids who have been brought up on Nintendo power gloves and arcade simulators are not going to spend the rest of their lives passively sitting in front of the boob tube. If you give them the chance to do it and the tools to do it with, they'll never go back to the sluggish vegetizing that has characterized their parents' generation. With software Futique is developing we'll empower the 14-year old kid to dial his glove while the family is sitting around watching the 7 o'clock news and suddenly, there's George Bush and — hey, in comes Marilyn Monroe and look, she's sitting on George's lap and she's saying, "Come on, Georgie, listen to this ..." Dad will look over at the kid and say, "You're at it again. Stop it!"

Upside: Well how will these visions of the future affect the Fortune 500 companies. If information is a natural resource like water, how will they keep control? How will they keep it profitable?

Dr. Leary: In general, in the Electronic Age, control will not equate with profit. But this water supply metaphor is useful. It is true that in the past fortunes have been made by controlling water. Remember the film Chinatown? The people who founded Los Angeles got involved in the politics of water-piping it into the urban center and selling it. Now, think of the information archives stored in the libraries and filmbanks and data-banks of the world. Think of them as crude natural resources. The new telescreen technologies will set up data-telecom lines to access the infodeposits of the cyber-world.

Upside: How are computers like psychedelics?

Dr Leary: For thousands of years it has been known that there are dimensions of human consciousness that can be explored by yogic or sufi or visionary means, usually involving psychedelic plants. There were two problems involved in dealing with them objectively: limited availability of psychedelic agents and no linguistic technology for communicating or expressing these experiences. The Hindus were able to develop the iconography of the Bhagavadgita and the Tibetan Buddhists have Thangkas. A lot of these visionary paintings have been mandalas with a circle in the center, the eye. The mandala is the basic visual expression of the brain because it's simply a reflection of what the brain "sees": the eyeball loaded with digital optic pixels, the rods and cones, with the blind spot in the center.

Anyway, throughout the centuries, visionary cults and mystically inclined painters have produced these inner visions. They are very consistent. Aboriginal art is very consistent to psychedelic art. Keith Haring, the great graffiti artist, produced mythic icons which could be

recognized by any primitive or any five-year-old kid. But hand drawings can't write in neurolinguistics. With movie special-effects, we could simulate psychedelic consciousness, the multiplicity and simultaneity and overload and sensory mix and so forth. But now, for the first time, with cyber-wear virtual reality gear, you can mirror the experience more fully. About everyone who puts on these goggles, says, "Yea, this is just like a psychedelic experience".

Upside: And beyond creating a psychedelic-like experience, are there other parallels?

Dr. Leary: It's no secret that everyone that I've met in the virtual reality field - that is a tautology for you -are veterans of psychedeclic brain-exploration. It's no wonder that the personal computer was polarized by Steve Jobs and Steve Wozniak, both of whom had taken psychedelics. Psychedelics taught us that our brains could be booted up, and explored. And that the trained mind could control the inner panoramas, Psychedelics taught seven million people that's the government's future — that your mind can control what your brain is experiencing. I see the wall turn into palm trees and suddenly into hula dancing girls and the walls here are breathing and now the palm trees are turning into guys with all those palm daggers pointing at me — Hey! Cool down, baby, turn the dial. Virtual realities are the realities that the mind and the brain working together create. The skillful psychedelic person learned how to move through those realities. It's now being done through virtual reality technology instead of drugs.

Upside: So virtual reality is the legacy of the psychedelic experimentation of the 60s and 70s?

Dr. Leary: There's certain historical genetic determinism here. As humanity developed artifacts and techniques for manipulating the material world, like the stone knife and the axe and fire, we understood more about how to deal with matter. And we have continued that relentless pursuit of the ultimate elements of matter. But quantum physics has taught us that matter is made up of off-on-bits called quanta or quarks. Matter is just temporary frozen blocks of digitalk information. The industrial philosophers were static materialists. They talk about Newton's laws. How typical of British engineers to pass a law. Newton's Laws are now local ordinances, limited to certain temporary states. Energy is just two rocks hitting together and causing flame. Matter in the process of transforming itself. There are certain common-sense topo logical principles about how atoms are built and how molecules form and organic molecules create self-replicating bodies. But then humans started fabricating artifactual material realities. Over 25,000 years ago we took the stone knife and we ended up developing the atom smasher. Three hundred years ago, could they imagine a linear accelerator which is miles long, the aim of which is to fission invisible atoms? The climax of the industrial age was the Soviet Union, heavy industry, collective, centralized. The ultimate factory state. The great advantage that the Japanese and the Germans had is that they lost World War II and their industrial plants were destroyed. We're still making Willow Run bombers. The Soviet Union, until six months ago, was still in the business of fighting World War II.

Upside. What do you think of the theories of Johan Naisbitt in Megatrends 2000?

Dr. Leary: I like his cheery optimism. But I don't think he gets the real issue of multi-media telescreening and the construction of electronic realities. Hey it's so big and it's happening so fast. Remember. It was electronic information that brought down the Berlin Wall. This incredible guy Vaclav Havel, the dissident playwright, i.e., artificial reality carpenter, who just became president of Czechoslovakia made a profound comment. He said that he was more moved by the assassination of John Lennon than of Jack Kennedy. He obviously understands the power of electronic information to create the world of the future.

Upside: Specifically, what are you doing to move into the future?

Dr. Leary: My group, Futique, is alpha testing two intercom products. Head Coach allows you to perform an electronic book, competing with others. InterCom sets up an exciting, fast-moving mind interplay in which your scores on 11 indices of mental proficiency flash on the screen.

When you talk about the future, keep in mind there's an absolutely relentless algorithm going on: It never occurred to the guys who came up with the steam engine to make big steam-powered boats so that people would use their technology. Henry Ford, on the other hand, was a true genius because he predicted that his invention would be common, for individuals. Automobile means that everyone would be mobile.

Television technology wound up in our living rooms and changed our lives. So technology ends up in the hands of individuals and that's where the money is. That's how we lure and seduce the software moguls: Good. Lotus 1-2-3. Fine. There's still going to have to be an industrial plant. The plant's going to be increasingly robotized and no human being will do for money what can be done better by a machine or a computer. But we're still going to have them. The hardware is going to be more and more complicated and more precise and tailored to individuals, so that by all means I want Gates and Sculley and those guys to get better at what they do and to work with the Japanese on the kind of hardware that will take us into the future. It's still the case that that's where the money is. But in five years, the hardware market will be dwarfed by software. Some Silicon Valley high-tech companies are like the Soviet Union under Brezhnev -still working on the centralized heavy industry model. With little concern for the individual home consumer, In many ways, Silicon Valley reminds me of a digital Detroit.

Upside: But many people feel like Silicon Valley and the high tech field is the one place in the country where ideas are still valuable; young entrepreneurs are getting venture capital money, big companies are looking for new ideas ... Do you disagree?

Dr. Leary: I certainly hope so. Young guys like Jaron Lanier seem to be on the right track. Ted Nelson, of course, is the big star. This software program Collaborator which has helped individual screen writers organize their thoughts is now being tailored down to the highschool kid writing a term paper. That's a prototype. Smart software accessible to the small-guy consumer. The first digital genius who produces software that turns the personal computer into a "cyberphone" is going to be the Henry Ford plus Walt Disney of the Electronic Age.

Upside: Do you feel that the big companies, by playing by the old rules, are slowing the evolution?

Dr. Leary: There's an absolute genetic historical rhythm to this. Nobody can facilitate it, nobody can push it ahead. You have to wait until the kids grow up. You can watch it pass by. Or you can be there waiting. I know which I plan to do.