Can We Live Forever?

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A Sociological and Moral Inquiry

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To the ageless Nguyen Kim Hoa

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Some aspects of Chapter Six first appeared in my *Vulnerability and Human Rights* (Turner 2006) and some features of chapter eight were first examined in *The Body and Society* (Turner 2008). These arguments about vulnerability and the human body have been thoroughly revised in relation to this study of old age.

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Chapter One

Longevity and the Population Debate

Introduction: Living or Surviving?

The quest for longevity appears to have been a recurrent theme in the history of human societies, because the possibility of extending life has persistently disturbed and provoked human consciousness. Awareness of our own finitude is a defining characteristic of what it is to be human and provides much of the foundation of religion, art and morality. In both fact and fiction, humans have long been pondering questions about longevity and happiness. Shakespeare's *King Lear*, in which the elderly king begins somewhat hastily and naively to surrender his sovereign powers to his daughters, may be a lesson about how not to become socially and politically irrelevant. At King Lear's court, the Fool warns the King not to grow old until he has grown wise. Similarly Jonathan Swift's *Gulliver's Travels*, in 1726, offered a humorous if also satirical and bitter account of the disillusion and depression suffered by the Immortals of the Kingdom of Luggnagg who were condemned to live forever. They have no memories of their youth and no hopes of any future release from the treadmill of life, thereby living their lives in a state of envy and moroseness. After his initial enthusiasm for the immortal Luggnaggians, Gulliver is informed that 'Envy and impotent Desires are their prevailing Passions' (Swift 2003, 196). Longevity had not

trained them in superior virtues, but merely added to the existing list of mortal vices, and hence their immortality was farcical and pathetic.

Although the problems of death and survival have occupied human imagination throughout human history, the question – can we live forever? – has a distinctly modern resonance, since modern medicine holds out the actual rather than merely fantastic promise of survival without infirmity. At one level, the issue is simple: can we be old and healthy or is our own demise necessarily a depressing, debilitating and destructive experience? The optimistic answer looks towards technology and human creativity to solve the problems of ageing, the demographic imbalance and the crisis of resources. The optimists are in search of a medical utopia that can not only prolong life, but also remove its attendant disabilities. There is, needless to say, a long tradition of sceptical and critical responses to the promises of medical science and technology. René Dubos famously criticized modern medical utopias in his *Mirage of Health* (1959) in which he challenged the modern view that humans had achieved almost complete control over their environment and that they can control their own biological evolution and destiny. The pessimistic response to utopian thought is to argue either that technology cannot ultimately solve the problems of old age or, indeed, that technology actually compounds our difficulties. In the contemporary debate about ageing, the optimists are represented by people like the Cambridge biogerontologist Aubrey de Grey who, in *Ending Aging* (2008), treats ageing as an engineering problem and who advocates a plan to eradicate death from ageing through SENS – Strategies for Engineered Negligible Senescence. The pessimistic view he has dubbed the 'pro-aging trance', which induces the populace to accept ageing and its negative outcomes as natural and unavoidable. The pessimists are also dubbed the 'deathists'.

Rejuvenation sciences provide the solution to curing old age (as opposed to age-related diseases): 'Aging has been with us for a long time, despite our best efforts. The idea that it will be with us forever has ceased to be tenable, however, and the race is on to expedite its elimination' (de Grey 2004a, 2). The faith in the rejuvenation powers of medicine is often accompanied by anti-Luddite-inspired comments. Those who hold a negative perception on the life extension project are accused of possessing a conservative outlook, being unnecessarily reluctant to embrace social change and being constrained by rigid religious conceptions of the human lifespan,

all of which restrict the so-called potential offered by anti-ageing technology. The quest to determine the pathological status of dying by old age in the light of recent scientific developments is a point that must be considered in depth if we are to understand where to set limits to scientific investments to extend life.

It is necessary to distinguish between different forms of life extension: a 'short life extension' that reflects demographic trends observed in the last centuries in the West and a 'long life extension' that, according to some biomedical scientists would enable humans to live well beyond the current maximum lifespan, unchanged in the last 100,000 years to around 125 years (Hayflick 2000). The former is the result of various social, political and medical developments, which, broadly speaking, are included in the conventional idea of 'the demographic transition'. The latter has resurfaced in the midst of the progress achieved in biomedical sciences, which attempt to alleviate, stop or reverse the ageing process (de Grey 2003). Life expectancy increased dramatically in the late nineteenth and twentieth centuries, but in the second half of the twentieth century it had reached a plateau in the majority of developed societies. If we consider men in the United Kingdom, the expectation of life at birth in 1901 was 45.5 years, but by 1991 this had increased dramatically to 73.2 years. However, subsequent demographic data show only a modest increase from 75.4 in 2001 to a projected 77.6 by 2020. This observed increase in the last century has had various significant consequences for society, and according to most conservative predictions, it will continue to produce important but often negative social, political and economic consequences over the next decades (such as the pension crisis, an elastic growth of public expenditure on health, uneven distribution of natural resources and changes in political representation). A sudden leap in longevity would inevitably create profound social disturbances. Although a radical change in life extension remains a futuristic goal, it does, however, have immediate repercussions on contemporary society, especially when issues pertaining to the prioritization of biomedical research and the concern for human rights are considered.

In December 1967 Professor Christiaan Barnard performed the first heart transplant operation at the Grote Schuur Hospital (Cape Town, South Africa) on a human patient. Experiments had previously been conducted on chimpanzees. In most of the early

heart transplant operations, the patients died shortly afterwards. Barnard's patient, for example, died from pneumonia eighteen days after the operation. At the time, heart transplants were often regarded as mere medical gimmickry and they were condemned because they were expensive, high-technology solutions for a limited number of patients in a world where the mass of humanity, especially in Africa, lived relatively short lives with high levels of morbidity. Half a century later, we regard transplants of most human organs as routine medical procedures and modern medicine is now experimenting with replacement hearts that can be cultivated in the laboratory with modern genetic technologies. A heart transplant can be regarded as a technology for extending life and multiple transplants could be regarded as procedures necessary for living indefinitely.

Dr Barnard's heart transplant operation can be seen as proof of a project to treat the ageing body as a failing machine that was foreseen by an unusual partnership between the famous aeronaut Charles Lindbergh and the founder of tissue culture Dr Alexis Carrel, who, in developing experimental medicine, had grown human tissue outside the body. Having successfully flown across the Atlantic in 1927, Lindbergh wanted to harness experimental medicine to develop a cure for his sister-in-law who suffered from a defective mitral valve in her heart following an episode of rheumatic fever. Lindbergh's response to her impaired health was to approach the defective heart valve as one might respond to a defective oil pump in an aero-engine. When Lindbergh built a cooperative relationship with Carrel, the engineer and the experimental scientist dreamt of the possibility of one day removing the heart from sick patients and repairing it and then implanting the restored organ in the patient (Friedman 2007). The crucial aspect of Lindbergh's professional involvement with Carrel at the Experimental Surgery Division of the Rockefeller Institute for Medical Research (now The Rockefeller University) was Lindbergh's conclusion that death was simply the contingent outcome of failed bodily machines and that these mechanical failures were avoidable and unnecessary. Carrel and Lindbergh were successful in supporting living organs such as hearts and kidneys outside the body, but maintaining nerves proved to be a major obstacle. The idea that we can treat the ailing body as a defective machine has a long history, but it is only in recent years

with the development of nanotechnology, for example, that the prospects of an engineering solution to ageing begins to gain greater feasibility and credibility. An engineering solution to the contingency of life can be regarded as the ultimate conclusion of Cartesianism in which the body as an object is merely an extension of the person (Turner 2008).

My assumption in writing this book is that today's gimmickry, or some version of it, for life extension will become routine in the next fifty years. Some version of Aubrey de Grey's 'engineering' solutions to the causes of ageing he has identified – cell depletion, cell excess, mutations of the chromosome, mitochondrial mutations, cellular debris, cross-linking – may also become commonplace procedures for prolonging life. Many of the other recommendations for delaying ageing – cosmetic surgery, vitamin supplements, dietary regimes, exercise, a modest consumption of red wine and so forth – are accepted without much debate. The more questionable 'solutions' such as massive calorie restriction, which are recommended by some pathologists – possibly as a solution for diabetes – may also become standard practice but in some modified form (Mason 2006). Perhaps an even more reliable and sophisticated version of cryonics – freezing whole bodies for some future restoration – might become part of mainstream medical technology.

My argument is that the technological changes are unstoppable and inevitable for three reasons. The first is the obvious motivation of economic profit. Prolonging life – whether in the conventional form of geriatric tourism, cosmetics, vitamin supplements, exercise routines or more exotic and unconventional techniques and regimes – is already big business and with an ageing population it will become bigger through an emerging retirement industry. Secondly, the desire of human beings to live longer is a more or less permanent feature of human society from ancient China to modern day California. Thirdly, there is a specific driving force that will be characteristic of the next three decades – the ageing of the Baby Boomer generation which has engaged in a lifetime of consumerism and social advancement and which is reluctant to relinquish these significant acquisitions of property and power. In the short term, we may expect life expectancy in the developed world to be well over one hundred years, but in the long term, life expectancy may simply keep increasing with new medical technologies. In this century, life expectancy could reach 150 years for such elite

social groups. Profit, fame and desire will be sufficient to drive such technological experiments and medical advances.

Will the inevitable technological prolongation of life be a good thing? In this book, I start by making an economic assumption that scarcity is unavoidable and hence conflicts over resources are inescapable. Scarcity is not in my view a capitalist plot to make us compete for consumption items, and it is not a strategy of governments to control populations. It is a consequence of social change in a context of natural scarcity. Some natural resources – water, oil and timber – may simply be inadequate for human need. Extending life in a context of such natural scarcity must result in social conflict. Political scientists are already predicting future 'water wars', especially in Africa. Therefore, I explore some important negative consequences of this impending social and demographic transition, mainly in terms of social and political conflict. The prolongation of life by an Immortalist social movement will increase social conflict between generations and between the long-living elite and the impoverished majority. This elite will be the rich, primarily from the northern hemisphere, and the poor, primarily from the southern hemisphere, whose lifespan will actually decline, primarily from poverty, infectious diseases and low-intensity warfare over scarce resources. It may be that these medical technologies – such as stem cell therapies, organ transplants and cryonics – will become cheaper and more effective over time, and therefore available to a larger range of social groups. But we cannot anticipate a situation where these treatments will become universal. In the modern world, it is possible to treat AIDS/HIV with modern drugs, thereby controlling many of the unrelated conditions such as pneumonia that eventually kill the victims of this disease, but these drugs have not been available in much of Africa and Asia at an affordable price. If in some future world there is an effective anti-ageing drug, it is unlikely that this drug will be available in the war-torn areas of such a planet – the future equivalent of the Congo, Myanmar, Cambodia or Afghanistan.

There is however a more radical future – the unintended consequences of modern medical technology. In this book and elsewhere (Turner 2006a), I have argued that our humanity is defined by our vulnerability, which is in part a consequence of being an organism that grows old and is subject to ongoing