

Google Calico and a Brief History of the Immortality Business

By Josh Sanburn @joshsanburn Sept. 18, 2013

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Humans have aspired to immortality since, well, forever. Google's push into the science of aging is the latest effort at significantly extending our lifespan. Its new company, called Calico, is likely the most serious such attempt ever. It may even be big business.

Some of the earliest efforts at curing mortality occurred as far back as 2,500 B.C., when King Gilgamesh, in what's now modern-day Iraq, believed a magic plant would grant him everlasting life. According to legend, he managed to find the plant in question, only for it to be eaten by a snake as he slept. Around the same time, Indian Vedas concocted a potion they named soma, also believed to ensure immortality. (Neither worked.)

By medieval times, alchemy's popularity led some to believe that base metals could be turned into immortality elixirs. Around the 13th century, philosopher Roger Bacon wrote *The Cure of Old Age and Preservation of Youth* and argued that aging is essentially something that can be fixed. He believed that old age was simply the result of an unhealthy lifestyle. So the alchemist began prescribing medicines he believed would boost patients' health, like powders made from gold and pearl. He suggested eating vipers because they shed their skins, possibly a sign of immortality. He told men that they should breathe in the breath of virgin girls. (None of it worked.)

In the late 1700s, Scotsman James Graham claimed that Londoners could live to 150 by stopping by his clinic and persuading them to rub themselves with balsam and wash their genitals in champagne. He created a horse-hair bed that gave its users an electric shock. By the late 1800s, Charles-Edouard Brown-Sequard, a French physician, suggested ingesting the sex glands of guinea pigs and dogs. (Again, no results.)

The idea of living forever left the realm of quackery and entered science fiction by the 1960s. In 1964, a physics teacher name Robert Ettinger published *The Prospect of Immortality*, where the idea of freezing a body so it could be revived later by advanced technologies was first proposed. Since then, a couple hundred people have been cryonically preserved and dozens of cryonics organizations and societies have sprouted up around the U.S. The first person to be frozen was James Bedford on Jan. 12, 1967, and he even made the cover of *Life Magazine*. Today, the biggest cryonics organization is the Alcor Life Extension Foundation, where Bedford is still frozen. Alcor has about 100 frozen patients at its headquarters in Arizona.

A separate strand regarding the possibilities of extending lifespan comes from futurists like Ray Kurzweil, who believes humans will achieve digital immortality by 2045 by uploading their minds into computers. In Kurzweil's world of functional immortality, we'll be able to leave our biological bodies and jump from computerized host to computerized host. But before that, he believes the biotech industry will advance enough so that millions of nanobots can be placed inside our bodies to help bolster our immune system and wipe out diseases. The Russian-based 2045 Initiative is designed to achieve these goals and "to create technologies enabling the transfer of an individual's personality to a more advanced, non-biological carrier, and extending life, including to the point of immortality."

The kind of immortality most people are putting their money behind is one that's less futuristic and more concerned with what modern medicine is discovering about extending one's lifespan, some of which dates

back to Aubrey de Grey, who published the Mitochondrial Free Radical Theory of Aging in the late 1990s, which discusses attempts to repair age-related damage to human tissues.

A number of non-profits and foundations have sprung up around the idea that we can postpone age-related diseases, including The Ellison Medical Foundation, which looks at cellular stress during aging and cognitive decline; the non-profit Methuselah Foundation – named after the man in the Bible who lived to be 969 years old; the Maximum Life Foundation, a biotech/infotech/nanotech company trying to reverse aging by 2033 through investment in anti-aging research; and Proteus Venture Partners, which invests in start-ups that focus on cell therapy and tissue engineering.

A number of wealthy businesspeople have invested in the business of immortality, including Peter Thiel, Facebook investor and PayPal co-founder, who gave de Grey \$3.5 million through the Methuselah Foundation, which awards scientists working on life-extension research. Last year, the regenerative medicine industry was estimated at \$1.6 billion. Scientia Advisers, a life sciences consulting firm, estimates that the industry could reach \$15 billion to \$20 billion over the next 15 years.

The question now is, will it work?