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English

Transcendent Man: The Life and Ideas of Ray Kurzweil

This film draws on the concept of immortality. In many ways humankind's search for immortality has pervaded our history, art, and mythology. And now, our science. One hundred years ago, the average lifespan of men and women was mid-40s. Now, it's mid-70s. In just a short one hundred years, with the discovery of hygiene and bacteria and viruses and how germs work, we have been able to almost double our lifespans. Isn't it the purview of modern medicine to extend life as long as possible? Now science is looking deeply into the aging process, how it works on a cellular level, how it can be slowed, stopped, even reversed? Other scientists are looking at how technology will extend our lives, how our biology and technology will merge to make something other than what we have come to define as human. This is not the stuff of science fiction anymore. It is real and it is being researched and explored with all the seriousness of legitimate scientists and researchers, not snake oil salesmen. Some of these adventurous scientists are imagining extended our lives 1,000, even 5,000 years, with the first wave of research extending our lives a mere 50-75 years. Alas, we are approaching the end of aging and postponing death to unheard of periods of time. What will happen to our culture? Our art? How we think about, well, just about everything? For this paper, address what it would be like to live for 1,000 years. You will need to focus on a particular angle: cognitive development, over population, relationships, art, how and where we would live. This is about using your imagination. Cite two examples from the film and follow the checklist.



Who Wants to Live Forever?

Kristen Philipkoski

What kind of person believes it's possible to live forever?

An Internet entrepreneur, a psychiatrist, an artificial intelligence expert, a nanotechnology expert, a science-fiction writer, a nurse and the wife of a professional wrestler, just to name a few, all very much believe in that possibility.

They and about 200 others paid up to \$600 to attend the fifth Alcor Extreme Life Extension Conference, held every other year. They eagerly absorbed the latest in the science and philosophy behind the quest for immortality.

These folks belong to "a beleaguered millennial faith," said [Gregory Benford](#), a professor of plasma physics and astrophysics at the University of California at Irvine who spoke at the conference.

The majority of human beings believe wanting to live forever is just plain wrong for various reasons.

Take, for example, Miss Alabama's argument, if you can call it that, given during the Miss America competition in 1994. The competition host asked: "If you could live forever, would you want to, and why?" Miss Alabama answered, "I would not live forever, because we should not live forever, because if we were supposed to live forever, then we would live forever, but we cannot live forever, which is why I would not live forever."

But extreme life extension advocates have answers for every argument -- even Miss Alabama's. They say such circular thinking stems from the innate and irrational human fear of death.

Bob Newport is a psychiatrist and a member of Alcor's medical advisory board. Sporting a beret and a shirt pocket full of cigars, he argued that humans are so afraid of death it's almost impossible to think about it rationally.

Exploring death irrationally is what brought us religion, he argues. Depending on cryonics for immortality is "barely rational," he said, but it's more rational than depending on Jesus to provide everlasting life.

Many immortality advocates view getting old as a disease.

"If you are physically old and don't want to be, then for you oldness and aging are a disease and you deserve to be cured," said Robert Freitas, a research scientist at [Zyvex](#) and a research fellow at the [Institute for Molecular Manufacturing](#).

[Steven Vachani](#), a 27-year-old Internet entrepreneur, attended the conference and signed up for the Alcor plan: paying \$400 in annual membership dues, and naming Alcor as his life insurance beneficiary to cover the cost of freezing his body in liquid nitrogen for \$120,000 (it costs \$50,000 to preserve just the head).

When asked if he was worried that one day the company would go out of business and his body might be thawed out and abandoned, or that the technology for reanimation may never be perfected, he said no.

"In doing anything like this, there's a certain leap of faith you have to take," Vachani said. "They don't have all the answers right now, but everything will fall into place. If you want all the answers immediately, you'll never do anything."

Bonnie Blood, who is married to professional wrestling legend [Ricky Steamboat](#) (Richard Blood), attended the conference to support the extreme life extension effort.

Brenda Linn, a neurology nurse who worked on the development of the [Glasgow coma score](#) in 1974, also attended. She came to the meeting from Houston with her boyfriend, 87-year-old [Miller Quarles](#), who is founder and president of the [Curing Old Age Disease Society](#).

"COADS was founded by Miller Quarles who likes living and sees no reason to accept the genetic sentence to the gallows before age 100," said the organization's website. "The organization seeks to promote research to find a way to stop the aging process and to promote public education about that objective."

Attendees seemed to agree that the Ted Williams saga has been good PR for their movement. But at the same time they agreed that public acceptance is a long way off.

Gregory Benford, of the University of California at Irvine, believes the public should know that "cryonicists aren't crazy, they're just really great, sexy optimists."

Benford and his fellow immortality seekers clearly don't approach the issue without humor.

Michael Riskin, vice president of Alcor and chair of the board of directors suggested four possible reasons why they long for eternal life:

1. They're so appalled by death they'll try anything.
2. They're extreme narcissists and believe the universe has no meaning unless they're experiencing it.
3. They have no preconceived answer to death.

4. They enjoy being part of a ridiculed minority.

Riskin was clearly joking. But the folks at the conference are serious about living forever. In fact, researchers like Aubrey de Grey dedicate their lives to finding scientific solutions to mortality.

Speaking in a very thick British accent, the long-bearded De Grey gave a step-by-step rundown of futuristic solutions to various aspects of mortality, including metabolism problems and cell death. De Grey is a research associate in the genetics department at the University of Cambridge.

"It could be you whose lives we could save," he said.

(Reuters) - If Aubrey de Grey's predictions are right, the first person who will live to see their 150th birthday has already been born. And the first person to live for 1,000 years could be less than 20 years younger.

A biomedical gerontologist and chief scientist of a foundation dedicated to longevity research, de Grey reckons that within his own lifetime doctors could have all the tools they need to "cure" aging -- banishing diseases that come with it and extending life indefinitely.

"I'd say we have a 50/50 chance of bringing aging under what I'd call a decisive level of medical control within the next 25 years or so," de Grey said in an interview before delivering a lecture at Britain's Royal Institution academy of science.

"And what I mean by decisive is the same sort of medical control that we have over most infectious diseases today."

De Grey sees a time when people will go to their doctors for regular "maintenance," which by then will include gene therapies, stem cell therapies, immune stimulation and a range of other advanced medical techniques to keep them in good shape.

De Grey lives near Cambridge University where he won his doctorate in 2000 and is chief scientific officer of the non-profit California-based SENS (Strategies for Engineered Negligible Senescence) Foundation, which he co-founded in 2009.

He describes aging as the lifelong accumulation of various types of molecular and cellular damage throughout the body.

"The idea is to engage in what you might call preventative geriatrics, where you go in to periodically repair that molecular and cellular damage before it gets to the level of abundance that is pathogenic," he explained.

CHALLENGE

Exactly how far and how fast life expectancy will increase in the future is a subject of some debate, but the trend is clear. An average of three months is being added to life expectancy every year at the moment and experts estimate there could be a million centenarians across the world by 2030.

To date, the world's longest-living person on record lived to 122 and in [Japan](#) alone there were more than 44,000 centenarians in 2010.

Some researchers say, however, that the trend toward longer lifespan may falter due to an epidemic of obesity now spilling over from rich nations into the developing world.

De Grey's ideas may seem far-fetched, but \$20,000 offered in 2005 by the Massachusetts Institute of Technology (MIT) Technology Review journal for any molecular biologist who showed that de Grey's SENS theory was "so wrong that it was unworthy of learned debate" was never won.

The judges on that panel were prompted into action by an angry put-down of de Grey from a group of nine leading scientists who dismissed his work as "pseudo science."

They concluded that this label was not fair, arguing instead that SENS "exists in a middle ground of yet-to-be-tested ideas that some people may find intriguing but which others are free to doubt."

CELL THERAPY

For some, the prospect of living for hundreds of years is not particularly attractive, either, as it conjures up an image of generations of sick, weak old people and societies increasingly less able to cope.

But de Grey says that's not what he's working for. Keeping the killer diseases of old age at bay is the primary focus.

"This is absolutely not a matter of keeping people alive in a bad state of health," he told Reuters. "This is about preventing people from getting sick as a result of old age. The particular therapies that we are working on will only deliver long life as a side effect of delivering better health."

De Grey divides the damage caused by aging into seven main categories for which repair techniques need to be developed if his prediction for continual maintenance is to come true.

He notes that while for some categories, the science is still in its earliest stages, there are others where it's already almost there.

"Stem cell therapy is a big part of this. It's designed to reverse one type of damage, namely the loss of cells when cells die and are not automatically replaced, and it's already in clinical trials (in humans)," he said.

Stem cell therapies are currently being trialed in people with spinal cord injuries, and de Grey and others say they may one day be used to find ways to repair disease-damaged brains and hearts.

NO AGE LIMIT

Cardiovascular diseases are the world's biggest age-related killers and de Grey says there is a long way to go on these though researchers have figured out the path to follow.

Heart diseases that cause heart failure, heart attacks and strokes are brought about by the accumulation of certain types of what de Grey calls "molecular garbage" -- byproducts of the body's metabolic processes -- which our bodies are not able to break down or excrete.

"The garbage accumulates inside the cell, and eventually it gets in the way of the cell's workings," he said.

De Grey is working with colleagues in the United States to identify enzymes in other species that can break down the garbage and clean out the cells -- and the aim then is to devise genetic therapies to give this capability to humans.

"If we could do that in the case of certain modified forms of cholesterol which accumulate in cells of the artery wall, then we simply would not get cardiovascular disease," he said.

De Grey is reluctant to make firm predictions about how long people will be able to live in future, but he does say that with each major advance in longevity, scientists will buy more time to make yet more scientific progress.

In his view, this means that the first person who will live to 1,000 is likely to be born less than 20 years after the first person to reach 150.

"I call it longevity escape velocity -- where we have a sufficiently comprehensive panel of therapies to enable us to push back the ill health of old age faster than time is passing. And that way, we buy ourselves enough time to develop more therapies further as time goes on," he said.

"What we can actually predict in terms of how long people will live is absolutely nothing, because it will be determined by the risk of death from other causes like accidents," he said.

"But there really shouldn't be any limit imposed by how long ago you were born. The whole point of maintenance is that it works indefinitely."