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Immortality 2.0: A Silicon Valley Insider Looks at California's Transhumanist Movement

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Immortality 2.0: A Silicon Valley Insider Looks at California's Transhumanist Movement.
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One afternoon in late 2007, a Yahoo executive named Salim Ismail stepped up to a podium at company headquarters to talk about what some call “the world’s most dangerous idea.” An intense man from India, Ismail faced a conference room packed with computer whizzes from the likes of Google, Apple, and Intel and launched into a tirade about the far frontiers of digital technology and the big battle that lay ahead.

“The current system is flawed,” he said, pacing the stage. He went on to talk about routers and interrupt systems, hardly exotic material to his audience. But even within this techy sanctum, his message was a bold one. The flawed system that Ismail lamented was not a computer network, it was the human brain. “We need to design a better one,” he said.

Our brains are poorly programmed, according to Ismail. Rewiring them might fix the glitches—like stupidity and violence. “We need computer chips monitoring our neural networks,” he said. “Evolution isn’t going to do this for us. So technology is going to have to do it.”

Ismail’s talk, “The Need to Reengineer the Human Brain,” wasn’t the most ambitious at the conference, a meeting of a local think tank called the Foresight Nanotech Institute. At another panel, a local biotechnician presented “Mind Uploading: How to Really Do It,” a step-by-step proposal for transferring human consciousness onto a computer. Later, a programmer discussed “The Future of the Singularity,” a time in the not-too-distant future when humans and machines will be one. These theories weren’t meant as entertainment. Ismail and his ilk are working to produce extreme technologies, to reengineer the brain, upload the mind, copy people, and more. These are the technologies that lie at the heart of a movement called transhumanism.

Part science, part faith, and part philosophy, the essence of transhumanism is radical life extension and life expansion. Movement devotees perceive the human body as a work in progress. Evolution took humanity this far, the thinking goes, and only technology will take us further. Transhumanism views sickness, aging, and death as unnecessary hindrances that we have the right and the responsibility to overcome. Our bodies, frail and unpredictable, are just another problem for these engineers to solve. The brain, our body’s computer, is due for an upgrade.

“Transhumanism is about using technology to enhance ourselves—enhancements like longer life-spans, better cognitive abilities, and improved happiness,” James Clement, the executive director of the World Transhumanist Association, told me. “It’s about transcending our limitations, including death.”

Transhumanism is now developing strong roots in Silicon Valley. The World Transhumanist Association, which has about 5,000 members, relocated to Palo Alto in 2007, and several other like-minded organizations have recently emerged in the Bay Area.

“Silicon Valley has become a growing hub for transhumanist organizations,” Clement told me. “There’s a tremendous amount of momentum right now.” The movement is picking up new adherents and new energy in its quest to enhance the human body and make us immortal. And it is flush with cash from dot-com millionaires. As a result, a fringe factor of technological progress is being pushed center stage, for better or worse.

JULIAN HUXLEY and GORDON MOORE

Perhaps only in California could such an unlikely confluence of ideas and movements come together and spawn something like transhumanism. A peculiar blend of American idealism, techno optimism, science fiction, and a near cultish religiosity, today’s movement incorporates strains of some very mainstream schools of thought, even as it seeks to transcend them.

When I asked one follower where transhumanism got its name, he directed me to the writings of British biologist Julian Huxley, brother of Brave New World author Aldous.

Julian Huxley, a biologist working in the wake of Darwin, was an optimist of the highest order. He founded the World Wildlife Fund and was the first director-general of UNESCO. In a secular manifesto from 1927, he coined a term for what he hoped would be a new age of enlightenment: “transhumanism—man remaining man, but transcending himself, by realizing new possibilities of and for his human nature.” It was an inspired, if imprecise, vision, and it went ignored for 60 years. Human nature hasn’t changed much since then.

Years later, just after World War II and long after Julian Huxley’s coinage sank into oblivion, Silicon Valley, a region of mostly cherry orchards at the southern tip of the San Francisco Bay, was emerging as the U.S. technology center. Talent from the area’s military industry and Stanford University was giving rise to the modern computer industry and the most innovative community of inventors, entrepreneurs, and engineers of the twentieth century.

A BATHTUB of ICE

As the cherry orchards south of San Francisco were uprooted and replaced with Silicon Valley, Robert Ettinger, a World War II veteran wounded in Germany, was looking to channel his dissatisfaction with the human body into something radical. Ettinger became a physics professor and devised America’s first science experiment with immortality: cryonics. In *The Prospect of Immortality*, published in 1962, Ettinger suggested that, if a body were frozen shortly after death, future technologies would be able to revive the recently deceased.

There are fewer than 200 frozen cadavers in storage today, most of them at the Scottsdale-based Alcor Life Extension Foundation. In recent years, however, the membership rolls of Alcor have been rising (today more than 800 members are signed up to be frozen in the future), thanks in large part to a surge in membership from Silicon Valley. At every transhumanist gathering in the area, one notices dozens of men and women wearing silver pendants around their wrists—Alcor bracelets, each engraved with a number to call in the event of death and instructions to put the deceased in a bathtub of ice ASAP.

Among transhumanists, Ettinger is celebrated not only for inventing cryonics, but also for penning *Man Into Superman: After Immortality ... Comes Transhumanity*, a 1972 tract that reinserted transhumanism into the lexicon. In it, Ettinger suggested that, instead of relying on cryonics to revive the dead, forthcoming technologies might make death obsolete. Ettinger’s book didn’t start a revolution. Nonetheless, he gained a sufficiently robust following that the word “transhumanism” stuck around. It was bandied about here and there for a decade, and finally received a proper hearing in the early 1980s, in Los Angeles.

It was at this point an eccentric, red-haired Englishman named Max O’Connor immigrated to America and changed his last name to More (“a constant reminder to keep moving forward”). More, an Oxford-educated

philosopher, settled in Los Angeles and set about starting a movement. He coined the term extropy. The opposite of entropy (which More defined as the tendency for moving objects to slow down), extropy was the tendency for things to speed up. Things like technology. Indeed, Max More's extropy was a lot like Gordon Moore's law.

[ILLUSTRATION OMITTED]

More founded the Extropy Institute to promote his idea. Institute conferences in the Bay Area attracted hundreds. In 1990, More picked up on Ettinger and wrote an essay titled "Transhumanism: Toward a Futurist Philosophy." He published Extropy: The journal of Transhumanist Thought. Soon after, his Extropians began calling themselves transhumanists.

The journal, and eventually the Extropy Institute's e-mail Listserv, became salons for the exchange of futuristic ideas. More's followers were online before most people had heard of the Internet. They were also signing up to be frozen with Alcor. The future looked good.

"Early on, transhumanism was very biased towards the positive," More, 43, said from his home in Austin, Texas, where he now lives. "It was focused on the benefits of new technology. That was very important back then, because no one was taking these ideas very seriously."

With the Extropy Institute, More gave the futurists in Silicon Valley something to rally around. He gave their work a meaning greater than new products and greater profits. By attaching moral priorities—like living forever—to technological progress, More gave transhumanists a shared dream they could support.

But the Extropy Institute did not speed up. It lost momentum. As the Internet went mainstream, counter-culture gave way to pop culture. Futurism gave way to materialism. As start-up parties raged, participation in the Extropy Institute waned. Discouraged by the demise of the movement's original optimism, More distanced himself from transhumanism. The Extropy Institute went into hibernation, finally closing its doors around the time the Internet bubble burst.

By this point, however, trans-humanism was beyond More's control. A loose-knit group kept the discussions going in chat rooms and on blogs. Some were interested in cryonics. Many promoted the fusion of man and machine. Still others envisioned post-national Utopias. More was the charismatic leader who rallied disparate futurists to a common cause, but he was not essential to his own movement. Today, trans-humanism lives on, mutating in the minds of its adherents.

REDESIGNING the HUMAN BODY

In a dark exhibition hall at the Tech Museum in San Jose, Kennita Watson sat in a mobility scooter—the type usually employed by senior citizens—and pondered a standing, skinned corpse. All dried red muscle and creamy ligament, the body on display glowed under a spotlight. It was part of "Body Worlds 1," a traveling exhibition of skinned and preserved cadavers.

Watson, a retired user-interface designer for Sun Microsystems, was visiting the Tech Museum with a few fellow transhumanists. Leaning in from her seat on the scooter, Watson considered the body of a man afflicted with hexadactylism, the mutation that creates six fingers on each hand and six toes on each foot. She stretched out her arm, spread her hand, and said, "I can imagine an arrangement where six would work just fine." To Watson, a malformed hand was not a disability but an opportunity.

Nearby, another transhumanist named Andy Rondeau pondered a specimen whose abdominal muscles had been peeled back to reveal the large intestine and stomach. Rondeau, a young programmer bulky enough to play professional football, said, "I'm waiting for the day when the artificial limbs become better than the real limbs."

Together, Watson and Rondeau came upon a case containing a preserved brain. Disembodied, the brain was stuck on a metal stake, spinning like a rotisserie lamb. "The gap between the frontal lobes in Einstein's brain was closed," Rondeau mused. "There were synapses going from right to left lobes."

Watson perked up from her seat in the scooter. “So he was a mutant,” she said. “Maybe we could engineer the closed gap in our brains. Then we would gain intelligence.”

Transhumanists see the body as a machine, the brain as a computer. These are seductive metaphors, especially for computer engineers. They imply that with the right tools we might be able to fix, improve, and upgrade ourselves. And if trans-humanists have their way, the specimens in that exhibition will soon be outdated models of the human body

This optimistic vision is the direct intellectual descendant of Moore’s law. With computers improving exponentially, why not expect something similar of medical technology? It’s also in line with the palpable optimism around Silicon Valley today. As new money flooded the area during the most recent bubble, companies and individuals were looking for solutions to the world’s ills. People want to stop climate change, feed the hungry, and end global poverty. Meanwhile, the transhumanists of the Valley have homed in on their own set of problems to solve. And they are supported by ambitious multimillionaires like Peter Thiel.

A co-founder and former CEO of PayPal, Thiel cashed out in 2002 with \$55 million. Today, at 40, Thiel runs Clarium Capital, a \$2 billion San Francisco hedge fund that had been garnering good returns. He was an early investor in Facebook and is known throughout the Valley as a trendsetter. But not all of Thiel’s personal investments are made solely to maximize financial gain. Thiel is transhumanism’s most generous supporter. He has invested more than \$4 million of his own money in groups working toward immortality, and he regularly speaks at trans-humanist gatherings.

“Silicon Valley is in the business of the future,” Thiel told me. “This is a logical extension of the technology industry.”

SILICON VALLEY: THE “GALACTIC CENTER” of TRANSHUMANISM

The transhumanist movement boasts devotees in countries from England to Japan to Venezuela, but more and more transhumanist cheerleaders are relocating to Silicon Valley. Besides the World Transhumanist Association, there is the Foresight Nanotech Institute in Menlo Park, which sponsored the Yahoo conference. The Singularity Institute for Artificial Intelligence, based in Palo Alto, hosts lavish conferences that attract tech luminaries and trans-humanists alike. The Methuselah Foundation, a research group working to extend biological life (it is named for the oldest man in the Bible), has an office in Menlo Park. In San Francisco, the Immortality Institute advocates for indefinite life extension technologies, while a transhumanist group called the Lifeboat Foundation works to alert the public about existential risks—everything from nuclear war and global warming to the unintended consequences of transhumanism itself. Reflecting on Silicon Valley, Kennita Watson said, “This is the galactic center of transhumanism.”

These groups, together with the various meet-ups at apartments, pizzerias, coffee shops, and museums, make a rich social network for trans- humanists of the Bay Area. Nearly every week there is a new field trip, lecture, or conference that attracts them in swarms. The movement has legs, too—there is perhaps no better place on earth for recruiting new transhumanists. Between Stanford, Google, Facebook, and the hundreds of other computer companies in the area, Silicon Valley has an always-fresh supply of young, tech-savvy workers looking to change the world.

Not long after Watson and Rondeau’s field trip to the Tech Museum, 20 transhumanists convened on a crisp winter evening for their monthly cryonics meeting at a Round Table Pizza in Palo Alto. James Clement from the World Transhumanist Association was there wearing his Alcor bracelet. Kennita Watson was there with hers. Around them, a gaggle of other bracelet-wearing transhumanists chatted about the future.

The Round Table was on Univerrants and boutiques extending out from the Stanford campus. The Face-book office glowed across the street, and sidewalk cafes buzzed with preppy workers. Compared with the glitzy restaurants nearby, Round Table Pizza seemed like a sorry choice for a get-together. The ceiling was low and the lighting was bad. Deflated balloons from birthday parties past remained taped to the walls. After much deliberation, someone ordered pizzas, reciting the menu from memory: an extra large Guinevere’s Garden

Delight and the King Arthur Supreme. It was a retro setting for a discussion of some retro technology, Cryonics, after all, is the 1960s version of immortality.

Once fed, the crowd at Round Table turned to Ralph Merkle, a board member of the Alcor Foundation with a PhD from Stanford. Merkle said, “People think cryonics is freezing the dead. That’s incorrect. We’re freezing the terminally ill. We want a second opinion from a future doctor”.

Merkle acknowledged that there’s no proof that anyone will ever be able to reanimate a frozen cadaver (in fact, the ice crystallization that occurs upon freezing damages the body’s cells, a phenomenon unscientifically known as “freezer burn”), but that doesn’t much matter to him. The adherents of cryonics figure that future technologies will be able to reanimate a body that is, by currently accepted definitions, dead. But they’re much more enthusiastic about the idea of vanquishing old age and death entirely, not leaving a corpse to freeze,

TECHNOLOGICAL FOUNTAIN of YOUTH

Aubrey de Grey, an English biologist with a doctorate from Cambridge University, is head of the Methuselah Foundation and one of the world’s foremost antiaging champions. With high-profile partners like Arizona State University’s new Biodesign Institute, the Methuselah Foundation is trying to reverse degenerative cell damage. Little in the way of usable research has been produced, but the unabashed ambition of his work (and his creeping mainstream acceptance) has made de Grey something of a guru to the transhumanists of Silicon Valley. He visits the Bay Area every couple of months, often speaking at the offices of Yahoo and Google.

On an unseasonably warm winter’s day, de Grey was at Brickhouse, the product-innovation division that Salim Ismail runs for Yahoo. De Grey had come to promote his new book, *Ending Aging*. Wiry and fidgety, de Grey spoke in a distinct English accent, avoiding eye contact. A rust-colored beard hung nearly to his waist, and his hair was pulled back in a long ponytail. De Grey set up a projector and screen as 50 employees gathered around during lunch break and started munching on catered gourmet sandwiches.

The lights came down, and de Grey began a talk titled “Prospects for Extending Healthy Life—A Lot.” While the audience idly chewed away, de Grey told them, “I think that many people in this room have a good chance of living to one thousand.” That got the Yahoo workers’ attention. Several in the audience put down their focaccia and took out notepads. De Grey launched into a sermon about the inhumane effects of aging.

“In the next few decades there will be biotechnology that can take middle-aged people and give them a few extra decades of healthy life,” de Grey told the crowd. As those extra few decades wind down, he said, even newer technologies will offer yet another few decades. So it will go indefinitely, death always nipping at your heels, while you stay a decade ahead of its reach with the latest advances in biotechnology. De Grey calls this “longevity escape velocity,” a nod to our species’ previously most ambitious project to date, the space program. Just as rockets let us escape gravity, biotechnology will let us outrun death, goes the theory. And on the off chance that de Grey doesn’t achieve longevity escape velocity before he dies, all hope is not lost. He is signed up to be frozen by Alcor.

Artificial Intelligence, Artificial YOU

Central to the transhumanist creed is the idea that consciousness—our memories, feelings, and emotions—is not some ephemeral, ethereal, unknowable thing. Rather, it is data, encoded in the circuitry of our bodies. To make this point at the Round Table, Merkle drew on the brain-as-computer metaphor.

“The current definitions of death are basically incorrect,” he said. “The current systems all focus on whether the tissue is functioning. They completely ignore whether the information is still present. This is like announcing the computer is dead when you pull the plug, or even throw it out the window. ... Crash! Bam! Even then, while the RAM, the short-term memory, is gone, the hard drive is still there.” Merkle reasons that if the data is still there, encoded in the patterns of our brain tissue, it can be copied, backed up, and transferred. Or as transhumanists like to call it, “uploaded.”

Uploaders believe that all the information that makes us who we are—our knowledge, memories, habits and secrets—are data encoded in the brain. This information can be successfully captured (preferably by slicing the brain into razor-thin sections, then scanning them); run on the right computer program, and voila, you are alive in the machine, running like software.

Merkle made it sound so easy. Never mind that the technology isn't remotely close to achieving anything like this; Moore's law advances steadily, and the day will come. Yet, even if it were possible, an immortal body and a digitized brain aren't exactly the same thing. However, for transhumanists, these two speculative technologies achieve virtually the same goal: the extension of the self (or at least some version of it). Biological or digital, it doesn't matter. Either is better than dying.

Is the "SINGULARITY" Near?

A close kin to uploading, for trans-humanists, is artificial intelligence. Among the disparate groups advancing the transhumanist agenda, the Palo Alto-based Singularity Institute for Artificial Intelligence has found the most mainstream acceptance. The Singularity Institute is trying to develop a general, rather than task-specific, artificial intelligence. It has hired a team of engineers to write code that can consider and solve a range of problems, rather than just excel at one function, which is what today's AI does. Tyler Emerson, director of the Singularity Institute, told me that, in essence, what they want is a computer with a real personality. And when this happens, it will usher in what is known as the Singularity.

Emerson encouraged me to read *The Singularity Is Near*, the 2003 tome by prolific inventor Ray Kurzweil that popularized the term. The Singularity, wrote Kurzweil, is "a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed." Like Huxley's original definition of transhumanism, it's an imprecise vision. But Kurzweil gets more detailed, predicting certain milestones on the march to the Singularity.

The impossibility of knowing what the Singularity will look like {let alone if it will ever come about) makes it fertile ground for daydreaming. It also makes it easy to dismiss as pure fantasy. In the best scenarios, machines smarter than humans might solve problems we find insurmountable—things like world hunger and the need for renewable energy. The Singularity could put humanity on the fast track to Utopia. Ultimately, Kurzweil says, intelligence will expand into space at the speed of light. Like de Grey, Kurzweil is something of a guru in the community. The Singularity is now the most popular of trans-humanist ideas. Kurzweil's book is being adapted into a movie and is now a buzzword in tech circles. Many transhumanists I met toted dog-eared copies of his book in their backpacks.

SINGULARITARIAN HOPES and FEARS

In his book, lectures, and various media appearances and interviews, Kurzweil repeats many of the same optimistic scenarios popular among transhumanists: Technology will one day free the world, if not from poverty, sickness, and death, than at least from fossil fuels. He forecasts that by the end of the 2030s we will augment our thinking capacity with cybernetic implants, becoming radically more intelligent, and we'll have cured many of the world's most common illnesses through personalized medicine. An artificial general intelligence, thousands of times smarter than the entire human race, will emerge by the 2040s.

Kurzweil perceives some dangers to technological acceleration. Just as the Singularity could go very well, it could also go very badly. Nanotechnology gone awry could disassemble everything on earth, reducing the world to "grey goo." Machines empowered by artificial intelligence might seize control of the world's arms and turn them against humans. A cyborg army might decide to wipe out the human race. As Kurzweil's ideas—both the optimistic and the cautious ones—gain greater audience, doomsday scenarios have been spreading among transhumanist circles.

This nascent preoccupation with the apocalypse has affected the movement for the worse, Max More told me. "The Singularity concept to me is quite dangerous," he said. "It has a very strong religious resonance. I've never been a fan of it." More is now leery of the movement he helped spawn. "The mood today is less exuberant. It's

become more gloomy,” he said. More fears that today’s transhumanists are too preoccupied with the Singularity and its potentially adverse effects. “They have this tendency towards apocalyptic thinking. It can be a very dangerous thing.”

The Singularity Institute’s Emerson cautioned, “For those of us who don’t believe in God, this is a sort of religion.”

Any resemblance between trans-humanism and apocalyptic Christianity is not something the movement devotees are looking to convey. The vast majority are atheists; if you believe in heaven you don’t need radical life extension. But some trans-humanists have reported their own conversion experiences. Michael Gusek, an engineer developing AI systems for a major Silicon Valley contractor, learned about trans-humanism recently and was hooked. “I heard what it was all about, and the light of purpose went on,” Gusek said. “I started reading the literature, and I not only discovered my own purpose, but discovered what the nature of the universe is.”

When I asked Peter Thiel if trans-humanism were a religion, he offered a cryptic answer. “Every myth on this planet tells people that the purpose of life is death,” he said. “It rationalizes death, it helps them deal with it. Every temple is a tomb and every tomb a temple. If you have a set of technologies that radically changes the meaning of death, then that has repercussions for religion. These questions touch on our very humanity.”

“A REJUVENATION of TECHNO-OPTIMISM”

After de Grey talked to Ismail’s employees at Brickhouse, he wanted a beer. We walked out into a sunny winter afternoon, and soon found a microbrewery called the 21st Amendment. Inside, we settled into a wooden booth and de Grey ordered a pint of chocolate-colored lager called Darkness.

“Looks dangerous,” he said with a smile. Leaning across the sticky table, his long beard reaching his lap, de Grey tried to color his quest as a compassionate one. “It’s not about the fact that aging kills people and takes lives. It’s about the fact that aging kills people really horribly,” he told me. “If you talk about immortality, people have this horrifying knee-jerk reaction against it. But if you talk about keeping your health, no one argues with that. So I focus on health. Let’s stay healthy for a while, and that’s good. If it keeps on, then there’s this side effect: We live forever.”

It was not long after lunch, and de Grey ordered a second pint of beer. His tongue looser now, a ring of foam clinging to his beard, he told me about transhumanism in Silicon Valley. “This sort of crowd seem to be the easiest to enthuse,” he said. “They have the money, and the mind-set. They haven’t accepted death as an inevitability. It’s a feedback loop. A year ago, Peter [Thiel] gave me a lot of money. So I’ve been coming back. Peter has a lot of friends who also have similar interests, and money. It’s a rejuvenation of techno-optimism.”

After my conversation with de Grey, I called up Thiel and asked him why he supported trans-humanism. At first, Thiel qualified his involvement as a sort of pet project that shouldn’t be taken too seriously. “There’s always this big question about how much of this is too bizarre to be affiliated with,” he said.

Thiel’s acknowledgement that for all of transhumanism’s ambition it lacked a certain grounding in the real world was a rare—even refreshing—departure from the tyrannical optimism that rules most trans-humanist conversations. But any hope that Thiel might be more forthcoming about the ethical ramifications of transhumanism, or provide some further insight into the true motivations of transhumanists like himself, faltered as his tone changed. Thiel became assertive, defending transhumanism and his involvement with it in the same breath. “We’re living in this world where science and technology are growing at a tremendous clip,” he said. “These technologies are being developed, and we’re going to have to deal with them.”

Thiel’s defensive optimism is characteristic of transhumanists. They are eager to see how far technology can go, and not inclined to spend much time worrying about any potential ramifications. Eric Boyd, another fresh-faced member of the digerati at the Round Table meet-up (he wore a T-shirt that said FIGHT AGING), asked me, “What if you could take a pill that gave you extra muscle mass? You’d never have to go to the gym again. Would you take it?”

“Like steroids?” I asked.

“But with no side effects,” Boyd said. “What if there were perfectly legal enhancements that caused no harm, only good?”

I didn’t have a quick answer for Boyd. A perfect body would sure be nice, but would I appreciate it as much if I didn’t sweat for it? And even if my muscles were toned, wouldn’t I find other imperfections to complain about? Could a pill cure human nature?

As Boyd chewed away, I couldn’t help but wonder what was wrong with life as it is. All flaws aside, the world is pretty miraculous. Who knows what might happen if we begin tampering with it? I hadn’t come up with an answer when Boyd said, “Well, I would.”

IMMORTALITY Detractors

As the transhumanist community has become more visible, it’s also won its share of critics. Some bioethicists worry that tampering with the human body may irreversibly screw up our genetic composition. In *Enough: Staying Human in an Engineered Age* (Times Books, 2003), environmentalist Bill McKibben argues against enhancement and life extension. Conservative pundit Francis Fukuyama called transhumanism “the world’s most dangerous idea” in the journal *Foreign Policy*, elaborating, “The first victim of trans-humanism might be equality.”

Even assuming life-enhancement one day proves not only possible but safe, not everyone wants to live forever. What transhumanists see as unalienable rights, others see as affronts to human nature. Richard Hayes, executive director of the Oakland-based Center for Genetics and Society, worries that transhumanism could usher in a new, high-tech eugenics. As enhancements become available and only the wealthy can afford them, an ever-wider wedge will divide society’s haves and have-nots.

“At what point do we start thinking of each other as humans and sub-humans?” he wondered. “Or humans and superhumans? Or humans and transhumans?”

Overpopulation is a concern of many critics as well. If everyone’s living forever, won’t the earth get crowded pretty quickly? How will our already-strained natural resources hold up? Transhumanists respond that people will still die—via car accidents and the like—and that technological advances will solve problems like finite energy, scarce food, and a warming globe.

While Hayes said he thinks many items on the trans humanist agenda—like cryonics and uploading—are patently impossible, he doesn’t underestimate the harm that the misuse of advanced genetic technologies poses. “I think that trans-humanists and a lot of these Silicon Valley types are just like a bunch of 14-year-old boys, and you don’t want 14-year-old boys running the world,” Hayes said.

He went on to voice concern about the transhumanists’ very motivations. “The seriousness with which they want to live forever, the fear of dying, it’s very disturbing,” Hayes told me. “I think the prospect of immortality is awful. I pity them. They are going to spend their whole lives thinking they will live forever. That’s tragic. Life is a mystery, and death is part of life.”

Such skepticism of transhumanism is, arguably, natural. At the deepest level, living forever interferes with everything we understand about the world. Many would say the cycle of life and death is harmonious, even beautiful. But such concerns may not matter any more. As Peter Thiel had told me, “It’s hard to extrapolate where exactly it’s going, but I think people are underestimating the scope of this change in the longer term. At the end of the day, I’m not sure there really is a choice.”

About the Author

David Gelles is a freelance journalist living in California. He's written for The New York Times, The Los Angeles Times, The Miami Herald, and ReadyMade magazine. E-mail dgelles2@gmail.com.

RELATED ARTICLE: IS MOORE'S LAW Inevitable?

In his 1965 paper "Cramming More Components onto Integrated Circuits," in Electronics magazine, Intel co-founder Gordon Moore explained that the storage capacity of computer chips was doubling roughly every two years, and showed no signs of slowing. The memory and speed of computers were increasing exponentially.

Moore's small observation continues to have a big impact. It means that, no matter how advanced technology seems today, it will soon be better, guaranteed.

Forty years on, Moore's law, as this doubling phenomenon is more commonly known, goes unchallenged. Computers become twice as powerful roughly every two years, and technology storms ahead, ever more enmeshed in our lives. There's no sign of this trend slowing, and today, enthusiasts point to Moore's law as proof of transhumanism's inevitability.

– David Gelles

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Nanotechnology is controlled action on a very small scale—one billionth of a meter, to be precise. A thriving academic field and also big business, nanotechnology is already widely applied. Carbon nanotubes make electronic circuits even smaller. Nanocomposite materials make beer bottles lighter and stronger.

But beyond today's applied science, there is another, stranger realm of speculative nanotechnology. Ask certain nanotech enthusiasts, and they'll tell you that the day is rapidly approaching when tiny machines will be able to effect colossal change, when robots smaller than a speck of dust will be able to reorganize molecules however we choose—to purify water, build an apple from scratch, or get inside our bodies and fix our ailing organs.

And though the day is not here yet, cryonics advocate Ralph Merkle says nanobots will soon be able to go into a deceased body, repair the dead cells, and reboot the brain.

"Nanotechnology is going to let us arrange atoms in most of the ways nature allows," Merkle told a recent informal meeting of transhumanists. "Once we get the technology in place, dying goes away. It just doesn't happen."

–David Gelles

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Who was this sinister figure that cast such a long shadow over France? A former rugby player who dyed his hair blond to accent his Aryan origins, Le Pen had lost his left eye in a youthful political brawl. Known for his complimentary references to Nazism, which he called a "purely popular and democratic mass movement," [...]
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- [Paid Advertisements by the Israeli Defence Forces Are NOT "Journalism" \(NYT 12/1/12\)](#)
As arguments flare in Israel and the United States about a possible military strike to set back Iran's nuclear program, an accelerating covert campaign of assassinations, bombings, cyberattacks and defections appears intended to make that debate irrelevant, according to current and former American officials and specialists on Iran. The campaign, which expert [...]
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A group of Japanese neuroscientists is trying to peer into the mind — literally. They have devised a way to turn the brain's opaque gray matter into a glassy, see-through substance. The group, based at the government-financed Riken Brain Science Institute in Wako, Japan, has created an inexpensive chemical cocktail that transforms dead biological tissue [... [...]
- [Government Aims to Build A "Data Eye in the Sky" \(NYT 11/10/11\)](#)
More than 60 years ago, in his "Foundation" series, the science fiction novelist Isaac Asimov invented a new science — psychohistory — that combined mathematics and psychology to predict the future. Now social scientists are trying to mine the vast resources of the Internet — Web searches and Twitter messages, Facebook and blog posts, the [...]
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Human Perception of Illumination with Pulsed Ultrahigh-Frequency Electromagnetic Energy Abstract. A psychophysical study of the perception of "sound" induced by illumination with pulse-modulated, ultrahigh-frequency electromagnetic energy indicated that perception was primary dependent upon peak power and secondarily dependent upon pulse width. T [...]
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Radio Waves & Life by Tom Jaski Electronics – September 1960 In a recent editorial (August, 1959), Hugo Gernsback called for a serious reappraisal of the effects of radio waves on human and animal physiology. In view of the almost casual use of high-power radar and industrial RF (radio frequency) heating equipment, this is certainly [...]
- [Star Wars, Star Trek and Killing Politely \(Dr. Nick Begich\)](#)
Star Wars, Star Trek and Killing Politely by Dr. Nick Begich Over the last several years Earthpulse has been investigating the latest developments in technology. We explore subjects related to improving the human condition and expose projects which we believe are risky and unnecessary. This essay is about some of the science being developed and [...]

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Mere Tinkering With a Bad Program The Obama administration announced last month plans to repair Secure Communities, the program that compels state and local police to join its wide and expanding hunt

for illegal immigrants. From now on, when illegal immigrants are stopped for traffic violations by local police, Immigration and Customs Enforcement will consid [...]

- [American Swastika: The Shocking Story of Nazi Collaborators in Our Midst from 1933 to the Present Day RIP #CharlesHigham](#)

An excerpt from the introduction to the book American Swastika by Charles Higham American Swastika/the Shocking Story of Nazi Collaborators in Our Midst from 1933 to the Present Day Doubleday & Company, Inc., 1985 – Hard cover It was announced in the issue of Time magazine for December 19, 1983, that Hermann Abs, honorary chairman [...]

- [Trading With the Enemy: An Exposé of The Nazi-American Money-Plot 1933-1949 RIP #CharlesHigham](#)
Preface to the book Trading with the Enemy: An Exposé of The Nazi-American Money-Plot 1933-1949 by Charles Higham Delacorte Press – 1983, hard cover Preface It would be comforting to believe that the financial Establishment of the United States and the leaders of American industry were united in a common purpose following the Day of [...]

- [Banned from Spitfirelist #DaveEmory](#)

Banned from commenting on #Spitfire. Apparently I was using terms deemed too “radical” for his listening audience: “globalisation” and “neoliberalism.” A safe hunch Mr. Emory is under the employ of AIPAC: A small minority of rich “Jewish” Americans who control US public opinion (ie #NYTimes) on the so-called “war on terror,” the Israeli Occupation, amongst [...]

- [The Closing of the American Mind by Allan Bloom \(pdf\) The Nietzscheanization of the Left and The Rise of a Disabling Relativism](#)

ClosingOfTheAmericanMind

- [Compendium of Information on Greece the Corporate and Fake Left \(@democracynow @TheNation\) Media Ignore](#)

Greece’s Debt Crisis: Fabricated_STATISTICAL FRAUD! NYT Admits EU “Crisis” Tool for German Economic Imperialism and Political Hegemony (NYT 11/12/11) <http://t.co/W8RsnII6> Greece Will Once Again Say No! (Oxi!) To German Economic Imperialism FTR #746 Greek Tragedy German Economic Policy and the Euro 1999-2010 by Richard Conquest (pdf file) Richard [...]

- [CIA Inspector General Admits to Contra Drug Connection \(WaPo 1998\)](#)

CIA Inspector General Admits to Contra Drug Connection (WaPo 1998) The CIA did not “expeditiously” cut off relations with alleged drug traffickers who supported contra Nicaraguan rebels in the 1980s, CIA Inspector General Frederick R. Hitz told the House intelligence committee yesterday. Hitz for the first time said publicly that the CIA was awar [...]

- [Sullivan & Cromwell Chairman: Trauma Surgeon of Wall Street \(NYT 11/2009\)](#)

Sullivan & Cromwell Chairman: Trauma Surgeon of Wall Street (NYT 11/2009) Earlier this fall, after a busy month of shuttling to Washington, H. Rodgin Cohen, the dean of Wall Street lawyers, settled into a table upstairs at the Red Hat, a favorite restaurant overlooking the Hudson River here in the Westchester village where he lives. [...]

- [United Fruit Company, Sullivan and Cromwell, Dulles, CIA, Guatemala](#)

United Fruit Company, Sullivan and Cromwell, Dulles, CIA, Guatemala The capital of the United Fruit Company empire was in Guatemala, in the town of Bananera, where it made its headquarters. From here it master-minded its empire and corrupted every level of government and politics in Guatemala. United Fruit also managed to exempt itself from virtually [...]

- [The US Military’s Quest to Weaponise Culture \(Bulletin 2008\)](#)

The US Military’s Quest to Weaponise Culture (Bulletin 2008) The Pentagon seems to have decided that anthropology is to the war on terror what physics was to the Cold War. As an anthropologist, this makes me very nervous. Where former Defense Secretary Donald Rumsfeld believed that the United States would vanquish its enemies through technological [... [...]

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- [Buxom, Lustful and Thirsty for Blood](#)

Brigitte Lahaie, covered up for the moment, in Jean Rollin’s “Fascination.” The movies have their outsider artists too, filmmakers who work away from the established centers and financial structures, often laboring

in blissful ignorance of academic technique. A disproportionate number of these directors work in horror films, for reasons that probably h [...]

- [I Have Repeatedly Failed You](#)

ce399. 2012 1 Corinthians 13 (NIV) 1 If I speak in the tongues[a] of men or of angels, but do not have love, I am only a resounding gong or a clanging cymbal. 2 If I have the gift of prophecy and can fathom all mysteries and all knowledge, and if I have a faith [...]

- [More New Age Fascism from Aleister Crowley's Book of the Law](#)

Pity not the fallen! I never knew them. I am not for them. I console not: I hate the consoled & the consoler. I am unique & conqueror. I am not of the slaves that perish. Be they damned & dead! Amen.

<http://hermetic.com/legis/ccxx/chapter-ii.html>

- [Philip K Dick: Mind Control and "High Weirdness" \(NYT 18/12/11\)](#)

The Voices in Philip K. Dick's Head By CHARLES PLATT THE EXEGESIS OF PHILIP K. DICK Edited by Pamela Jackson, Jonathan Lethem and Erik Davis. Illustrated. 944 pp. Houghton Mifflin Harcourt. \$40. In 1979, I visited Philip K. Dick for a profile I was writing. In a modest apartment he shared with dusty stacks of [...]

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Reid_Bullying_TOPIA[1]

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08_sanchez-parodi

- [The Paranoid Simulacrum in Surrealism by Constantinidou \(pdf file\)](#)

constantinidou

- [Haiti Mobs Lynch Voodoo Priests Over Cholera Fears \(BBC 10/12/10\)](#)

A woman with her child at a cholera treatment centre (14 Dec 2010) There have been calls for better public health information throughout the epidemic Continue reading the main story Rebuilding Haiti * The rubble problem * Progress: In graphics * An aid worker's view * In pictures: Wolfgang Tillmans Voodoo priests in Haiti are [...]

- [Is Madonna Jewish? \(WSJ 8/4/11\)](#)

Is Madonna Jewish? The material girl's professed faith has little to do with classical Jewish mysticism In 1941, Gershom Scholem published "Major Trends in Jewish Mysticism," a groundbreaking study of Kabbalah's murky origins, complicated texts and arcane ideas. Scholem, who died in 1982, concluded the book with a vague prediction: [...]

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- [This is Not Journalism Belongs in the OP-ED Section: In Brazil and Elsewhere, Dismay at Argentina's Nationalization Move \(NYT 19/4/12\)](#)

In a fiery speech justifying her decision to nationalize the oil company YPF, Argentina's president, Cristina Fernández de Kirchner, cited her admiration for Petrobras, Brazil's state-controlled oil giant, and other state oil companies in Latin America. But here in Brazil, Latin America's rising oil power, and elsewhere in the region, financial experts greet [...]

- [Modes of Governance in Neo-Liberal Capitalism: An Introduction \(Rhizomes.10 Spring 2005\) Cache of http://www.rhizomes.net/issue10/introren.htm](#)

Modes of Governance in Neo-Liberal Capitalism: An Introduction Hai Ren [1] Neo-liberal capitalism – which has become not necessarily better or more advanced but certainly more complicated and more dominant in contemporary human lives – signals a significant departure from liberal capitalism. Under the guise of liberal capitalism, the Eurocentric norm of stat [...]

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a4-greek-solidarity-book

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01-PoliticalEconOfTheDead
- [Some CATs Don't Play Nice: Rachel Corrie Foundation Leads New Success in the Caterpillar Campaign \(WIP Nov 2011\)](#)
by Marissa Luck Is a company responsible for the use of its products? For many involved in the Caterpillar campaign, the answer to that question is a definite "yes." Recently, the Rachel Corrie Foundation, along with a national coalition of organizations, successfully stopped a ceremony that would have honored Caterpillar Inc. (CAT) as it receive [...]
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It is impossible to defeat imperialism without identifying its head: the United States of America. In a capitalist system, most people live in an invisible cage. For example, there you accept the myth of the self-made man, but don't understand that the opportunities of most people are determined by forces they don't even see. [...]

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