

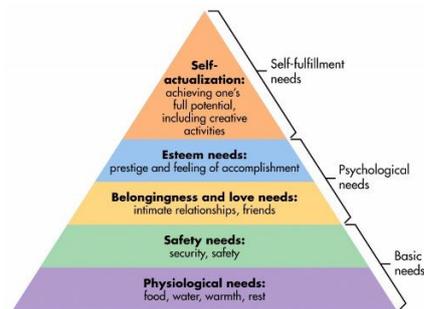


From Inequality to Immortality

A burgeoning industry promises to help the wealthy defeat the ultimate equaliser: Death.

In the year 42 I.E. (Inequality Era, post-Piketty), mankind built its first hibernation machine. This allowed some to jump to the future. A brighter future, a better future. More precisely, hibernation machines became an actualisation of a powerful idea that *tomorrow is better than today*. A tomorrow that has a cure for cancer and diabetes, where strokes, respiratory diseases and heart attacks are a hazy remembrance (much as we think of typhoid and tuberculosis today), where longevity spans centuries, and Ray Kurzweil's *Singularity*, in which humans merge with A.I. to transcend biological limitations, is within reach. The end of Death and a future everlasting beckon.

But only a select few can afford hibernation machines and jump to the future: The rich and the powerful, the rentiers and the capitalists, the titans of industry and the masters of finance. Those who can afford it skip to a future paradise, while those who cannot remain in what they now perceive as a dark and depressing present, whilst building the paradise for the few.



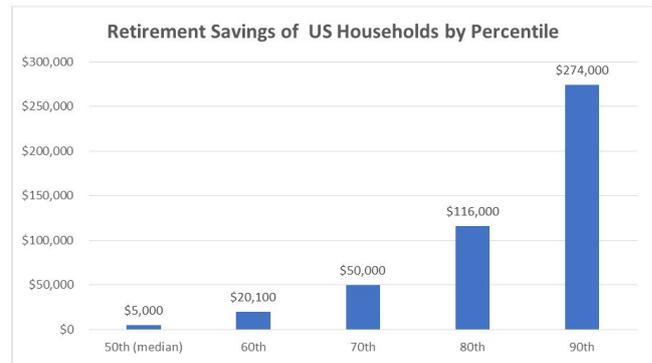
This is a short chapter in *Death's End*, the culmination of Liu Cixin's stunning trilogy, "Remembrance of Earth's Past". Former U.S. President Barack Obama recommended it, in a bygone era when leaders used to read, reflect, and write, rather than rant in 140 characters. It is fascinating to think systematically about the socio-political implications of a scenario where Death itself is not equal. Are we willing to tolerate inequality in income and wealth as long as our basic needs in Maslow's hierarchy are satisfied? Or will we have a revolution in our hands when inequality is literally a matter of life and death?¹ Hollywood which gave us *Elysium* which certainly sees revolution as the most probable outcome.

This is not some abstract sci-fi scenario. Today, there are four major companies that provide cryogenic or cryonic



services – **Alcor** in Arizona, **Cryonics Institute** in Michigan, **American Cryonics Society** in California and **KrioRus** in Russia. Alcor seems the most developed and well-funded. Morbid as it sounds, this could be you in the future, vitrified and then stored in a thermos. Their **pricing policy** has a weird two-part tariff structure – an annual membership fee of US\$525 and then an additional US\$200,000 for Whole Body Cryopreservation. There is a discount if you only cryogenically freeze your brain; and a US\$10,000 premium if you live outside the United States and Canada which rises to US\$50,000 if you live in China. A topic for another day is whether this is price discrimination or whether the price differences reflect cost differences.

Interestingly, only 5 percent of the U.S. population has an annual income exceeding the US\$200,000 charged by Alcor. But since the amount can be paid out of retirement savings, slightly more than 10 percent of U.S. households theoretically could afford to freeze at least one person (see below). Ironically, most would be bankrupted in the process, meaning they would thaw out to penury. They’d have to hope that the utopian future awaiting them would be free of the sort of inequality that enabled them to cheat death in the first place.



Meanwhile in Silicon Valley...

Sergey Brin and Larry Page, the co-founders of Google, are reading ***Homo Deus***, by Yuval Harari. On page 28, the book predicts that they are going to die. Death, after all, is the ultimate equaliser. Steve Jobs was unable to beat pancreatic cancer. Harari is sceptical whether **Google’s Calico**, short for the California Life Company and founded in 2013 with a billion dollars in funding, will “solve death in time to make Google co-founders Larry Page and Sergey Brin immortal.” This is immensely frustrating to the likes of Brin, Page, Jeff Bezos and Peter Thiel, all billionaires eager to stretch lives, or, at least their own, to “forever” in Thiel’s words.

Many believe that aging is encoded in our DNA and if anything is encoded it can be cracked. If something can be cracked, then it can be hacked. Cue applause! And cue billions of dollars for aging research with Bill Maris, the founder and CEO of Google Ventures, leading the way. In the fall of 2016, the life extension start-up **Unity Biotechnology** raised an **enormous round** of funding from Silicon Valley billionaires interested in the prospect of humans living much longer lives.

Others are bringing big data and machine learning tools to bear. **BioAge Labs**, whose tagline is “faster drug discovery for aging”, has been using machine learning and crunching genomics data to search for biomarkers that predict mortality.

Venture Vampire Capital

In 1615, a German doctor suggested that “the hot and spirituous blood of a young man will pour into the old one as if it were from a fountain of youth.” In 1924, the physician and Bolshevik **Alexander Bogdanov** performed young-blood transfusions on himself. He claimed that his eyesight improved, that he stopped balding and a fellow-revolutionary wrote that he “seems to have become seven, no, ten years younger.” Ironically, Bogdanov injected himself with blood from a student who had both malaria and tuberculosis, and subsequently died. Today, this procedure goes by the innocuous-sounding name parabiosis – a surgical union of two organisms sharing the circulation of blood. And the

search for the fountain of youth continues.

Of mice and men

Researchers at Stanford University showed in a **2014 study** that infusions of blood from young mice reversed cognitive and neurological impairments seen in older mice. These reinvigorated mice performed like ones half their age in memory based tests. Immediately, emails flooded the inbox of the lead researcher, Tony Wyss-Coray. Numerous billionaires, some of whom were experiencing onset of Alzheimer's, wanted infusions of young blood. Some had even arranged for what the HBO show *Silicon Valley* termed "**blood boys**".

There is currently a **clinical trial** called Young Donor Plasma Transfusion and Age-Related Biomarkers looking for participants. The trial, run by a start-up called Ambrosia, injects young people's blood into older people. Healthy participants aged 35 and older, pay US\$8000 for a transfusion of blood plasma from donors under 25, and researchers monitor their blood over the next two years for indicators (biomarkers) of health and aging. **Thiel** (yes, him again) is looking seriously into parabiosis.

Today, most reporting on these advances takes one of two perspectives: **weary scepticism** or **unadulterated wonder**. In either case, my grim forecast is that a world where such miracles of longevity are confined to billionaires will see socio-political upheaval, the likes of which will make the current hand-wringing and brow-furrowing on the rise of **inequality** seem quaint in comparison. In the meantime, expect a lot of books and articles and blog posts, targeted at the thought-leader industrial complex, that will at the least, make for stimulating conversation.

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¹Of course, with unequal access to health care in many countries, with direct consequences for differential mortality rates among the rich and the poor, we already live in such a world.

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