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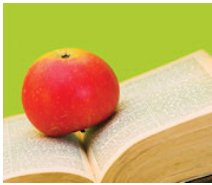
FOOD for THOUGHT

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ULTRA LONG LIVES ARE ONLY A DECADE AWAY



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Ultra long lives are only decades away

Introduction by Geoffrey Furlonger, editor of IEBA News.

I first met Jim Mellon in the 1980s while I was a law student undertaking my master's degree at UC Berkeley and he worked as a young executive in San Francisco researching and investing in the nascent IT industry in Silicon Valley and other US- based investments. I am pleased to say that my involvement as a consultant for bio-tech companies has led to our paths crossing once again. Jim has become deeply interested in the science of anti -aging, and through his typical diligence has become an expert in his own right on this subject giving speeches on this topic throughout the World. I am therefore very pleased that he has kindly agreed to update us on progress in the science of anti-aging which is a subject of great interest to the employee benefit industry.

Jim is a British entrepreneur and philanthropist with interests across a number of industries. Jim began his investment career in Asia and then moved to the US, working for two fund management companies, GT Management and Thornton & Co, during which time he gained valuable insights into the companies and economies which would drive global growth over the following decades. He established his own business in 1991, which today persists as Charlemagne Capital. Jim's investment philosophy, which has led him to be recognised as one of the most successful investors of his generation, is underpinned by his ability to identify so-called "money-fountains" – market trends which lead to step changes and to investment opportunities. His first book 'Wake Up! Survive and Prosper in the Coming Economic Turmoil', co-authored with Al Chalabi, foresaw the global financial crisis of 2007-08, while another collaboration 'Fast Forward', also co-authored with Al and published in 2015, identified technologies and companies which are reshaping people's lives.

Jim spends most of his time investigating and working on start-up ideas. Jim and Al's latest book 'Juvenescence' is about longevity science, and as mentioned above is a result of his year's research into both the science and the companies involved in this developing field. His latest venture is a company bearing the same name as his book 'Juvenescence Ltd' where together with other investors he has raised a substantial sum of money to invest in the intellectual property rights of drugs, processes and treatments which promise to deliver the cherished objectives of longer and healthier lives.

Jim is also an Honorary Fellow of Oriel College Oxford and is a trustee of the Biogerontology Research Foundation as well as of the charity Lifeboat.

Six years ago, Al Chalabi and I published a book called "Cracking the Code", which was a description of the biotech industry as it then was. In October of this year, the second edition of our most recent book, "Juvenescence", describing the science of longevity, will appear in (at least some) book shops.

Since we wrote "Cracking the Code", a remarkable amount of science has quietly inserted itself into the canon. Examples include the discovery of a cure for Hepatitis C, the development of immunotherapies in oncology, the use of AI for the discovery of novel compounds and most importantly, the discovery of CRISPR Cas 9 as a tool for gene editing.

The fact that these advances have occurred in six short years gives me amazing hope that the next few years will be even more important. At long last, the aspiration of ultra-long lives, way beyond the biblical three score years and ten, is being caught up by the rapidly advancing science of biogerontology.

My colleagues and I at the company Juvenescence, which has raised substantial early funding, are convinced that life expectancy for the average human will relatively soon go beyond 100 and

advance to at least 110-120 within three decades. Yes, we are aware that in the US and in the UK, in particular, the post war gains in life expectancy (typically three months per decade) have stalled. But this is temporary.

The reason we can say this is that the means to fundamentally alter or tweak our biological structures is now here. Up until now, all gains in life expectancy (approximately a doubling in the past century for people in developed nations) have occurred as a result of environmental improvements. Such things as better sanitation, less manual labour accidents, improved infant mortality, antibiotics and better nutrition have all contributed thus far. But this low-hanging fruit has largely been picked.

It is true that the Deadly Quintet (cardiovascular disease, cancer, respiratory disease, dementia and diabetes and obesity) which combined kill most of us at varying ages are for the most part (with the exception of dementia) being successfully and progressively addressed. That in itself will improve average life expectancy because it will reduce the number of deaths at a relatively young age, but it will not increase the "mean age of death" - in layman's terms, what we might now regard as a 'full' life span. That is going



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Ultra long lives are only decades away *continued*

to come as a result of treatments that are currently under development, some of which are already under trial with humans.

The first wave of such treatments centre on small molecule drugs such as rapamycin (adapted to humans in the form of rapalogs), senolytic drugs (which remove senescent cells, which are responsible for most inflammation), metformin (an old diabetic drug which is generic), and a raft of others in various stages of development. All of them appear to increase the average lifespan of mammalian species, and importantly, to restore robustness. As a result, the conventional wisdom that we are destined to be “illderly” in old age may be supplanted in due course by a perception that our latter years might be characterised by “welderliness”.

Coming behind this wave of pharmacological interventions in key aging pathways are such things as stem cells, gene therapies, organ transplantation from animals into humans and tissue regeneration.

None of those are science fiction, and all of them will play a part in making us live to hereto unimagined averages. First 100, which is already a lot less noteworthy than it was just twenty years ago (there are presently 18,500 centenarians in the UK, compared to 24 a century ago); then afterwards averages will increase from between 110-120.

Then of course, the current “glass ceiling” of 122 (the oldest age at which a properly recorded human died, Madame Jeanne Calment in 1997) will be breached. I am sure that the first person to live to 150 is amongst us.

This will change everything. We will awake each morning to a metaphorical 36 hours rather than 24 hours. In an age of automation, we will need to be continuously retrained, pensionable ages will have to rise dramatically, patterns of consumption will change and the idea that we are born, learn, earn, burn out, retire and expire all too quickly will be a thing of the past. The international employee benefit industry will become even more important, but it will have to recognise the fundamental changes in its client base and plan and adapt accordingly. ❖



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