The Ben Best Interview

[Academic]

Scott Douglas Jacobsen
Acknowledgements

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Ben Best (Part One)\textsuperscript{1,2,3,4}

ABSTRACT

Interview with Ben Best, director of research oversight, Life Extension Foundation (LEF). In part one, he discusses the following subject-matter: Ben Best in a Nutshell, general letters of personal description from Gael and Shannon, and the struggle in remaining honest; BSc (1970-1974) in pharmacy from The University of British Columbia (UBC), BSc (1977-1987) in computer science and physics from Simon Fraser University (SFU), BBA (1977-1987) in accounting from SFU, and earning the greatest number of credit hours ever accumulated by an SFU student; reasons for interest in those disciplines; positions held prior to involvement with the Life Extension Foundation (LEF); positions of president and chief executive officer (CEO) of the Cryonics Institute (CI), and feasibility of cryonics; Dr. Aubrey de Grey’s subdivision of aging into seven separate categorizations; an old daily regimen for health and wellbeing including supplements; and the five best supplements for the extension of life.

Keywords: aging, Ben Best, cryonics, Cryonics Institute, Dr. Aubrey de Grey, health, honest, Life Extension Foundation, Simon Fraser University, supplements, and The University of British Columbia.

1. Based on the frankness expressed within your works, I leave those with the desire to understand you better to the article Ben Best in a Nutshell\textsuperscript{5} for some preliminary background for this interview. In addition to this, I direct attention to supplementary articles - more general letters - by “Gael”\textsuperscript{6} and “Shannon”\textsuperscript{7}.

Gael says, “Honesty is his number one value. The expression ‘honest to a fault’ might apply here. Sometimes feels like he is rubbing his honesty in your face to get some kind of reaction.”

Shannon says, “Ben is scientific and like a monk in how he sequesters himself to work. He is devoted to topics that interest him, he will do what he says he will do and he usually attempts to be very honest.”

Any response to these commentaries past the preliminary comments online? Do they hinge tacitly on the article Diogenes of Sinope\textsuperscript{8}?

Gael’s comment that I am intentionally trying to rub something about honesty in her (or other people’s) face is an incorrect interpretation. I struggle to be honest, but it is a continual struggle. I have a hard time relating well with people who intentionally lie, or who lie without scruple or even without consciousness that they are doing so because the process is so automatic. I certainly can’t say that I have never lied or never intend to lie, but I try to be very conscious and concerned about the matter. The argument is correctly made that lying to Nazis about Jews in your attic is justified because saving lives is a higher moral objective than not lying. Sometimes I do feel that it is necessary to lie to survive, and when confronted with situations where the truth could be terribly hurtful to another person, I have chosen silence. My Diogenes of Sinope and “Some Philosophizing about Lying” articles were inspired by my interest in this topic. It is never a closed subject, and with time I will try to explore the topic more and clarify my understanding of the issues.

2. You earned a BSc (1970-1974) in pharmacy from The University of British Columbia (UBC), BSc (1977-1987) in computer science and physics from Simon Fraser University (SFU), and BBA (1977-1987) in accounting from SFU. Of particular note, as you recount in Ben Best in a Nutshell, you write, “I took two degrees, one in Physics & Computing Science and another in business (concentrations in Accounting & Finance) ending with the largest number of credit hours ever accumulated by a student in the history of SFU.”\textsuperscript{9} [Emphasis added] Why accumulate such a large number of credits towards accreditation beyond the first degree at UBC? How have these disciplines and degrees assisted in the intellectual activities pursued in your own life?

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\textsuperscript{1} BSc. (1970-1974), Pharmacy, The University of British Columbia; BSc (1977-1987), Computer Science and Physics, Simon Fraser University; BBA (1977-1987), Accounting, Simon Fraser University.

\textsuperscript{2} Director of Research Oversight, Life Extension Foundation.

\textsuperscript{3} First publication on May 1, 2015 at www.in-sightjournal.com.

\textsuperscript{4} Please see complete reference style listing in Appendix I.

\textsuperscript{5} See Best, B. (n.d.). Ben Best in a Nutshell.

\textsuperscript{6} See Gael. (n.d.) Ben Best in Another Nutshell.

\textsuperscript{7} See Vyff/Trice, S. (n.d.) Ben Best as I Have Known Him.

\textsuperscript{8} See Gael. (n.d.) Ben Best in Another Nutshell.

\textsuperscript{9} See Vyff/Trice, S. (n.d.) Ben Best as I Have Known Him.

\textsuperscript{10} See Best, B. (n.d.). Diogenes of Sinope.

\textsuperscript{11} See Best, B. (n.d.). Ben Best in a Nutshell.
I certainly wasn’t attempting to accumulate a record number of credits. I enjoy learning greatly, and I particularly am interested in learning about subjects that can objectively improve my thinking or understanding of the world. I have also always been very concerned about my health, which motivated me to get a degree in Pharmacy. Unlike many people, I have not been interested in health because of health problems. The pharmacy degree also gave me a health profession where I could work evenings and weekends while being a full-time student. I was able to use my computing and finance degrees in my profession as a Senior Programmer Analyst at Scotiabank where I supported the largest bond database system in Canada. As President of the Cryonics Institute, my accounting background helped me greatly improve the accounting systems there. And the physics, computing, and pharmacy training gave me great understanding of research that I pursued to improve cryonics procedures. I have been treasurer of a few organizations on a volunteer basis, namely MENSA, the New Westminster housing co-op and the SFU sailing club, where I applied my accounting skills for the benefit of these organizations.

3. What provided the interest in these particular disciplines for you?
I have mostly answered this in question 2, but I will add that I am an avid learner. Most of what I know about biology is self-taught or, at least, learned independent of what I learned in the process of getting my pharmacy degree. My current occupation has me going to scientific conferences related to health and longevity; and learning from the top scientists in these fields and writing about them. My love of learning is closely related to my love of life and my desire to live thousands of years. While I am currently immersed in biological topics related to aging, I hunger for more education in math, physics, chemistry and computing. This motivation is purely psychological and personal. But I love my job and I can’t expect to be doing everything at once.

4. Following these accomplishments, and prior to involvement with the Life Extension Foundation (LEF), you held numerous roles at varied organizations. What organizations? Why choose work within these organizations? What motivated the transition from these organizations to the LEF two and a half years ago, i.e. into the position of director of research oversight? How do you find the position up to the present?
I have mostly answered this in question 3. Aside from the volunteer work, I have not worked for many organizations on an extended full-time basis. Before LEF I was at the Cryonics Institute for 9 years and before that I was at Scotiabank for 15 years. Before that I did not work full-time at anything. I worked part-time or temporarily as a pharmacist, truck driver, taxi driver, computer instructor, computer operator, and lots of odd jobs. I left the Cryonics Institute because I had become ineffectual and I had become the whipping-boy of too many people, which caused me more suffering than I wanted to endure. I have move to a job that I love at LEF. In my early days at CI I had been very effective in making dramatic changes, which I found to be very satisfying, but that situation changed more and more the longer I stayed at CI.

5. In a previous line of work, you held the high-ranking positions of President and Chief Executive Officer (CEO) of the Cryonics Institute (CI). Those with deep interest can ascertain deep information in the article Cryonics – Frequently Asked Questions (FAQ). Where does cryonics stand now – as a practice? What do you consider the strongest argument against the possibility – even feasibility – of the ultimate goals of cryonics?
Cryopreservation still involves many forms of damage, notably cracking damage and cryoprotectant toxicity (and too often freezing or ischemic damage due to poor planning or unfavorable circumstances, despite the fact that vitrification is intended to eliminate this). Possibly future medicine will be able to repair this damage, but possibly not. Possibly we will develop technologies to prevent this damage, but possibly not.

6. Dr. Aubrey de Grey defines the colloquial term “aging” through subdivision into seven processes: 1) cell loss and cell atrophy, 2) division-obsessed cells, 3) mitochondrial mutations, 4) death-resistant cells, 5) extracellular crosslinks, 6) extracellular aggregates, and 7) intracellular aggregates. Does this figure into the LEF research program at all? If so, how much?
Aubrey de Grey has become an LEF advisor since I introduced him to Bill Faloon a couple of years ago. LEF has provided funding for a couple of projects at Aubrey’s SENS Foundation, but that is only a tiny part of LEF research funding. Much of LEF research funding is cryonics-related, which is handled by Saul Kent, not by me. I mostly handle the research funding specifically designed for anti-aging effects, although there is a small amount of overlap. Most of the anti-aging research funding that I have inspired lies outside of Aubrey’s SENS paradigm. One
project in particular is contrary to Aubrey’s claim that nuclear DNA damage does not contribute to aging. With LEF funding, Victoria Belancio at Tulane University has shown that retrotransposon nuclear DNA damage increases with age (probably contributing to both aging and cancer). I am most proud of helping to fund the world’s second largest naked mole rat facility, where the fact that naked mole rats are virtually immune from cancer (and show no signs of aging) has been explained – causing the naked mole rat to be named “Vertebrate of the Year” for 2013 by SCIENCE magazine.

7. Based on the personal experimentation catalogued within your website\textsuperscript{17}, I would like to make this concrete to provide a sense of the depth of research. For instance, your morning supplement regimen described in My Health Regimen – Exercise, Diet, Supplements\textsuperscript{18} consists of the following supplements:\textsuperscript{19}

- “Life Extension Mix 4 capsules\textsuperscript{20}
- CoEnzyme Q10 capsule 100 mg\textsuperscript{21,22,23}
- N-AcetylCysteine (NAC) capsule 600 mg\textsuperscript{24,25}
- Vitamin E (alpha-tocopherol) capsule 400 mg\textsuperscript{26,27}
- Vitamin E (gamma-tocopherol) capsule 340 mg\textsuperscript{28,29}
- Vitamin C time-release tablet 1000 mg\textsuperscript{30}
- Carnosine capsule 500 mg\textsuperscript{31,32}
- Max DHA capsule (50% Docasahexaenoic Acid, 250 mg)\textsuperscript{33,34,35}
- Kelp 1000 mg\textsuperscript{36}
- Acetyl-L-Carnitine capsule 500 mg\textsuperscript{37,38}
- TMG (TriMethylGlycine = Betaine) tablet 500 mg\textsuperscript{39}
- DHEA capsule 30 mg (if available)\textsuperscript{40,41}
- DMAE Ginkgo capsule (if available)\textsuperscript{42}
- Pure Gar capsule (Garlic 1600 mg, EDTA 200 mg)\textsuperscript{43}
- Cal Mag tablet (Calcium 300 mg, Magnesium 300 mg)\textsuperscript{44}

The description of my diet and supplements on the webpage you cited is badly outdated, although my exercise regimen has not changed much, except for the addition of 30 push-ups. To compensate for my ever-changing supplement regimen I have added Section I “Update” which contains an EXCEL file of my latest supplements.

http://www.benbest.com/personal/Supplements.xls

\textsuperscript{17} See Best, B. (n.d.). Welcome to the World of Ben Best.
\textsuperscript{18} See Best, B. (n.d.). My Health Regimen – Exercise, Diet, Supplements.
\textsuperscript{19} Daly note, all footnotes with direction to supplement webpage on the LEF website do not necessarily match the precise formulation provided by Mr. Best in the morning regimen listing.
\textsuperscript{23} See Best, B. (n.d.). CoEnzyme Q	extsubscript{10} (Ubiquinone, Ubiquinol and Semiquinone).
\textsuperscript{24} See Life Extension Foundation. (2014). N-Acetyl-L-Cysteine.
\textsuperscript{25} See Best, B. (n.d.), N-AcetylCysteine (NAC).
\textsuperscript{26} See Life Extension Foundation. (2014). Natural Vitamin E.
\textsuperscript{27} See Best, B. (n.d.). Vitamin E (Tocopherols and Tocotrienols).
\textsuperscript{28} Ibid.
\textsuperscript{32} See Best, B. (n.d.). L-Carnosine and Related Histamine-Derived Molecules.
\textsuperscript{34} See Best, B. (n.d.). DHA for Hearts and Minds.
\textsuperscript{35} See Best, B. (n.d.). Fats You Need — Essential Fatty Acids.
\textsuperscript{38} See Best, B. (n.d.). Acetyl-L-Carnitine (ALCAR).
\textsuperscript{39} See Life Extension Foundation. (2014). TMG.
\textsuperscript{40} See Life Extension Foundation. (2014). DHEA Complete.
\textsuperscript{41} See Best, B. (n.d.) DHEA Hormone Replacement.
\textsuperscript{44} See Life Extension Foundation. (2014). CAL / MAG.
although even this does not include changes made within the last couple of weeks, with includes addition of MitoQ and Product B (better than TA-65 for telomere lengthening) and deletion of ribose (which is more glycating even that fructose). I am now taking LEF’s vegetarian sourced DHA and have not taken garlic for many years.

My diet is still undergoing radical changes. For the last several months I have been working on getting on a lacto-ovo vegetarian low-protein ketogenic diet, which I am monitoring with urine and blood test kits. This continues to undergo changes almost on a weekly basis. I have also been attempting intermittent fasting – I had my first 4-day fast a few weeks ago.

8. Within this subset of the supplement and comprehensive regimen described in the article and elsewhere by you, of these fifteen items, what five supplements appear to provide the most return on investment (ROI) for specific and overall health?

The omega-3 fatty acid DHA rates pretty high on the list, but should be combined with anti-oxidants insofar as PUFAs are vulnerable to oxidation, so gamma tocopherol and N-acetylcysteine are important. Also, exercise increases free radicals, although there is some argument that anti-oxidants reduce at least some of the benefits of exercise. Since becoming an LEF employee, I get my supplements at employee prices, so I mostly use LEF products these days. Exceptions to that would include Product B and Mito Q. Most free radical occurs within the mitochondria. LEF’s Mitochondrial Energy Optimizer attempts to address this problem (especially with the combination of Acetyl-L-Carnitine and Lipoic acid), but MitoQ is a newer product which gets into the mitochondria and is not an LEF product. I also take forms of Coenzyme Q10 intended to get into the mitochondria. Vitamin D3 also rates pretty highly, having many health benefits besides prevention of rickets. I understand some high-powered Vitamin D clinical trials are currently in progress.

45 See Best, B. (n.d.). Nutraceuticals Topic Index.
Ben Best (Part Two)\textsuperscript{46,47,48,49}

\textbf{ABSTRACT}

Interview with Ben Best, director of research oversight, Life Extension Foundation (LEF). In part two, he discusses the following subject-matter: LEF and prediction of the near, and far, future; Caloric Restriction with Adequate Nutrition (CRAN), and the main factors and processes of CRAN; LEF’s legal battle with the Food and Drug Administration (FDA) and the Insurance Revenue Service (IRS); an in-progress essay entitled \textit{Mechanisms of Aging} with condensed information in relation to the variegated mechanisms of aging; thoughts on three key mechanisms of aging including metabolic damage, cellular senescence and death, and toxic & non-toxic garbage accumulation; academic and professional venues for the public to read more about aging; brief listing of interest in writing in philosophy, political economy, historical writing, and computers; commentary on articles on personal writings on business/investment based in knowledge and personal opinion, and the emphasis of a libertarian philosophy with reasons for its strength as a philosophy; the possibility of many figures' extrapolation of technological change into the singularity and if this plays into his plan to live for thousands of years.

Keywords: aging, Ben Best, business, caloric restriction with adequate nutrition, computers, health, historical writing, Internal Revenue Service, investment, Life Extension Foundation, philosophy, political economy, singularity, supplements, The University of British Columbia.

9. How does the LEF research program split organizationally? Where do you project each stream of research in the near and far future?

I have mostly answered the first question in 6 above. As the Danish proverb says, prediction is hard, especially about the future. This implies lack of control, which is not accurate, but I cannot foresee changes to the current policies in the near future and the far future is beyond my vision.

10. Some of the best means of life extension amount to the reduction of calories relative to one’s daily recommended amount of caloric intake.\textsuperscript{50} You describe one of the most robust means of life extension: \textit{Caloric Restriction with Adequate Nutrition (CRAN)}.\textsuperscript{51} You write about this in the article \textit{Caloric Restriction with Adequate Nutrition – An Overview}\textsuperscript{52}. In brief, how does caloric restriction extend life and improve health – main factors and processes?\textsuperscript{53}

Whether CRAN would extend maximum lifespan in humans is an open question, but I think there is plenty of evidence that it improves health and reduces the chance of all aging-related diseases such as cardiovascular disease, cancer, Alzheimer's Disease, and certainly type 2 diabetes (which accelerates aging). Luigi Fontana has studied humans practicing CRAN, and I reported on Dr. Fontana’s discoveries in the June 2014 issue of \textit{LIFE EXTENSION} magazine.

11. With respect to reading many of your productions, one article stood out to me: \textit{The FDA versus the Life Extension Foundation}\textsuperscript{54}. In the piece, you describe the U.S. Federal Drug Administration\textsuperscript{55} (FDA) legal battle with the LEF in a “long & vicious battle against the Life Extension Foundation,” which had conclusion in “February, 1996” because “this charge was dropped. It was the first time in the history of the FDA that the agency had given up on a criminal indictment against a political opponent.”\textsuperscript{56} Where does the current relationship lie between the FDA and the LEF? What about the relation of other organizations to the LEF with regards to legal battles? Does research of this nature tend to come under intense scrutiny?

LEF is not currently fighting the FDA, but LEF is currently fighting the IRS. This fight has been going on for a few years and has put a damper on LEF research funding. The issue resolves around the relationship between LEF

\textsuperscript{47} Director of Research Oversight, Life Extension Foundation.
\textsuperscript{48} First publication on May 8, 2015 at \url{www.in-sightjournal.com}.
\textsuperscript{49} Please see complete reference style listing in Appendix I.
\textsuperscript{50} Ibid.
\textsuperscript{51} See Best, B. (n.d.). Caloric Restriction with Adequate Nutrition – An Overview.
\textsuperscript{52} Ibid.
\textsuperscript{53} See Best, B. (n.d.). Articles about Caloric Restriction with Adequate Nutrition (CRAN).
\textsuperscript{54} See Best, B. (n.d.). The FDA versus the Life Extension Foundation.
\textsuperscript{56} See Best, B. (n.d.). The FDA versus the Life Extension Foundation.
12. You have an ongoing manuscript in production entitled *Mechanisms of Aging*. You intend to continue research for this manuscript for some time. It contains tremendous amounts of condensed information in relation to the variegated mechanisms of aging. What inspired the original production of this work-in-progress?

As I have mentioned, I am highly motivated to live thousands of years. See my article “Why Life Extension?”

13. Too much to cover here. You state three categories for summarization of personal research into the mechanisms of aging: 1) Metabolic damage, 2) cellular senescence and death, and 3) toxic & non-toxic garbage accumulation. What comprises each category? How might these rank-order in terms of their general contributions with respect to general aging?

The Summary & Conclusions section of “Mechanisms of Aging” specifies what comprises each category. I am not sure which is worse between 1) and 3), but I am not too concerned about 2) in the context of the next 30 years because I think stem cells and organ replacement will make that form of damage less important. 1) and 3) will remain important because the brain, which is the one organ which cannot be replaced. As for my essay, I have become so engrossed in my work at LEF, that my maintenance of that essay in the context of developing science has fallen behind.

14. What academic and popular venues can professionals and lay-persons alike read on their own time about aging in full detail?

I recommend my essays “Mechanisms of Aging” and “Alzheimer’s Disease: Molecular Mechanisms” as well as Aubrey de Grey’s book ENDING AGING: The Rejuvenation Breakthroughs that Could Reverse Human Aging in Our Lifetime.

15. You have taken an interest in a variety of other arenas of research and expression. I point to writing in philosophy, political economy, historical writing, computers, and many others.

I recommend readers to other articles in the bibliography and website for complete information. However, for our purposes, we can discuss some of these ideas in brief. Undoubtedly, these form personal interests relevant to your intellectual pursuits. What do you consider the core discovery in personal research into philosophy, political economy, history, and computers? How do these, and other major areas of research, factor into framework for understanding the world.

Like many libertarians, I have been inspired by the works of Ayn Rand and by Mises’s book HUMAN ACTION, as well as Rothbard’s MAN, ECONOMY, AND STATE. I am highly critical of central banks, and am hopeful the cryptocurrencies will replace government money. I have been irritated by the attacks on rationality by those claiming to interpret quantum physics. What I enjoyed especially about my time working with computers, was the way computers will immediately let you know of flaws in your thinking. But programming in APL not only corrected my mistakes but engendered my creative imagination.


60 See Best, B. (n.d.). The Duplicates Paradox (The Duplicates Problem).
65 See Best, B. (n.d.). Bavarian Illuminati.
71 See Best, B. (n.d.). An Overview of Neural Networks.
72 See Best, B. (n.d.). Topic Index for Articles about Computer Science by Ben Best.
of Business Cycles\textsuperscript{74}, Fixed-Income Securities: Money-Markets & Bonds\textsuperscript{75}, North American Credit Scoring & Reporting\textsuperscript{76}, The Major American Equity Indices: DOW, Nasdaq, S&P 500, Russell 2000 and Wilshire 5000\textsuperscript{77}, Timing the Market: Patterns in American Stock Market Movements\textsuperscript{78}, The Uses of Financial Statements\textsuperscript{79}, Financial Statements in the "New Economy"\textsuperscript{80}, Monetary Systems and Managed Economies\textsuperscript{81}, Funding Cryonics with an Estate\textsuperscript{82}, Offshore Options for Cryonicists\textsuperscript{83}, among other articles and recommendations.\textsuperscript{84}

Other writings and redirections in relation to “indices and charts,” “investment information news,” and “investment research – links and resources.” You mentioned libertarianism. Sprinkles of this philosophy seem to exist in indirect quotes from articles. In Offshore Options for Cryonicists\textsuperscript{85}, you quote Mark Twain\textsuperscript{86}, who said, “The difference between a taxidermist and a tax collector is that the taxidermist only takes your skin.” With respect to libertarianism and its evidentiary grounding, what evidence most convinces you? What argument most convinces you? What seem like drawbacks to you?

State power is driven by the self-aggrandizement of politicians, who seek to enhance their power by creating benefits for their constituents through plundering others, which is pleasing to the constituents who are the recipients of the plunder and often initiate soliciting the plunder. Regulators may think that they are benefiting the economy by their actions, but they usually do more harm than good. The arguments for a free market are not something I can summarize in a short answer. As for drawbacks, even (so-called) libertarians can be drawn into the self-aggrandizing addiction to power resulting from involvement in the political process.

17. With regards to one community of researchers, dependent and independent, numerous respected individuals, in and out of the mainstream, emerge in the literature and media including Dr. Aubrey de Grey\textsuperscript{87,88}, Dr. Peter Diamandis, M.D.\textsuperscript{89}, Dr. Ray Kurzweil\textsuperscript{90}, Dr. Terry Grossman\textsuperscript{91}, M.D.\textsuperscript{92}, Saul Kent\textsuperscript{93} of the Life Extension Foundation\textsuperscript{94}, and many, many others.

Most probable in highest prominence –as a figure, Dr. Ray Kurzweil, posits the Law of Accelerating Returns – an extension of Moore’s Law – to extrapolate from past and present technological achievements and trends into possible, even probable, future achievements and trends in the progress of technology.\textsuperscript{95,96,97,98,99}

Of course, alterations and improvements in technology, especially medical technology and knowledge, yield the possibility for betterment of the human condition. Does the technological singularity work into your personal expectations and plans, i.e. intention to live for thousands of years?

\textsuperscript{74} See Best, B. (n.d.). An Austrian Theory of Business Cycles.
\textsuperscript{76} See Best, B. (n.d.). North American Credit Scoring & Reporting.
\textsuperscript{79} See Best, B. (n.d.). The Uses of Financial Statements.
\textsuperscript{80} See Best, B. (n.d.). Financial Statements in the "New Economy".
\textsuperscript{81} See Best, B. (n.d.). Monetary Systems and Managed Economies.
\textsuperscript{82} See Best, B. (n.d.). Funding Cryonics with an Estate.
\textsuperscript{83} See Best, B. (n.d.). Offshore Options for Cryonicists.
\textsuperscript{84} See Best, B. (n.d.). Business/Investment Data and Information.
\textsuperscript{85} Ibid.
\textsuperscript{86} See Mark Twain. (2015).
\textsuperscript{87} See SENS. (n.d.). Executive Team.
\textsuperscript{89} See Diamandis, P.H. (2014). Peter H. Diamandis.
\textsuperscript{90} See Kurzweil, R. (2014). Kurzweil: Accelerating Intelligence.
\textsuperscript{93} See Biomarker Pharmaceuticals. (n.d.). Board of Directors: Saul Kent Director, Founder.
\textsuperscript{94} See LEF (n.d.). Life Extension Foundation.
\textsuperscript{95} See Kurzweil, R. (2004, October 7). Fantastic Voyage; Live Long Enough to Live Forever.
\textsuperscript{96} See Kurzweil, R. (2014). Kurzweil: Accelerating Intelligence.
\textsuperscript{97} See Kurzweil, R. (2014). Ray Kurzweil biography.
I don’t think about technological singularity very much. Robert Ettinger, hosts of science fiction writers, and many others have expected continuing technological progress long before Kurzweil. I hope and expect for continued, accelerating technological progress which is what anyone would expect by extrapolating the past into the future. And I hope and expect that this progress with lead to vastly improved heath, youth, and longevity.
Interview with Ben Best, director of research oversight, Life Extension Foundation (LEF). In part three, he discusses the following subject-matter: possible venture capitalist philanthropy towards the LEF’s endeavours and initiatives; the technological singularity and life extension; independent computer science research and current work; miscellaneous writing and book pitch; conference reports and the most surprising finding from them; different definitions of nutraceuticals and pharmaceuticals in addition to the government industry favouring pharmaceuticals over nutraceuticals; and motivation for his life’s work.

Keywords: aging, Ben Best, computer science, conference reports, Life Extension Foundation, nutraceuticals, pharmaceuticals, philanthropy, venture capitalist.

18. Some prominent venture capitalists consider the efforts for life extension of utmost importance. Furthermore, an endeavor thought in high regard because of the financial evidence in the record of one-way distribution of funds, i.e. from venture capitalist to individual, research group, company, or organization. Some venture capitalists provide tremendous amounts of money from personal wealth to research and further the aims of organizations for the increased quality life expectancy of human beings.

For instance, Peter Thiel funds numerous initiatives with inclusion of the aforementioned Dr. Aubrey de Grey. He provided financial backing to Dr. de Grey in the early stages of development of The Methusaleh Foundation. An amount of $3.5 million towards antiaging research. Of course, he’s worth over $2 billion dollars.

Does the LEF receive substantial funds from venture capitalists or others with a philanthropic proclivity? What does the LEF need to pursue more of its bold research projects?

All of LEF money spent on research comes from supplement sales. More revenue from sales would allow for more research. Less harassment by government agencies (currently the IRS) would be of great benefit.

19. Insofar as individuals and groups predict the future of medicine and technology, some in the community of transhumanism predict the singularity. A metaphor from astrophysics about the center of a black hole, or a singularity, a point of zero volume and infinite density. Light cannot escape it and, hence, one cannot see past it. No light; no sight.

Similarly, some posit the technological singularity. Technology’s continued increase in pace of progress at some future point creates an unpredictable future past that moment. A time in the future in which technology will advance beyond predictive capabilities. Same metaphor. It depends on emphasis. How probable does the technological singularity future seem to you? How might this improve the future of life extension research?

I am more concerned with the near future than the far future. By definition it is impossible to think about anything post-singularity. I am not convinced of technological singularity, but I am expecting continued accelerating progress. Possibly there will be a law of diminishing returns rather than a singularity. But if that happens, I hope it happens after aging and disease have been eliminated.
20. You include a number of articles on computer science. About another half connected to the idea of Y2K. About another half on topics with more modern import: An Overview of Neural Networks, Artificial Intelligence and the Preservation of Mind, and Object-Oriented Programming and APL Language.

Each covers a significant amount of territory on subject matter in computer science. Associated with the expertise from the degree earned from SFU in computer science. How does this stream of independent research assist you – as director of research oversight?

Everything I have ever done or studied was not done for the sake of a job (my current job), which I did not anticipate having until a few years ago. I suppose anyone can say that anything they have learned has somehow been helpful to them in their current endeavors.

21. You have one portion of the website devoted to miscellaneous writings. Those outside the extensive core of written work. Far fewer exist there: The Uses of Financial Statements, St. Bees Man, and Ancient DNA & Preservation in Amber. Have you thought of a compilation of organized and miscellaneous writings for inclusion into a pitch for mainstream book publishers?

My only past effort in submitting a book for publication was SCHEMERS IN THE WEB, which was rejected by every publisher I sent it to. So I self-published by putting on my website: http://www.benbest.com/history/schemers.html. All my writings have either been self-publishing on my website or magazine articles. I have never again considered a book, although some of my articles have been included as chapters in books edited by others.

22. With respect to some of the work necessary for the LEF, attendance at and reportage from conferences seems necessary, especially to remain apprised on the pre-publication information of academic papers. In fact, you wrote a number of conference reports for the LEF. In them, you covered the, at the time, most recent research into life extension at these conferences. In the midst of research into these topics, what finding most surprised you?

The prospect of genetic engineering and gene therapy with the advent of CRISPR/Cas9 is probably the biggest breakthrough in recent years.

23. In the Nutraceutical Topic Index, you write a frank description of the difference between pharmaceuticals and nutraceuticals. In a firm tone, you state:

“Pharmaceuticals are substances which have (or have had) patent protection as a result of expensive testing to conform to the specifications of a government agency. Many nutrients will never receive government approval because no one could justify the expense of government testing requirements for substances & uses which cannot be protected by patent. Both pharmaceuticals & nutrients can both cure & prevent disease -- but only pharmaceuticals have government sanction. Many pharmaceuticals have their origin in plants & animals -- and are no less "natural" than nutrients.”

I found this poignant and concise. What other implications of this expensive government testing requirements of substances in addition to the government sanction for pharmaceuticals (but not nutraceuticals) need statement to you?

As I wrote in my review of the World Stem Cell Summit in the June 2013 issue of LIFE EXTENSION magazine, I favor the repeal of the 1962 Kefauver-Harris Amendment that added a proof-of-efficacy requirement to the proof-of-safety requirements for FDA drug approval. Requiring efficacy in addition to safety in the wake of the 1962 thalidomide scare was pure politics; thalidomide was entirely a safety issue. http://www.lef.org/Magazine/2013/6/World-Stem-Cell-Summit-2012/Page-01

112 See Best, B. (n.d.). Topic Index for Articles about Computer Science by Ben Best.
113 See Best, B. (n.d.). An Overview of Neural Networks.
114 See Best, B. (n.d.). Artificial Intelligence and the Preservation of Mind.
116 See Best, B. (n.d.). Topic Index for Articles about Computer Science by Ben Best.
117 See Best, B. (n.d.). Topic Index for Miscellaneous Writings by Ben Best.
120 See Best, B. (n.d.). Ancient DNA & Preservation in Amber.
121 See Best, B. (n.d.). Topic Index for Miscellaneous Writings by Ben Best.
124 See Best, B (n.d.). Nutraceuticals' Topic Index.
125 Ibid.
The effect of the Kefauver-Harris Amendment was to reduce the availability of new drugs to the public. The average number of new drugs introduced dropped from 40 per year before 1962 to 16 per year soon after 1962. Average time from filing to approval for new drugs rose from 7 months before 1962 to 7.8 years by 1998. A 2006 study estimated the cost to bring a new drug to market at between $500 million to $2 billion.

After FDA approval, safety rather than efficacy is mainly what matters because physicians are free to prescribe the drug “off label” for any indication they please. And FDA-approved drugs are not very safe, anyway. The American Medical Association has reported that adverse reactions to FDA-approved drugs in American hospitals is a leading cause of death.

24. With respect to the core ideas of life extension, you wrote numerous other articles on the topic. Some written work covers the personal thoughts on extension of life. Some mentioned earlier in addition to the novel (relative to this interview) articles: Why Life Extension? Or Why Live At All226, Causes of Death227, Alzheimer’s Disease: Molecular Mechanisms228, Is Longevity Entirely Heritable229, Can Deprenyl (Selegiline) Extend Human Lifespan?230, “Smart Drugs” & the Aging Brain: A Superficial Review231, Whey Protein and Life Extension232, and Life Extension Benefits of Methionine Restriction233, and numerous other articles and resources on life extension234,235

To close with a quote and question, in Why Life Extension? Or Why Live At All236, you wrote:

“Existentialists often say “life is meaningless” with the implication that they are describing an objective meaning outside themselves, and independent of any human being. But it is humans who care about things and have feelings. Humans are the source of value and the process of valuation. A mother filled with love for her newborn baby does not wonder whether life is meaningful. An Existentialist who says life is meaningless is describing his or her own emotional state (a statement of values), not a fact about the universe. It is humans who find (or can’t find) meaning in life because of what they value (or don’t value).”237

What motivates this life’s work?
The prospect of a vastly long, healthy and youthful life motivates me.
Appendix I: Reference Style Listing

Ben Best (Part One): Reference Style Listing


Ben Best (Part Two): Reference Style Listing


Ben Best (Part Three): Reference Style Listing


Bibliography/References/Reference List


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