Who wants to live forever?

Perhaps Freddie Mercury was asking a more philosophical question, but some scientists believe eternal life could one day be a real choice facing the human race.

By Sam Richards

Humanity has been fascinated by immortality since it first grasped the concept of death. Throughout history we have tried to defy our seemingly certain demise, with legends such as the philosopher's stone appearing as early as 300 AD.

Whilst we haven't found the elixir of life or the fountain of youth yet, the human race has undeniably pushed the limits of its own mortality. Death is so culturally engrained in

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society as an inevitability, any talk of "immortality" is often dismissed as pseudoscience, but advancements in medical and biological understanding have vastly improved not only our quality of life, but the length. In 1850, the average person would live to just over 36 years. Fast forward to 2018 and that figure had more than doubled in the UK, to 80 years.

What if "death and taxes" aren't the only certainties in life, as Benjamin Franklin and Daniel Defoe so famously claimed? The truth is, nobody actually dies of old age. As we get older, tiny errors in our DNA build up, making us more vulnerable to disease and injury and therefore death. Put simply, the cells in an 80-year-old just don't work as well as those in a 20-year-old.

Billions are being spent all over the world attempting to reverse the effects of ageing, and there is plenty of research (and history) to support the idea that biological advancements could extend life significantly. In 1990, Cynthia Kenyon (now Vice President of Aging Research at Calico Labs) found that by changing a single letter of their genetic code, roundworms could double their lifespan from three weeks to six.

The SENS Research Foundation (Strategies for Engineered Negligible Senescence) advocates treating age as though it were a disease. Aubrey De Grey, Chief Science Officer at SENS, explains in his book *Ending Age*: "I have been aware for many years that most people do not think about ageing in the same way that they think about cancer, or diabetes, or heart disease. They are strongly in favour of the absolute elimination of such diseases as soon as possible, but the idea of eliminating ageing – maintaining truly youthful physical and mental function indefinitely – evokes an avalanche of fears and reservations. Yet, in the sense that matters most, ageing is just like smoking: it's really bad for you."

SENS has identified seven types of "damage" that cause ageing, including cell loss and nuclear mutations, and is currently researching strategies to reverse their effects. The organisation theorises that reversing these effects could lead to "negligible senescence".

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Some scientists are taking the idea of immortality even further, exploring avenues outside of our biological constraints. Ray Kurzweil, a leading futurist, inventor and author of *The Singularity is Near* (reviewed on page 18) believes that the human race is nearing immortality. Kurzweil has watched the exponential growth of technology for decades and analysed trends to successfully predict many advances, such as a computer beating humans at chess. He believes that by 2030, software and nanobots will be able to cure most diseases, and that in an event called "the singularity", which he predicts will happen around 2045, artificial intelligence will surpass human intelligence and we will be able to upload our minds onto computers and become "digitally immortal".

Whilst some fear the possibility of evil, human-hating robots roaming the Earth, Kurzweil believes that this level of technology and capability for intelligence is the path to immortality; superhuman intelligence will be able to solve problems and understand concepts that our biological brains are simply not equipped to do.

The idea of immortality being within reach is both awe-inspiring and terrifying. Defying death and spending eternity travelling the world (or even the universe), never needing to worry about losing your loved ones seems like a utopian dream, but how will society cope with the ever-growing population? Very serious questions are already being raised about our ability to cope with the number of people on Earth, and a decreased mortality rate would cause that number to skyrocket.

Dr. Peter Diamandis and Steven Kotler outline their optimistic outlook on sustainability in their book *Abundance* (also reviewed on page 18). In the universe, there is actually an ample supply of all the elements we need to sustain life, the issue is accessing and utilising them. The authors use the example of an orange tree to illustrate their point: a human could only physically reach the low-hanging fruit, and therefore that would be our only resource. However, upon further investigation it becomes apparent that there is plenty of fruit at the top of the tree, somebody just needs to invent a ladder. Again, we are presented with a limitation, this time the total amount of fruit on the tree. But once somebody realises that planting another tree produces even more fruit, the resource becomes plentiful again. And so on.

There are, of course, very legitimate concerns about overpopulation and sustainability. But when you take a look back at society and the adjustments and advancements it has made over the last century alone, does it not seem possible, or even probable, that the human race could adapt? Could we truly achieve sustainable immortality? Only one thing is certain; whatever happens, you'll still get taxed.