

ALCOR LIFE EXTENSION FOUNDATION

A Non-Profit Organization

CRYONICS

SEPTEMBER - OCTOBER 2017 · VOLUME 38:5

Member Profile: Rudi Hoffman

PAGE 12

**What I Learned from Not Dying
from Cancer in 2016**

PAGE 16

Keeping Cryonics Affordable

PAGE 5

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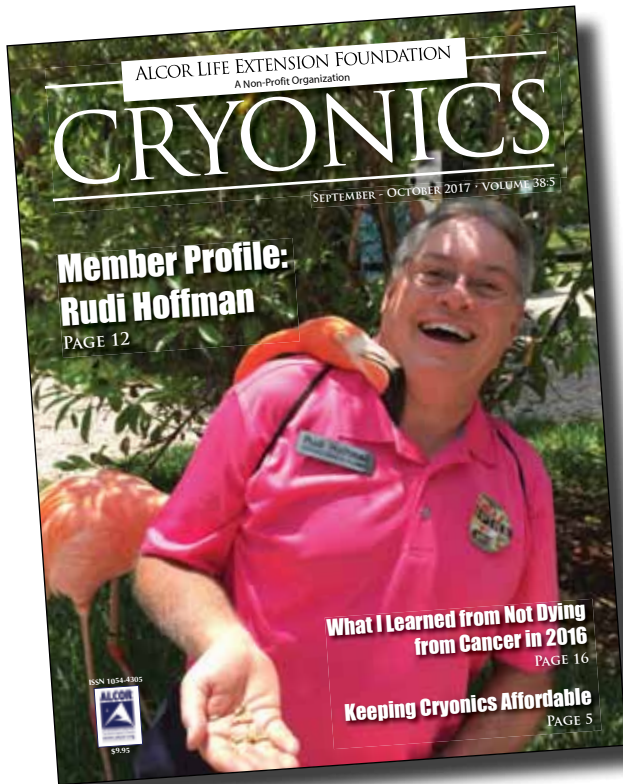
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CRYONICS



COVER STORY: PAGE 12

Member Profile: Rudi Hoffman

Leading cryonics financial planner, Rudi Hoffman, shares a few things we *don't* know about life with cancer, love in business, and the pursuit of growing the cryonics community.

On the cover: A hungry flamingo at the Sarasota Jungle Gardens hopes for a chance at Rudi's afternoon snack.

5 QUOD INCEPIMUS CONFICIEMUS Keeping Cryonics Affordable

Is cryonics expensive? This depends on what you are comparing it with and whether one looks at the costs of cryonics arrangements on a monthly basis or as a lump-sum payment. Some recommendations to keep your cryonics arrangements affordable.

16 What I Learned from Not Dying from Cancer in 2016

One of the most dedicated and colorful persons in our community, Rudi Hoffman, was diagnosed with cancer in 2016. After successful treatment, Rudi circulated this brief article among friends and customers about his journey, its aftermath and life lessons learned.

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Cryonics magazine is published bi-monthly.

Please note: If you change your address less
than a month before the magazine is mailed, it
may be sent to your old address.

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ISSN: 1054-4305

Visit us on the web at www.alcor.org

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CONTENTS

8 CEO Update

Max More is back (from the hospital) and covers the demographics of members and patients, a recent cryonics and life extension conference in Spain, financials, and the new construction that is going on at Alcor.

20 Membership Statistics

How many members, associate members, and patients does Alcor have and where do they live?

22 FOR THE FUTURE

Scientific Divinitism:

A Proposed Immortalist-Transhumanist Life Stance

As cryonicists we are seeking a personal stake in a more advanced future, thus how it turns out, for good or ill, is of special concern to us. A possible "life stance" – a philosophy and practice aimed at what is of ultimate significance – is offered that could serve as a guide as we transition to much longer-lived and more advanced beings.

34 Progress in SENS Rejuvenation Research

A summary of the progress in rejuvenation research since the SENS initiative was proposed 15 years ago.

38 Revival Update

Mike Perry surveys the news and research to report on new developments that bring us closer to the revival of cryonics patients.

QUOD INCEPIMUS CONFICIEMUS



Photo: Cryo-Care Equipment Corporation at 2340 E. Washington St., Phoenix, AZ.
Dr. Bedford's "home" about 1970.



KEEPING CRYONICS AFFORDABLE By Aschwin de Wolf

What can be done to keep cryonics affordable? Or perhaps one should say; what can be done to maintain your cryonics arrangements until the time you will need them?

Let's start by asking the question whether cryonics is an expensive procedure. One might argue that cryonics is comparable to other advanced medical procedures such as bypass surgery or brain tumor removal, and a lot less expensive than the (futile) end-of-life care costs that are incurred by many individuals late in life. The monthly costs of life insurance and membership dues are lower than the typical health insurance premium. Unfortunately, one thing that sets cryonics apart from many of these examples is that it requires an active, ongoing, effort to maintain this affordability and neglect (not paying one's life insurance premiums) can render all of one's efforts in vain. As affordable as the monthly costs of cryonics may be for many people, most of us do not have the resources to fork over the total cryopreservation minimums (either neuro or whole body) without utilizing insurance or a well-designed estate plan.

The first step is to take out life insurance appropriate for the cryopreservation arrangements of one's choice. This has been emphasized before but cannot be reiterated enough. When you are young and healthy, life insurance premiums are much lower.

Even if you are not sure whether to make cryonics arrangements yet, having a life insurance policy in place can give you that peace of mind and allow you to secure lower premiums. If income permits, you can take out more insurance than is needed to cover your cryopreservation minimums so that future cost increases can be accommodated. With "premium funding" of at least \$20,000 above your minimum, Alcor waives the annual \$180 Comprehensive Standby Fee (the "CMS Waiver").

In my experience many cryonics members spent little time reviewing their existing life insurance policies after they put them in place. This is not a prudent approach, especially for members whose life insurance policies were just sufficient to cover their cryopreservation minimums at the time of joining. If your income increases and this looks like a relatively dependable feature of your future, it can make good sense to increase the coverage of your life insurance policy. This is especially a smart thing to do for members who are still relatively young but further along in their careers.

Another important step is to keep your cryonics arrangements in place throughout your life. Alcor is increasingly moving towards a loyalty-based dues system in which one's dues diminish over time, for

those whose membership in good standing is uninterrupted. One advantage of this decreasing dues system is that your dues will go down when you reach a point in your life when you may no longer work.

What can Alcor do to keep cryonics affordable for you? From the administrative side it can "nudge" you to ensure you do not fall behind on dues (automatic deductions) and remind you to upgrade insufficient or poorly-performing insurance policies. It should aim to take advantage of economies of scale by automating administrative and technical functions and use unexpected surplus income to reduce costs in the long run. Eventually there may come a point where the patient number is high enough to create storage solutions that substantially reduce liquid nitrogen boil-off.

The most important step that Alcor can take now to reduce costs *and* increase the quality of care is to merge the remote standby/stabilization phase of its procedures with its cryoprotection phase. This "field cryoprotection" is already our recommended protocol for overseas cases. If it can be implemented in many major areas in the US, significant cost reductions may be possible. It is not often that a cryonics organization can improve its procedures and save money at the same time. ■

LETTER TO THE EDITOR

To the Editor,

In agreement with R. Michael Perry I must confess to having qualms about the “The Age of EM” (Cryonics Vol 38: 4 July-August 2017). This discussion is not a new one in sci-fi. See the novels by Niall Teasdale where the heroine’s body is destroyed for reasons of Alien abduction and criminal aggression and the protagonist “wakes up” as an emulated mind running on a computer as software. While emulation AI’s might very well develop on their own into useful citizens of the future, they will never be the mind, personality, consciousness, the Being that they were developed from.

James D. Miller’s comment that the first/best minds to undergo the emulation process are Alcor patients, with (in his view) consent of the patients who volunteer to “...waking up as an emulation”, touches elliptically on the main point against emulated minds. Unless there is found some non-destructive way to do the emulation, the original brain is destroyed in the process, the Being that inhabited that brain, the memories, personality, the gestalt, the consciousness that formed the Being suspended at Alcor is dead, as dead as someone who dies of a cardiac arrest and is buried in dirt.

An emulation is a copy, a digital photograph, a Xerox copy of the original and has no more connection with the original than a human baby does at the moment of birth with its mother. The process described by Dr. Hanson defeats the reason extant for Alcor. Those that volunteer to “wake up as an emulation” are committing suicide.

The emulation might with the right tech abilities have all the memories of the original Being up to the moment of loss of consciousness, but nothing after. The emulation would of consequence be required for its own survival to begin experiencing and storing its own memories and experiences growing into a separate individual, a re- boot if you will, with all unsaved data lost. Potential capabilities of such created personalities is another discussion entirely, but forgive me saying that according to the theory of Dr. Hanson, barely considers the position or even continued existence of meat humans. These independent, untouchable colonies of trillions of electronic beings whose very existence would advance and evolve at 1000’s if not millions of times the rate of human society would remain under our control, or even our friends, for how long? Maybe these independent beings decide they don’t want to be turned off on a whim, then what?

Perhaps in the far future ways will be found to transfer a human consciousness into a cloned or engineered body of their choice. Personally a scenario I find far more likely in the “near” future is the choice to “wake up” as part of a machine, perhaps as a brain suspended in and neurologically connected to a space ship, like the “Ships That Sang” series of novels. Technology that can indefinitely prolong the “life” of a brain and the ability to integrate, interact and control an interstellar ship, in effect become its “brain” (in concert with others in a community?), with the ship as its new body (and as a way to work off the possibly immense medical bills inherent in such re-animation) seems a more likely and far more to be desired future for an Alcor patient, with possible transfer to a cloned body at some point, than having your one and only brain pureed to make bad possibly hostile copies.

A person with say a military background might be a good choice for the pilot of a ship without the basically engineered or taught loyalties of a created AI (apologies to self-aware AI’s for stereotyping).

The discussion of the desirability of emulated minds (or AI’s in general) too often in my view hinges on what can they do for us, not to us. For me the ultimate discussion of the process of emulation hinges on what happens to the original in the process. Or is the “choice” to waken as emulation removed for the “greater good”? A road that no sane mind wants to travel.

~ Craig Sarver (Alcor Member)



Bring in a **NEW** member and save **a year of dues!**

Membership growth has been slowly accelerating since bottoming out in 2013. But we would benefit from faster growth. Alcor is now at a point where we could enjoy considerable economies of scale: We could manage many more members with minimal or no increase in staffing costs. That would enable us to *reduce membership dues* while building up our resources. A modest acceleration in membership growth would move us into a virtuous circle where growth enables reductions in dues which further spurs membership growth. Growth will also make it easier to hire highly skilled people in medical and technical areas.

The most effective way to bring in new members has been through direct encouragement by existing members. Many of us realize this, but may not make it a priority to nudge our friends a little more to sign up and potentially save their lives. How can we spur more members to gently persuade those they care about to move ahead with making cryonics arrangements? Perhaps some financial incentive will help.

Anyone who is primarily responsible for getting a new member to sign up will, at their request, be given a one-year waiver of membership dues.

For an existing member to receive the dues waiver, they must (a) be credited by the person who has signed up; (b) ask for the waiver; (c) not be otherwise profiting from the signup; (d) wait until the new member has completed all essential cryopreservation paperwork and has paid at least six months of dues; and (e) the new member must not be a member of their family. If the member signs up two new members, they are eligible for a two-year waiver of dues. If the new member is a student, the existing member is eligible for a waiver of six months of dues.

Who do you know who could do with some encouragement to sign up? Please, give it some thought, then help yourself and help the organization by helping to stimulate membership growth. Bring in one new member per year, and you will never pay dues again!



CEO Update

By Max More



If you live with someone who says you need to go the emergency room, you should probably listen to them. I was incarcerated in a (very nice) hospital from April 27 until May 1, but really should have gone a full day before. I won't detail the extremely unpleasant symptoms ("Oh, I'm sure it will get better in a day or so"), but it turned out to be an E. coli infection of my blood that reached my left kidney. Left untreated, this could quickly have become sepsis and I would have been cryopreserved by now.

I'm a pretty healthy guy for 53 years old, and I have no idea how this happened. It just shows the sense in having cryonics arrangements. But it also shows that you shouldn't dismiss clear signs of a potentially major medical problem just because you've never had one before. Also, be sure to let us know if you are being hospitalized.

DEMOGRAPHICS OF MEMBERS AND PATIENTS

Many of you may be interested in the March 1, 2017 update provided to me by Diane Cremeens on Alcor's demographic makeup:

Patients – total 150
N – 93
WB – 53
N/WB – 4
Youngest – 2 (female)
Oldest – 101 (female)
Males - 109
Females - 41

Average age – 65
Males – 65
Females – 68
Members – Total 1122

Neuro – 545
Whole Body – 557
N/WB – 20

Youngest – 1 year (60 children under the age of 18)
Oldest – 88 years
Average age – 48

Males – 872
Females – 250 (22.3%)

Stats for married couple:
Both who have joined – 87
Females Members whose husbands have not joined – 26
Males Members whose wives have not joined – 262

CONFERENCES

In late May, thanks to an invitation by José Cordeiro, I attended and participated in the International Longevity and Cryopreservation Summit in Madrid. The main event was held in the prestigious main auditorium of the Spanish NSF (CSIC: Consejo Superior de Investigaciones Científicas). My talk was on "Cryopreservation and Its Future." Mainstream cryobiologists and other scientists interacted with proponents

of cryonics, resulting in considerable light being thrown on the latter. This was followed by a day or seminars at the Instituto Empresa Business School. Apart from myself, some familiar names giving seminars included Aubrey de Grey, Anders Sandberg, João Pedro de Magalhaes, Aschwin de Wolf, Chana Phaedra, and an eminent cryobiologist who prefers not to be named. It was my pleasure to meet Prof. Ramon Risco. It was his advice and his graduate student Daniel Barranco that helped Alcor's *C. elegans* research effort, led by Natasha Vita-More.



On May 5, I joined in toward the end of Arizona State University's 2nd Annual Workshop on Healthspan Extension Policy & Regulation, held at the dramatically-designed SkySong Building One. Talks ranged widely, including "Humans 3.0: The Emerging Fusion of Health, A.I., and Biomedicine" by David Ewing Duncan, and "Pharmacology of Lifespan Extension" by Gordon J. Lithgow of the Buck Institute for Research on Aging. The core topic though was the focus of a talk by organizer and ASU law professor Gary Marchant, on "Regulatory and Commercialization

Pathways for Healthspan and Lifespan Extension Interventions.” The challenge he addressed was getting the FDA to recognize aging as a disease. His talk will be followed up by a group-written paper addressed to the FDA. If the FDA recognizes aging as a disease, it will become far easier to secure funding for anti-aging research.



MEMBERSHIP GROWTH

Despite the immense difficulty of communicating the cryonics message effectively in a limited time, the signs continue to improve. When Diane showed me her numbers for end-March 2017, I noticed that we had 91 members in the applicant queue. I said that this seemed high to me and probably a record. After looking back through several years, Diane confirmed this. (As of the end of June, we're still close, at 83. The reduction is *not* due to any slowdown in new applicants.) That makes it all the more important for us to ease the membership processing process.

CONSTRUCTION/EXPANSION

We are doubling the capacity of the Patient Care Bay as well as adding new office space and room for preparing kits and tubing packs, mixing chemicals, and other case-preparation work. The work will take place in three phases and we expect the cost of this major project to be between \$350,000 and \$400,000. On May 11, we had a construction kick-off meeting. On May 12, demolition started and Phase 1 of the construction got underway. Phase one was completed last week (as I write this on July 11). Since all permits were secured before work started, the general contractor estimates that all work should be completed within 16 weeks, and quite possibly sooner. In other words, by late August, so all work should be finished weeks before the 2017 Annual Meeting.



This project, along with associated work in the front office area and leading to the conference room, has resulted in a new office for Hugh Hixon. We are opening up the space where visitors walk through to get to the conference room and will be creating new infographics to take advantage of it. The front office has been painted to brighten it up, and we used fresh epoxy floor for the dry/wet lab, making it not only more attractive but much easier to clean.

STRUCTURED STAFF MEETINGS

Although wary of unnecessary bureaucracy and the tendency of group meetings to waste time, I have implemented regular weekly staff meetings, starting March 23. These involve quickly each person's goals for the week, as well as longer-term projects and projects completion (or milestone) dates. This is all captured on a Google Sheet which we review collectively. The Sheet also has a tab for each staff member listing "Waiting On" items from other staff, so that it's easy for everyone to know to what they have committed and by when.

CASE REPORTS

Thanks to Josh, we now have an ASU student helping prepare case reports. I was impressed by her first draft of the first report she tackled, based on materials provided her. She is one of a small but growing army of ASU science students recruited by Josh to help out in multiple ways. We hope to have her work at Alcor on case reports (as well as receive training) for a substantial amount of time over the next few months.

I am all caught up on case summaries and we have published two final new reports (with several more about to go to the Cases review email list):

Added March 16, 2017: Alcor Case Report A-1624 James Baglivo

Added March 13, 2017: Alcor Case Report A-1765

TWO CRYOPRESERVATIONS

We cryopreserved members in May and June. The May case was that of JoAnn Martin, wife of long-time Alcor supporter Saul Kent. We commiserate with Saul but hope they will be reunited in the future.

For more information, see the case summaries. By the time this sees print, it looks likely that the full case reports will also have been written and published. In keeping with our continuing efforts at quality control, we held after-action reviews/debriefings on both cases. For JoAnn, we were able to do a CT scan (at dry ice temperature) – something we can do only rarely for whole body members.

On May 8, Josh and I met with a vet who has helped out with anesthesia and cannulation in two or three pet cases. She is willing to continue to work with us, on condition that we limit video recording and provide her with a clear protocol, both of which we agreed to. She will also talk to another vet (the one who regularly sees my aging poodle) and talk to him to see if he is willing to be a backup in case she is not available.



FINANCIAL

At the end of 2010, the Patient Care Trust Fund investments amounted to about \$5,500,000. We are encouraged by the growth in these investments since. In August 2016, the value of the investments topped \$10,000,000 for the first time. The most recent statement available to me is for June 30, 2017, and puts the value at \$12,085,896. The rule is that no more than 2% can be spent in any year. So far, no withdrawals from the investment account have ever been made. Expenses have been paid out of a smaller cash pool. If we take the total charges to the PCT for 2016 and compare to the current value of the PCT investments (this doesn't include other assets such as capital equipment and real estate), the current draw comes to a pleasingly-low 1.88%.

Despite having a large cash buffer to protect us from downturns, since August 2015 when we introduced the new 35%/65% risk/cash allocation, the PCT is up 26.97% versus 18.72% for the indices we follow.

Finance Director Bonnie Magee worked with me and the board to revise the distribution of costs between Operations/General, Research, CMS, and PCT. A more accurate distribution of costs contributes to both financial and strategic planning. Among the adjustments: Rent & Utilities on O/R & related space is now broken out and charged to Cases. Rent & Utilities on R&D areas is now broken out and charged to Research. This is made easier

by the reorganization accompanying the construction work. Rent and Utilities on CMS areas – as for Research. More of Steve Graber's salary will be charged to Operations and less to PCT. General Liability Insurance: More charged to Operations and none to PCT.

VARIOUS OTHER ITEMS

Since various issues have made me late in writing this report, I'm going to be very brief in summarizing other news. We are pushing ahead with an IT-infrastructure upgrade and expect a detailed plan from our current IT provider in the coming week. On Thursday May 4, along with Steve Graber

and Josh Lado, I had lunch with two FBI agents (who Steve, Josh, and Hugh had met earlier at a bioterrorism conference). These could be useful contacts in certain situations, and one of them seemed very much on the same wavelength as the typical cryonicist (if that isn't an oxymoron).



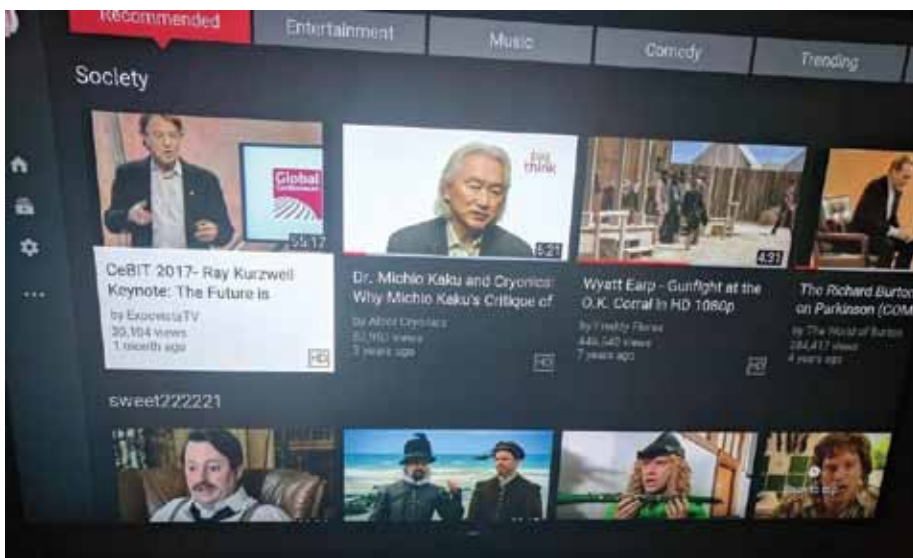
Huxley (left) and Wolfryk: Alcor's rapidly-growing office pups.

INTERNATIONAL COOPERATION

Alcor has carried out a cryoprotection and patient extraction from China, but we doubt that we can reliably get patients out of that country until the law is changed or clarified. As a result, we have been referring inquirers to the fully operational Chinese cryonics organization, Yinfeng. They were so pleased that they authorized Aaron Drake (who works with them part of the year while contracting with Alcor at other times) to spend up to \$500 taking the Alcor staff to dinner.



Alcor staff dinner at the Salty Sow Restaurant, 7 July 2017, courtesy of Aaron Drake and Yinfeng. From left: Diane Cremeens, Linda Chamberlain, Hugh Hixon, Mike Perry, Steve Graber, Josh Lado, Bonnie Magee, Aaron Drake, Marji Klima. Other attendees not shown: Max More, Natasha Vita-More.



MEDIA AND PUBLIC EDUCATION

The main challenge with respect to media remains not in garnering enough interest but in deciding which media requests to look into further and to accept. It's been over three months since my last update on media coverage, so here is a compact list of coverage of interest or significance:

My rebuttal of Michio Kaku was briefly featured on Netflix. Apparently Netflix has an arrangement with YouTube allowing the former to feature content from the latter:

March 15: Filming by De Mensen, a television production company, based in Brussels for "Last Days" documentary. I did a tour and interview but Linda Chamberlain did most of the work.

We were visited (and filmed) by Nikki and Brie Bella on March 17. Nikki Bella is a professional wrestler, actress, and model. She was (according to Wikipedia) ranked No. 1 in *Pro Wrestling Illustrated's*



Female 50 in November 2015, and was named Diva of the Year by Rolling Stone in December 2015. Nikki was born in San Diego, California and raised on a farm in Scottsdale, Arizona. The Bella Twins' outreach reportedly reaches over 23 million followers across Facebook, Twitter, and Instagram. Nikki seemed to have a genuine interest in cryonics, and her father asked many good questions. We expect that a brief segment of a second-season episode of *Total Bellas* (an offshoot of *Absolute Divas*) will include their visit to Alcor.

On March 20, I did a tour and interview with Swedish TV's Elk International on "Meltzer and the Death." Linda also contributed to the filming.

A March 25 book review brought to my attention a new book by Mark O'Connell, titled *To Be a Machine: Adventures Among Cyborgs, Utopians, Hackers, and the Futurists Solving the Modest Problem of Death*. This covers cryonics and, as usual, gets quite a few things wrong. Many other reviews of the book have followed.

On March 27, I did an interview and tour with presenter Pollyanna Woodward on a documentary about *Life After Death*. From the private first cut, this looks to be a highly positive treatment.

April 3: Vice Media - "Time Unlimited" - tour and interview.

May 15: Interview for major South Korean media outlet Chosun for an EBS special documentary *Beyond*, to be shown on South Korean public television.

May 19: Linda did a tour and interview for Azteca Noticias "Hechos" based in Mexico City.

On April 26, I did a Skype interview on Transhumanism and Cryonics for a Swiss media outlet with a presenter who is studying at the Ecole Polytechnique Federale de Lausanne.

April 27: Skype interview with Linda for the Finnish magazine Suomen Kuvalehti, described as the Finnish equivalent to *Time*.

May 5: EBS South Korea, film interview and tour with myself and Linda.

May 15: A South Korea media interview with me, for the major SK media outlet Chosun.

June 1: I did a Skype interview with Dominique Deckmyn for Belgium media.

June 8: BBC One interview.

June 9: RAI Interview and film tour with me for Italian TV.

June 12: Filming for Spanish crew related to the recent Madrid cryopreservation conference.

June 30: Filming by me and Linda and member Maria Entraigues for Cuatro (Spanish TV). Later that day, I took part in the first of several conference calls that may lead to major positive publicity for Alcor related to a new series on a leading TV network.

July 6: I spent quite a bit of time answering intelligent questions from Sole Moller, a Danish journalist.

Upcoming: On August 1, I will be speaking at the Beijing Biomedical Forum in Yinchuan, capital of the Ningxia Autonomous Region, China. The event is hosted by the Yinchuan Municipal Government and the Huanu Biotech Institute, and co-organized by the Sino-American Medical Association (SAMA) and the Chinese Scholars and Scientists Association in Harvard Medical School (HMS-CSSA). ■

MEMBER PROFILE RUDI HOFFMAN

By Nicole Weinstock



A hungry flamingo at the Sarasota Jungle Gardens hopes for a chance at Rudi's afternoon snack.

“One of my favorite phrases is, ‘success is not convenient,’” says Rudi Hoffman. A signed cryonicist and devoted cryonics industry marketeer of 23 years, Rudi has made a household name for himself in the cryonics community together with his wife and business partner, Dawn. Their company, Hoffman Planning, is responsible for about 68% of the cryonics funding market. With virtually 7 of every 10 cryonics policies under their belts, it’s quite likely you know them because they may be the very folks who secured yours. Or maybe you know them from their epic holiday greeting cards, boasting the latest lawn to roof decorations, backdropping their carefully costumed canines.

Point of entry aside, and despite Rudi’s humble protestations, there’s no doubt that the Hoffmans have seen the brass ring. From a pool of 2,800 or so life insurance brokers representing the cryonics-friendly Life Insurance carrier, Hoffman Planning ranked sixth by productivity in 2015. Yet, unlike many at this level of achievement who shy away from the blood, sweat ‘n tears moments that came before, Rudi is the first to admit, with humorous candor, to those “inconveniences” that have dotted

his yellow brick road. It’s one of his most endearing traits, and quite possibly, the cornerstone of his success.

ELEMENTARY, MY DEAR WATSON

“I worked like crazy and struggled like crazy, literally, for decades. I was barely making a living and barely making a ripple for something like the first 15 or 20 years of my career.” You may only know Rudi for his career in insurance, but his earliest calling was actually education. His wholehearted approach to challenge and his drive to realize potential hint at a scholastic past, but the veritable Christmas tree of educators known as Family Hoffman added a layer of arguable predestiny: Mrs. Hoffman was an elementary school music teacher, Mr. Hoffman was a German professor at Purdue University, Grandpa Hoffman was the president of Anderson University for virtually four decades, and Auntie Hoffman was headmistress for a private Christian school in Florida. “I always assumed that I’d be either a college professor or an administrator at some point,” says Rudi. “So I majored in elementary education, which was kind of the path of least resistance,” he adds, with a chuckle.

As it turned out, resistance and pay were directly proportionate. After graduating from his grandfather’s beloved place of work, Rudi went south to his now home of Daytona Beach, Florida for a fifth grade teaching position at Warner Christian Academy. “I made the princely sum of \$6,200 a year,” recalls Rudi, sardonically, a salary equivalent to about \$29,000 in 2017. “To put it in context, I was going to be joining the Peace Corps for \$4,000 a year.”

But the Peace Corps never came to fruition. In 1978, after a couple of years at the academy, Rudi was recruited by an insurance company known for its controversial “Buy Term and Invest the Difference” concept, and aggressive recruiting of teachers and coaches. BTID encouraged consumers to choose term insurance over old fashioned “whole life” insurance, and invest the cost savings in mutual funds. Projections showed that the investment value with interest could eventually exceed the cash value of a “whole life policy” over time.

“I would’ve never gotten involved in the insurance business if it weren’t for that kind of unique company. Because my self-image was that I could not sell anything. I



The Hoffman family poses on the snow covered campus of Anderson University. Rudi stands in the middle of his parents and two older sisters.

did not think I could sell a piece of bread to a man that was starving to death...But I did acknowledge that[, by] comparison with my old policy that I'd been paying on, ... the new program that these guys had shown me... was simply dramatically better mathematically. The industry has now changed, and the new consumer oriented plans have a direct or indirect exposure to stock market index growth."



A young Rudi snuggles up next to the family dog, Waldi. The Hoffmans had four of these long-haired dachshunds growing up.

So Rudi began working with this carrier, and in the midst of that, bought the house that he and Dawn still live in. And on the subject of mathematical benefits, "I managed to go from \$6,000 a year down to \$4,000 a year [in earnings] while increasing my overhead to roughly \$15,000 a year. That's why people have credit cards I guess,"

laughs Rudi. "But If I'd had any brains I would've quit and got a good job." But the reality is that Rudi stuck with it, and admits nearly 40 years later, "I would not trade all those challenging formative years of character building for anything."

WHEN IT DAWNED ON HIM

Through a twist of fate with a dab of religion, love was one of the unintended consequences of Rudi's decision to stay in the insurance business. During his early years with the initial insurance carrier, he was also studying to be a minister for Unity Church. Founded in the late 19th century in Missouri, Unity is, in Rudi's words, "a lot less awful than most religions." (He now describes himself as an "agnostic slash atheist," as you may have intuited). Nevertheless, Dawn O'Connell happened to attend a new member reception at Rudi's church when he was 28 years old. A sacred "Burning Bowl Ceremony" was being held, for which each person in attendance wrote down something they were ready to let go of on a piece of paper to be symbolically burnt. Dawn saw Rudi drop his paper in the bowl, and they met shortly thereafter. He had intentions of recruiting her into the insurance business, but one thing led to another, and four days later, Rudi was down on one knee. "It was definitely love at first sight, and has remained so," he adds.

It certainly seems that way, because what Rudi wrote on that piece of paper way back when—the thing he wanted to let go—was, ever so coincidentally, "singleness."

Now, more than 33 years later, Rudi and Dawn are partners in marriage and in business. "She's very, very smart and very independent-minded," says Rudi, "and she is the opposite of a yes-person." Outside of work, they are active square and round dancers, avid dog lovers, passionate holiday decor artists (they've had 70 plus blow-up characters on their lawn before for Halloween), and zealous globetrotters.

It's particularly fortunate that Rudi found the travel bug in his partner, as it was a steadfast part of his upbringing. His father—the German professor and talented linguist, fluent in seven languages—was a huge travel enthusiast. Though they lived in Indiana, he used to drive the family all the way to Florida on long weekends to see the latest in tourist attractions. He even took Rudi on a three-month trip to Austria one summer. His influence played heavily into Rudi's college years, when Rudi did work projects in Africa, Central and South America, and the Caribbean.



Rudi blows out the candles of his fourth or fifth birthday cake with his grandfather behind, and his mother to the right.

Rudi and Dawn may not be crossing the oceans these days, but they certainly make time for their domestic adventures. In fact, they celebrated their most recent



Rudi poses with his first fifth grade class at Warner Christian Academy in Daytona, Florida.

anniversary at the Sarasota Jungle Gardens this past April. Known for its ten acres of native and exotic plants, the gardens are also populated by birds. So much so, that Rudi had to rather aggressively decline the advance of one reportedly libertine flamingo during their visit. “I tried to explain that I’m open minded,” says Rudi, between laughs, “but I try to stay within my own species.” The bird should’ve known that it would’ve taken more than than a little leg to get between the Hoffman duo.



Dawn and Rudi pose at the Evergreen Ball, a round dance event, in 2005.

THE PET THAT’S ALL BUT FURRY

In 2016, the inconvenience of success became an almost prophetic maxim. One less than fine day in April, a bump on Rudi’s leg was biopsied and, a few tests later, confirmed to be part of an aggressive lymphoma. The PET scan that sealed the diagnosis showed “golf ball-sized glowing orbs” in Rudi’s spleen that, in so many words from the oncologist, were not frequent fliers. The six trips that the Hoffmans had planned in the coming months—including the luxurious all-expenses paid Swiss vacation that formed the apex of their wanderlust—were off the table. As Rudi recounts, “All of a sudden, it really became real that this has to be dealt with right now.”

The travel quashing was one thing; the effects of chemo on Hoffman Planning were quite another. While their business is home-based—a circumstance that allowed for commute-free days, and intermittent rest—it was still a challenge to juggle health and productivity in the small business world. “My practice consists of my wife and me,” says Rudi. “It’s not like we had half a dozen people to whom we could delegate or outsource work to keep the business running.” But after being designated the sixth highest productive life insurance brokerage team in the nation

with their primary carrier the year before, the record was not to be tarnished. “My wonderful wife and business partner really stepped up,” he says in admiration. They came in at eleventh place on their primary life insurance carrier list in 2016, despite this health setback. Laughs Rudi, “We were pretty productive even while dying from cancer.”

ON IMMUNITY AND GRANDEUR

The meaning and subversion of the life-death paradigm lie at the center of cryonics; in a way, there is no subculture more familiar with this coin. In the case of Rudi, the death of his own father from cancer during high school, encouraged an even earlier awareness. “At fifteen, all of a sudden I had to deal with the fact that death definitely is stalking us all the time, and can be much closer than we think.” And yet, one of the most salient truths that he arrived at through this whole cancer ordeal, was just how much cryonics inadvertently fosters a sense of immunity:

“I think one of the hallmarks of cryonicists, is we tend to think the rules don’t apply to us, including the big rule that you’re gonna die...I don’t think I ever really believed [my cancer] would not be cured, and it’s one of the reasons that I don’t think I gained as much wisdom as I should’ve from the experience, because I never really felt that I was going to actually die.”



Rudi’s father was an avid traveler who took him on all sorts of adventures as a child, including this one at Tweetsie Railroad, a wild west theme park in North Carolina.

He may not have had any blockbuster-worthy, tear-jerking moments to share, but as you will read in his companion piece to this profile, Rudi did give thanks for some very crucial people and structures that helped ensure his recovery and future cryopreservation. He advises readers to be proactive in their support of evidence-based medicine, the pursuit of as much life



The Hoffman home in Daytona gets a holiday makeover every year at Christmas. Here's a sample from Christmas of 2009, with Rudi and their three dogs: Harry Potter, Hermione, and McGonagall.

insurance as possible, and the cultivation of meaningful relationships—people who will hold your hand while you toss your post-chemo cookies into the can for hours on end. These are the things that got him through. These are the things that balance the cryonicist's immunity to death.

The other truth of cryonics that came to light during his cancer experience was this: “[Cryonicists] have delusions of grandeur. We tend to think we're worth saving.” For Rudi, an early death was disturbing in large part because it would've prevented him from having the kind of impact in cryonics that he aspires to have. Says Rudi:

“I would really like to have a lot more impact, and share the value and the ideas of cryonics much more effectively than I have. Cryonics is such a reasonable thing to me with my life, and it's so affordable for the vast majority of people. And yet there's only something like 2,000 signed cryonicists in the world. That is such a huge disconnect. And it feels, quite frankly, like a personal failure. Because I'm a marketing kind of person...So it's my job to be kind of a leader and get this remarkable option going a little more viral than it has, and I've not yet found the keys to doing that. And it'd be a real pisser if I would die before I figured out at least some of the keys.”

Even in the face of a premature demise, Rudi's unwavering commitment to boosting awareness and understanding of the cryonics movement is palpable. He is currently working on a book designed to give a straightforward introduction to cryonics, *The Affordable Immortal: The Emerging Science of Cryonics and You*, in addition to a customizable, open-source PowerPoint presentation that can be a tool for cryonicists trying to get the word out to fresh audiences. And of course, he does all this on top of running his cryonics-focused financial planning business.

SAVING THE LIBRARIES

What keeps one man going on all of these fronts? Rudi is not a religious man, to be sure, but he is a self-identified humanist. The “delusions of grandeur” for which he may fault himself, are in truth, the very mechanisms that have shaped him into a man for all seasons (we'll forget, for a moment, that Thomas More was Catholic):

“Imagine how tragic it is that people live their whole life and have all these experiences, become a unique segment of the universe that they become, and then they get sick or a bus hits them and all of a sudden they're dead. And that irretrievable, irreplaceable, unique bit of the universe is gone forever. So, every death is like a library burning down, and cryonics is a way to potentially

back that up and back up your life so that it could be sent to future technology that can resuscitate us, and hopefully allow us to live in a very happy way in the future.”

For all his knowledge in cryonics, for all his impressive accreditations from years of study and experience—Certified Financial Planner, Chartered Life Underwriter, and Chartered Financial Consultant—it's Rudi's authentic commitment to people that drives his success; cryonics is his vehicle of expression. “I'm a cryonics ideologue first and a life insurance broker second. I'm committed to helping as many people as possible.”



Rudi and Dawn snap a photo during a New Orleans collectible cruise in 2005. They both sport pins with the popular collectible character, Mackenzie Mouse.

Success isn't easy, and it certainly comes with its own set of trials and tribulations. And while outcomes can't always be guaranteed, we are often better positioned than we think to control our inputs. Of this, Rudi reminds us, “...most [successful people] expect a lot of themselves. And they work at it. They try hard. And I'm not perfect, but most of the time I do try pretty hard.”

To read more about Rudi and Hoffman Planning, or to book a phone visit, you can go to www.rudihoffman.com. To join his mailing list, please email rudi@rudihoffman.com. ■

What I Learned from Not Dying from Cancer in 2016

By Rudi Hoffman

May I share with you what I learned from not dying of cancer last year?

To start with, not as much as one is supposed to learn when looking death in the eye. Turns out that wisdom, perspective, and deep insight into the human condition do not automatically occur just because you are in a life threatening situation. Even for those of us aspiring to be as wise as possible with increasing years. Consequently, cancer is not recommended.

On April 22, 2016 I woke up with a bump in my upper left thigh. I went that day, literally within minutes, to my doctor, and over a couple of weeks and a few biopsies we determined that it was a fast growing lymphoma, with two orange size lumps in my spleen.

Well, shit.

This was not supposed to happen. Certainly not to me. I have taken vitamins and health supplements since I was 20, exercise, don't smoke...blah blah blah. Insert usual "can't happen to me" verbiage you have probably heard. Maybe even said yourself.

But it did. I can now write about it in the past tense, as my last two scans were clear of this aggressive cancer. I apologize for not letting a lot of my good friends and long term clients know about this. I wanted to tell you about it when I could write about it as an almost certainly "done deal" and now I can.

Here are five things I did learn. At least I think I did. I avoided starting this list with "life is precious and fragile" because that kind of writing is just cliché and

boring. My writing may be overreaching, occasionally brilliant and occasionally lame, and perhaps even offensive, but I do my best to have it not be boring.

FIVE THINGS I LEARNED FROM NOT DYING OF CANCER

1. Human beings can be pretty terrific. I am alive and writing these words as a direct result of science, technology, modern medicine, and skilled humans. From the doctor who did the first biopsy which showed "negative" but his experience told him to ask me to do a second one which showed cancer, to my oncologist who told me the unvarnished truth about the joys of chemotherapy, I am the happy recipient of a thing called "expertise." Expertise in some fields, like theology, politics, or portfolio management, is questionable. But when your life is on the line, it is helpful to have legitimate evidence-based medicine on your side.

Here is an actual dialogue.

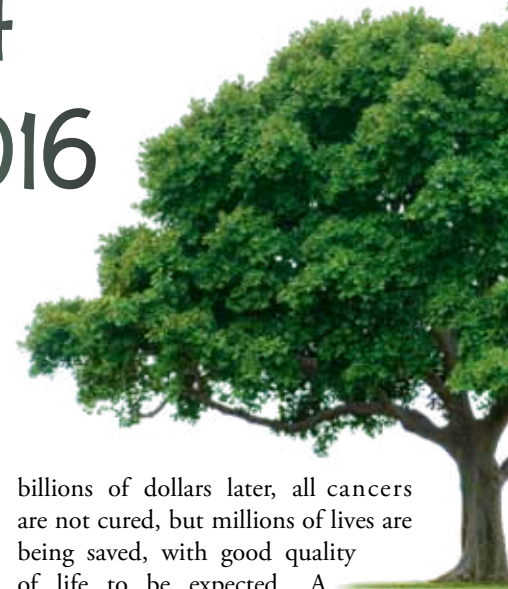
Very religious friend: "Thank God you are cured of cancer!"

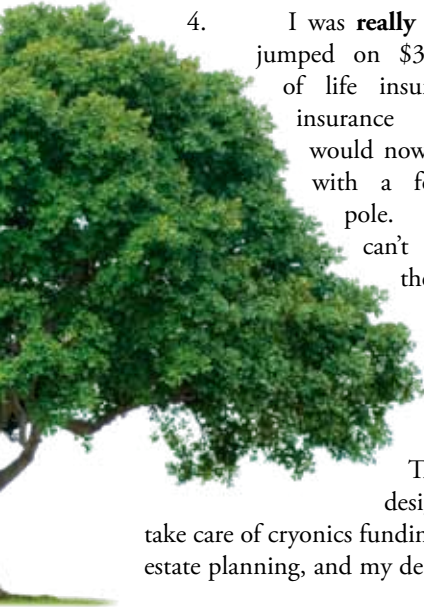
Me: "God and nature gave me the cancer. Very clever human beings have cured it!"

2. This expertise came into being because activists in the 1960s and 1970s poured their hearts into fund raising and inciting government funding for cancer research. Decades and literally

billions of dollars later, all cancers are not cured, but millions of lives are being saved, with good quality of life to be expected.. A clear model for the antiaging activists and cryonics activists that are hopefully reading this. Yes, dear reader, I am talking about you. Anti-aging research is happening, and government funding is starting to flow. We need to make this trickle into a flood of funding. A fraction of the trillion a year spent on anti-terrorism could enable cures for aging for you and me and every human we care about and 7 billion more we don't know. We must become effective catalysts, like my friends who run the Organ Preservation Alliance. www.organpreservationalliance.org

3. Chemotherapy is not fun. But for my particular cancer it had a 90% cure rate. The costs were astonishingly high, of course. But the ridiculously expensive health insurance we pay for delivered as promised. We hit the "out of pocket" maximum the first test or so, about 2,800 bucks, and everything else was covered. We now pay our \$2,000 per month premiums with big smiles on our faces. (Thank God for health insurance? No, sorry, this is also a function of clever human beings. Thank REASON and hardworking humans for health insurance. And most every other good thing in our lives.)





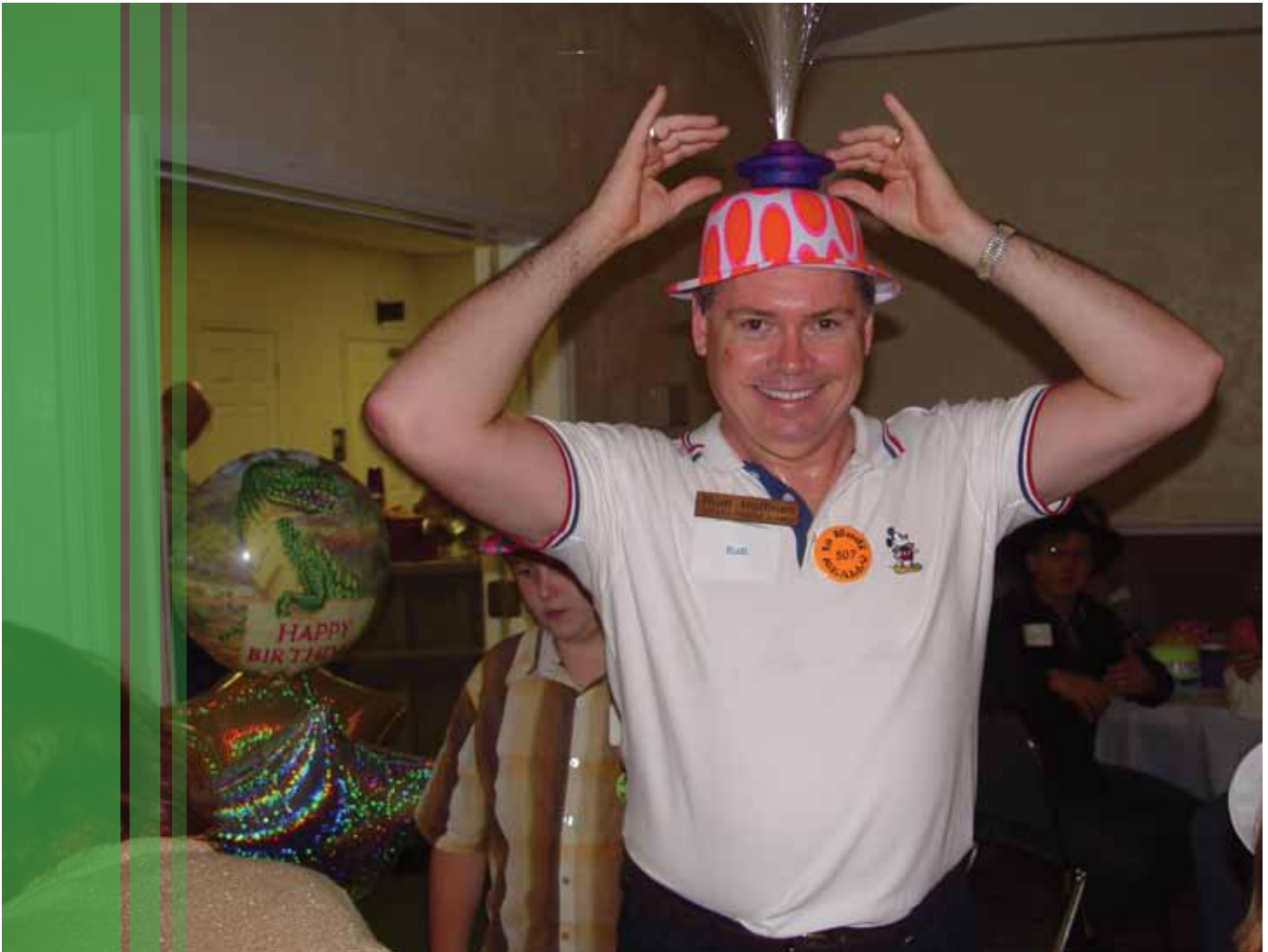
4. I was **really** glad I had jumped on \$3.2 million of life insurance. No insurance company would now touch me with a four meter pole. But they can't change their minds or the rates on the policies I have in place. These are designed to take care of cryonics funding, cryonics estate planning, and my dear wife and

doggies. If you can possibly afford it, and even if you can't, your future self and your loved ones will be overjoyed if you own an extreme amount of life insurance. (Yeah, I am a life insurance broker...hopefully a better one as a result of this. This is not a commercial message. This is a message from my heart to yours, and hopefully you take this as such.)

5. The biggest thing I learned was the importance of a spectacular significant other in a life threatening challenge like cancer. My charming wife Dawn, joy of my life for 32 years, was with me for every test, doctor visit, operation, chemotherapy, every single event. My

sister Trudi flew down to Florida from Minnesota to be with me. I felt so loved and supported by friends and family it was almost embarrassing. Seriously, it was humbling how sweet, thoughtful, competent, and compassionate people can be. I have a new standard for a nebulous aspiration called "goodness" which I honestly don't know if I can meet, but I am going to try.

Thanks for being alive and doing what you do on and for the planet. ■

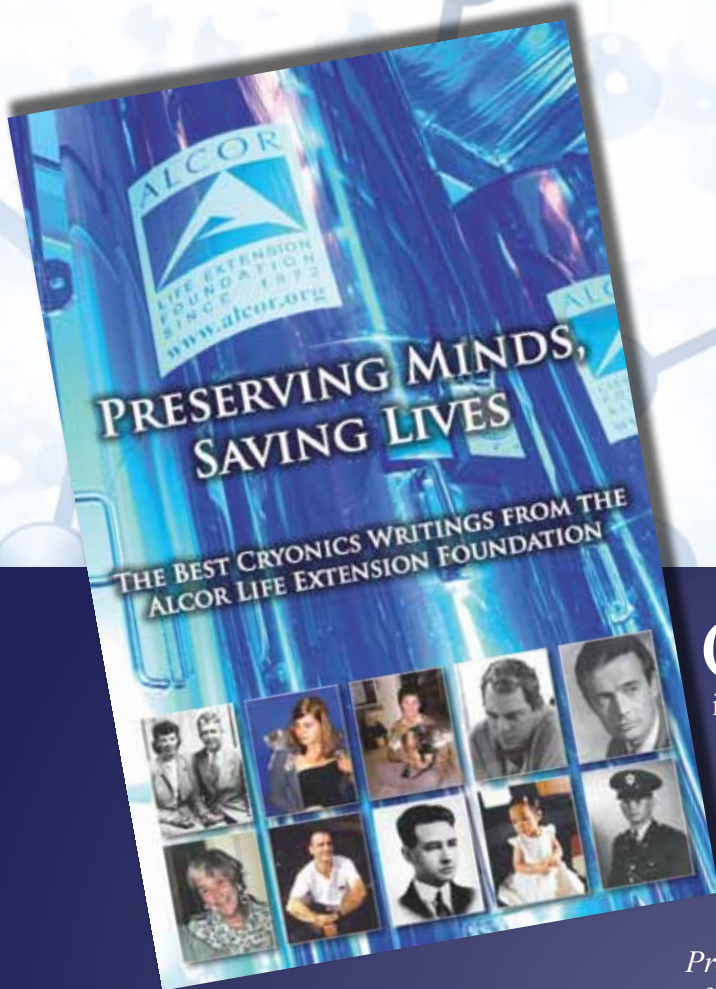


Rudi poses in his birthday hat from the surprise party that his partner, Dawn, threw for him.

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– Max More, Ph.D.
President and CEO of Alcor

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Table of Contents

Foreword: Cryonics and Hope • Introduction

WHAT IS CRYONICS?

Why We Are Cryonicists • Cryonics: Using Low Temperatures to Care for the Critically Ill • Medical Time Travel • The Bricks in the Wall

HISTORY OF CRYONICS

John Hunter, Cryonics Forerunner • The Society for the Recovery of Persons Apparently Dead • Riding the Jameson Satellite • The First Cryonicist • Robert Ettinger: Some Brief Historical and Personal Notes • Notes on the First Human Freezing • The Realities of Patient Storage • Suspension Failures: Lessons from the Early Years • Dear Dr. Bedford • Robert Nelson and the Bedford Freezing: A Comment • Cold War: The Conflict Between Cryonicists and Cryobiologists

HISTORY OF ALCOR

A Brief History of Alcor • Where did the name Alcor come from? • New Home, New Life: Alcor Moves to Arizona • The Alcor Patient Care Trust

RESEARCH IN CRYONICS

Evaluation of the Condition of Dr. James H. Bedford after 24 Years of Cryonic Suspension • A Brief History of Alcor Research • The 21st Century Medicine Seminar: Amazing Breakthroughs in Cryobiology and Resuscitation Systems for Intermediate Temperature Storage for Fracture Reduction and Avoidance

ALCOR PROCEDURES AND TECHNOLOGIES

How Cold is Cold Enough? • History of DMSO and Glycerol in Cryonics • Mathematical Analysis of Recirculating Perfusion Systems, with Application to Cryonic Suspension • Getting to 8M Glycerol and Other Perfusion Problems • How Cryoprotectants Work • Vitrification Arrives: New Technology Preserves Patients without Ice Damage • New Cryopreservation Technology • Cooling Down • Elements of a Transport • Cardiopulmonary Support in Cryonics: The Significance of Legal Death in Cryonics • Rapid Stabilization in Human Cryopreservation • Securing Viability of the Brain at Alcor • Case Reports in Cryonics

RESCUSCITATION OF CRYONICS PATIENTS

To Wake Refreshed • The Anabolocyte: A Biological Approach to Repairing Cryoinjury • Cell Repair Technology • Realistic Scenario for Nanotechnological Repair of the Frozen Human Brain • A Cryopreservation Revival Scenario Using MNT • Neural Archaeology • Cryonics, Cryptography, and Maximum Likelihood Estimation • Information Storage and Computational Aspects of Repair

PERSPECTIVES ON CRYONICS

A Message for Terminal Patients • The Death of Death in Cryonics • Why Suspension Members Need More Than Minimum Funding • Conservative Medicine • Binary Statutes, Analog World: Burke's Paradox and the Law • Why a Religious Person Can Choose Cryonics • Cryonics and Emergency Medicine • Ethics of Non-ideal Cryonics Cases • Let's Talk About Cryonics • How to Protect Your Cryonics Arrangements from Interference by Third Parties

DEBATES WITHIN CRYONICS

But What Will the Neighbors Think? A Discourse on the History and Rationale of Neurosuspension • The Neurocryopreservation Option: Head First Into the Future • The Case for Whole Body Cryopreservation • Responsibility, Probability, and Durability • The "I" Word • The Road Less Traveled: Alternatives to Cryonics • The Myth of the Golden Scalpel • Has Cryonics Taken the Wrong Path?

Afterword • Biographies of Contributors

“Society’s failure to take cryonics seriously is a tragedy that is probably costing countless lives. Alcor, notably via its magazine, is leading the fight to change that.”

– Aubrey de Grey, Ph.D.

Biomedical Gerontologist and Chief Science Officer
of the SENS Research Foundation

“Alcor appears to be the leading organization in the application of cryonics in medicine.

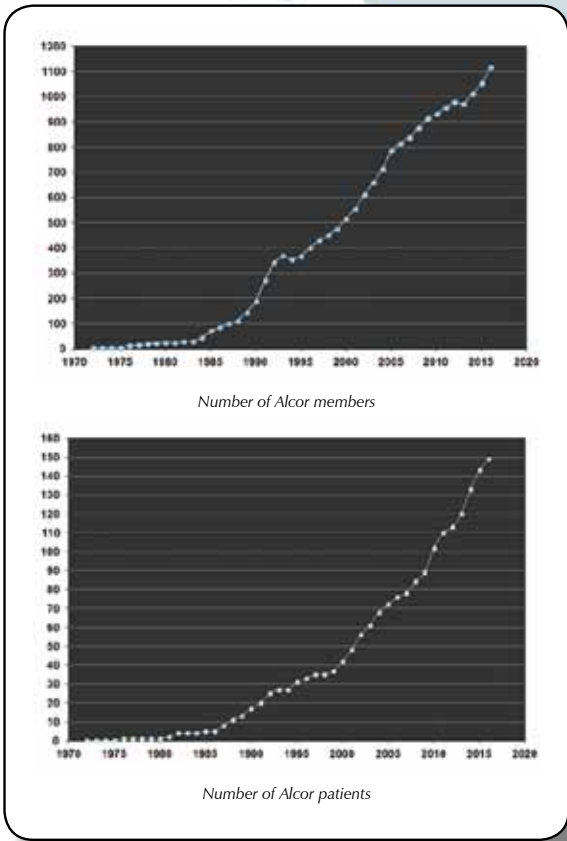
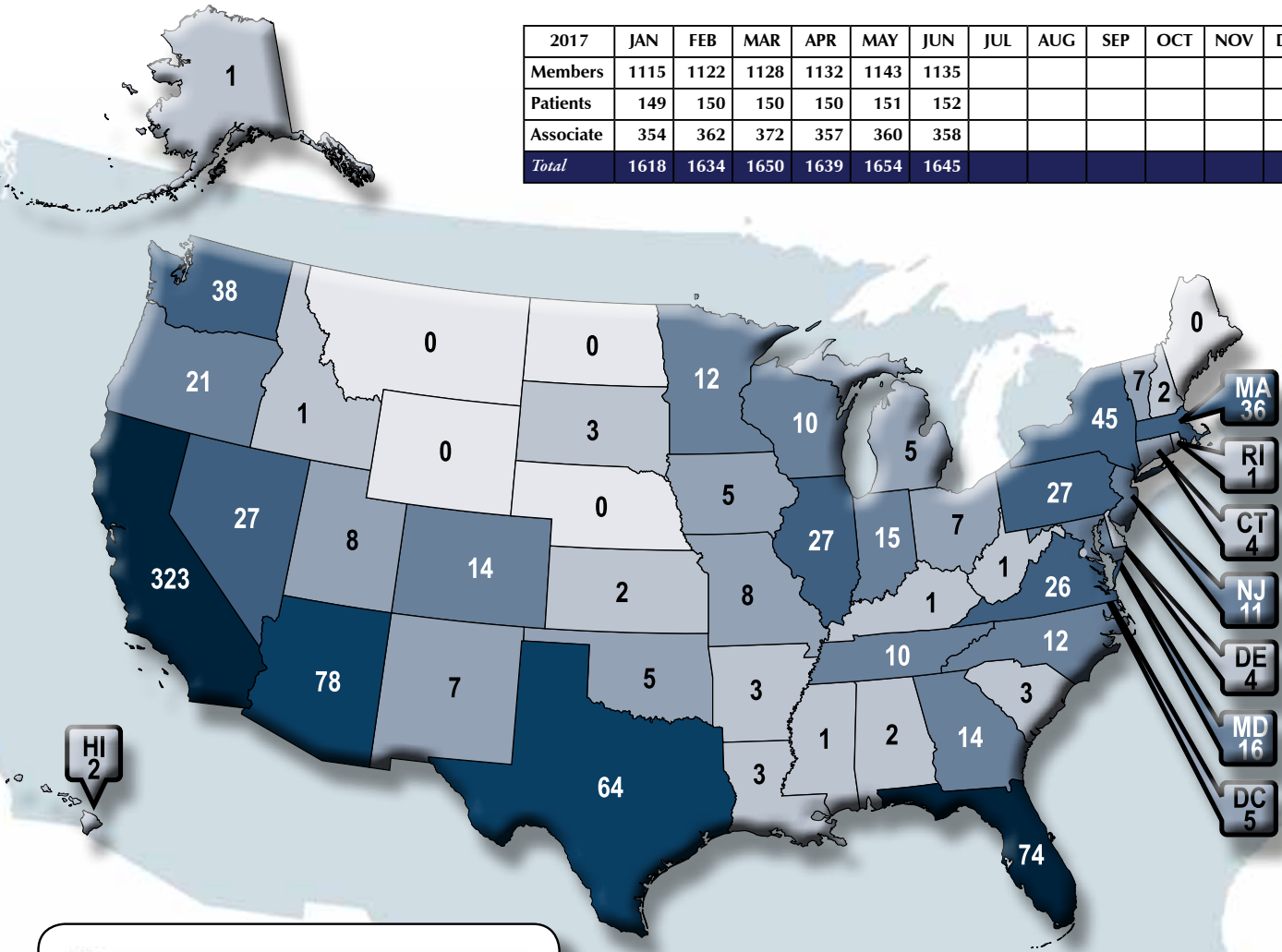
I’m proud to be a part of this effort.”

– Michael D. West, Ph.D.

Stem Cell Scientist and Chief Executive
Officer of BioTime, Inc.

Membership Statistics

2017	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Members	1115	1122	1128	1132	1143	1135						
Patients	149	150	150	150	151	152						
Associate	354	362	372	357	360	358						
Total	1618	1634	1650	1639	1654	1645						



- 0 Members
- 1-4 Members
- 5-9 Members
- 10-24 Members
- 25-49 Members
- 50-74 Members
- 75+ Members

International Members & Patients

Country	Members	Patients
Australia	13	3
Brazil	1	0
Canada	54	2
Chile	1	0
China	0	1
Germany	11	0
Hong Kong	2	0
Israel	1	1
Italy	3	0
Japan	4	0
Luxembourg	1	0
Mexico	4	0
Monaco	1	0
Netherlands	1	0
New Zealand	1	0
Norway	1	0
Portugal	5	0
Singapore	1	0
Spain	3	1
Thailand	5	1
United Arab Emirates	1	0
United Kingdom	31	3
TOTAL	140	12



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To have the CMS fee waived, these are the minimums:

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To become an Associate Member send a check or money order (\$5/month or \$15/quarter or \$60 annually) to Alcor Life Extension Foundation, 7895 E. Acoma Dr., Suite 110, Scottsdale, Arizona 85260, or call Marji Klima at (480) 905-1906 ext. 101 with your credit card information.

Or you can pay online via PayPal using the following link: <http://www.alcor.org/BecomeMember/associate.html> (quarterly option is not available this way).

Associate Members can improve their chances of being cryo-preserved in an emergency if they complete and provide us with a Declaration of Intent to be Cryopreserved (<http://www.alcor.org/Library/html/declarationofintent.html>). Financial provisions would still have to be made by you or someone acting for you, but the combination of Associate Membership and Declaration of Intent meets the informed consent requirement and makes it much more likely that we could move ahead in a critical situation.



SCIENTIFIC DIVINITISM: A PROPOSED IMMORTALIST-TRANSHUMANIST LIFE STANCE

By R. Michael Perry



An earlier version of this article appeared in Charles Tandy, ed., *Death and Antideath* vol. 14, Ann Arbor, Mich.: Ria University Press, 187-214 (Chapter 8).

Imagine a number of men in chains, all under sentence of death, some of whom are each day butchered in the sight of the others; those remaining see their own condition in that of their fellows, and looking at each other with grief and despair await their turn. This is an image of the human condition.

– Blaise Pascal, *Pensées*, ca. 1660.¹

You have got to learn how to be gods yourselves ... the same as all gods have done before you, namely, by going from one small degree to another, and from a small capacity to a great one; from grace to grace, from exaltation to exaltation, until you attain to the resurrection of the dead, and are able to dwell in everlasting burnings, and to sit in glory ...

– Joseph Smith, *King Follet Sermon*, 1844.²

OVERVIEW

The future is rushing toward us, and many are concerned about the rapid pace of change. Will it all work to our betterment, maybe in ways we can hardly imagine today, or will something go wrong and much worse things follow? This question is especially acute for those of us who have hopes of radical life extension, for example, through cryonics. We are aiming seriously for a place in a more advanced future that could offer unprecedented opportunities for benefit – or again, something far worse. Our hopes are largely based on technology, nurtured by the progress we have seen and the promise of more that seems to follow. Advanced technology will be necessary for the sort of liberating, magnificent world we hopefully envision, but clearly is not sufficient. In ancient times it was found that fire could warm and protect, but could also burn and destroy, and guidance was needed to further the benefits and diminish the hazards and losses. And so it is today,

all the more, as we approach a future of possibilities never before realized. What sorts of attitudes should we have, to make the most of our approaching future? What matters ought to have central importance in our thoughts and aspirations, to help us make the good choices and shun the bad ones? What follows is one attempt to begin to answer that question. A philosophical outlook is offered, together with some rudiments of suggested practice, the whole together comprising a “life stance,” to try to deal with matters of greatest significance.

INTRODUCTION

We shall be concerned here with a proposed transhumanist life stance that, it is argued, could supplement or substitute for traditional religious faith, in particular providing a rationale for addressing the problem of death scientifically. To this ideology I give the name Scientific Divinitism or Divinitism for short. Divinitism is to be grounded in a world-

view which, though in some respects highly speculative, is nonetheless rational and secular. Divinitism advocates the transition of humans to godlike beings through reason, science, and technology rightly applied. In this process, which I call divinization, aging and now-terminal illnesses will be eliminated and intelligence and sensitivities will undergo progressive enhancement. Other sentient life forms too can and should be helped to similarly transition to greater beings and ultimately even godlike status and divinization also. Divinization, it is imagined, very likely happens over and over in reality as a whole: In universes or suitable worlds creatures make their appearance, starting with unplanned evolution, and, when sufficiently advanced, seize control of their destiny and proceed to divinization. It is all part of a natural process, without the necessity of supernatural or metempirical agents to ensure success.

Life evolves and produces its varied assortment of species and individuals.

It is marvelous yet also is beset with deep problems. These become especially apparent when intelligent creatures such as ourselves emerge. Chief among the difficult problems of life as we perceive it is mortality. Other problems we would like to address but lack adequate means for are currently incurable diseases, poverty, mental deficiencies, crime, and drudgery. Added to these are the various fears, hostilities, and violent tendencies that disfigure our relations with each other, and threaten our world and our survival. Overall people seek to remedy all of these problems and to advance to higher, healthier, and happier beings in a life without end. In short we hope to become godlike, to divinize. *Divinitism* thus seemed an appropriate label of what is herein advocated, as long as it is appreciated that “divinity” can exist in some distributed, naturalistic form without the necessity of extension to a supernatural or metempirical realm.

Divinity in fact is to be viewed as something which naturally manifests itself through sentient beings. It is naturally concentrated as such beings evolve to intelligent status, though the power it engages and confers can also lead to horrific missteps, many of which have painfully occurred throughout our recorded history and are still ongoing. This is not regarded as a fault of divinity itself but as inevitable “turbulence” that occurs in its manifestation – “no gains without pains” – as the saying goes.³ But we may hope divinity will increasingly manifest itself and “dampen the turbulence” as people interact in constructive and mutually respectful and loving ways, thereby seeking to better their lot in accord with enlightened self-interest. So hopefully we will all alike find a flowering and a haven in the sort of world suggested above, where we do in fact become godlike.

Transhumanism is a philosophical movement that advocates the use of science and technology to transform and radically improve the human condition. It carries the logical implication that one would like to become godlike, and that means potentially exist for a serious attempt to do so. Divinitism, as a subspecies of transhumanism, is to focus on the more important, if difficult, tasks one would like to accomplish to become godlike, including an afterlife, resurrection of the dead, and personal immortality. That these hopes are realizable scientifically is not, of

course, here claimed in any dogmatic sense but is offered as a serious suggestion, based on arguments summarized and further developed in an earlier work.⁴

There the prospects of an afterlife are considered from an informational, hence a (type of) reductionist, perspective. The problem of reversing death reduces to one of acquiring sufficient information about the person who lived, so that a functioning copy can be created, a copy being treated as equivalent to an original. Essentially this means that we must determine the brain structure of the person, then reconstitute that structure, informationally – that is to say, recover the mind of that person in some working form.

*“Divinitism advocates
the transition of humans
to godlike beings through
reason, science, and
technology rightly applied.”*

The position that one can survive in a copy, that a copy would not be “just a different person,” is a stumbling block for some and a topic of longstanding philosophical interest and debate. It is addressed somewhat in the work referred to above and elsewhere, for example, [?]. The well-stated point of view of this second reference agrees with what is assumed here (emphasis original): Minds, whose survival is necessary and sufficient for the survival of the associated persons, “are entirely nonphysical and nonspatial, and are merely *instantiated* by physical brains. Being nonphysical in nature, minds are not so much spatially collocated with brains as they are associated with brains, since they are not capable of spatial locations to begin with.” On this basis, then, a mind might be multiply instantiated, which offers possibilities when considering parallel universes or other domains in which multiple copies of something may occur.

I accept the likely failure of archaeology – careful analysis of the remains and other surviving artifacts or records, including methods yet to be developed – to ever reconstruct the crucial database of a long-

vanished person or mind in any adequate form. Indeed, in very many of the more challenging cases it appears that essentially nothing remains of the person who lived, even any indication as to whether they lived at all. The problem at first glance thus seems hopeless – or virtually so, inasmuch as one would have to recreate the missing data by guesswork. I develop arguments, based on the assumption of a multiverse cosmology that in fact such creation of a bit-for-bit accurate copy of the original is nevertheless a realistic future prospect, given some expected technological advances.

The main scenario, a resurrection project which might occur some centuries hence, would start with whatever can be inferred from surviving sources, the “surviving record.” A “timeline cohort” of individuals would then be created which fit the surviving historical/prehistorical record. The creation would be a labor of love, with the expectation that those recreated would, eventually at least, enrich the lives of the resurrectors and make the whole project worthwhile. The cohort created would not be unique but only one of very many similar collections of lost individuals, all of which could be regarded as “authentic” timeline cohorts and parts of our past history, as well as the past history of very many other parallel worlds which are branches in the multiverse whose surviving record is consistent with the cohort information. (Thus the loss of information reflected in the surviving record would have the effect of making the past ambiguous, any cohort being authentic to any parallel universe into which it “fits” without contradiction.) In the process of creating this cohort, similar resurrection projects in parallel branches of the multiverse would create the other variants of the cohort. All the lost cohorts including the individuals within them would be restored to life in the end, each finding an authentic setting in which to continue its conscious existence.

The cohort would reasonably include historical individuals who lived and died and stand in need of rescue from oblivion, and might be extended to cover prehistoric humankind, and other sentient life-forms as well. A resurrection project might in turn require a considerable span of time to carry through in full, and grow to a significant event on the cosmological scale. Other possibilities, more than one

resurrection project or the resurrection of individuals whose details do not fit all the surviving records but who are, in effect, travelers from other worlds than our own, could be considered in due course. Today a popular view is that the universe must eventually either self-destruct or at any rate become inhospitable to life and sentience. The presence of an intelligent, developing civilization able to affect the course of cosmic evolution could change this. If the universe does eventually become inhospitable despite any purposeful efforts to keep it otherwise, all is not lost. The possibility still exists that our whole civilization and any “travelers from afar” we might have resurrected could be recreated in another universe by another civilization, one presumably more advanced than our own with a more hospitable environment to support its efforts. So our labor of love in our acts of resurrecting might be matched and exceeded by this still greater labor, and we would, in time, join our benefactors and help with their work.

A resurrection that focused on all members of a cohort would bring back the “bad” along with the “good” so provision would (I maintain) need to be made for healing rather than annihilating or endlessly punishing the former. In this way a world of happiness, harmony, and mutual unconditional love (agape) might finally take its place. As a desirable habitat sustained by the mutual interest of advanced beings, it might endure in some form for a subjective eternity, for each individual, and for a loving community as a whole, all having evolved, effectively, into gods.

Here we will not dwell further on technical details of the resurrection scenario presented in the earlier work. Instead, with an assumption of the feasibility of resurrection and of radical life extension as starting points, we explore a possible ideology for living life today and confronting problems as we expectedly transition beyond our present level. This ideology, the life stance of Divinitism, will have two components, a Setting or world-view, embracing, the ideas of the manifestation of divinity through natural means (the appearance of sentient life) and of solving problems scientifically, extending ultimately to the problem of death. In addition there will be a Praxis, a plan or suggestion for living one’s life here and now. Our Praxis will center around

the Eightfold Path of Buddhism, but with a transhumanist cast. It will touch on one idea in particular which is so far the province of a small minority but is gaining acceptance. This is biostatic preservation of people dying today for the prospect of a relatively early revival (not the only possible revival) in a world where their diseases and disabilities, including old age, can be remedied. (Once this milestone is reached, that is to say, radical life extension in states of good health, the path is open for further advances.)

“A resurrection that focused on all members of a cohort would bring back the ‘bad’ along with the ‘good’ so provision would...need to be made for healing rather than annihilating or endlessly punishing the former.”

In the present work we first consider a historical perspective, touching on how Divinitism can be seen as an outgrowth of various other life stance traditions including religious movements. The next section, on Setting, presents the worldview of Divinitism, which is nonsupernaturalist yet still offers hope of an afterlife. In the next section, covering Praxis, we see how Divinitism might be treated as a variant of Buddhism, with adherence to the Eightfold Path adapted to the outlook offered under Setting. After this we consider some interesting comparisons of Divinitism with other religion-related traditions: Mormonism, Buddhism, Spiritism, and Frank Tipler’s Omega Point Theory. Next is a defense of Divinitism against a good-natured skeptical inquirer, presented as a dialogue. Some concluding remarks address the issue of whether Divinitism is likely to be taken seriously. Other life stances have their advocates, and one hopes this one will find a following also – and more than that. Present prospects for this may be limited, however, due to the perceived importance of cryonics (the principal means now in use for biostatic preservation) in Divinitism

versus the public’s slow acceptance of the practice.

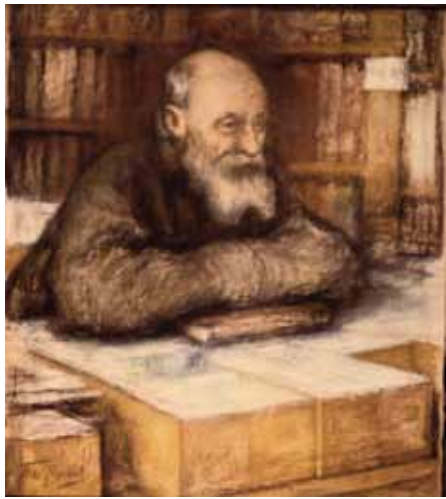
HISTORICAL PERSPECTIVE⁶

Traditionally hopes for immortality rested in the miraculous. These hopes did not seem unreasonable – evidence of miracles could be seen everywhere. Wind; rain; fire; the rising and setting of the sun, moon, and stars; the coming and going of the seasons; life in all its variety and complexity – all suggested the workings of a vast intelligence with powers beyond comprehension. There surely must be advanced beings, superhuman agents, able to create all that could be seen that was so little understood. Later there were major religious movements that combined all the causative elements into one supreme being or God. God made the world and set it in order, and God continued to shape events through conscious intervention. Among other things, God was appealed to in times of need, especially for problems that seemed utterly insoluble otherwise, such as death. All things, of course, were possible to God, whose stupendous workings were evidence enough.

With the rise of modern science, however, understanding the phenomena of existence at last became the province of reason more than faith. Many things, it was seen, could be explained without invoking any miraculous element. These ranged from astronomical events down to earthly weather and the functioning of biological organisms and tentatively included even mental activity. Increasingly, thoughtful people began to question the existence of a God or some other supernatural means of combating death. Skeptical thinkers increasingly abandoned the idea that there was any afterlife or hope for continuance of consciousness beyond the cessation of vital functions in the body.

There were a few, however, who tried to reconcile religion-based hopes with a scientific outlook. The upshot was that humankind would have to act. Notable among these thinkers was the Russian scientific religious philosopher Nikolai F. Fedorov, who imagined that resurrection of the dead should become possible someday, based on Newtonian physics. Fedorov, a Christian, saw a deep religious significance in the resurrection possibility and proclaimed it as a Common Task worthy of and demanding our sincere efforts,

whenever it should become possible. All should be restored to life and all would live together in peace, harmony and love, fulfilling a Christian ideal, with evil people being cured of malevolent tendencies which could be seen as forms of mental illness.⁷



Nikolai F. Fedorov, painting by Leonid Pasternak

A Russian movement known as Cosmism was born with the tentative premise that the promises of traditional religion might be fulfilled, at least in significant part, through scientific advances. Eventually such thinking appeared elsewhere including the United States, where it took the name transhumanism. Frank Tipler, a physicist, argued the case for a resurrection scenario based on modern physics in what he called his Omega Point Theory.⁸ A related though distinct philosophical outlook with a prospect for resurrection through technology was developed by R. Michael Perry and given the name Universal Immortalism.⁹ (Divinitism in fact is an attempt to refine and develop Universal Immortalism.) Other, less ambitious but still science-based thinking gave rise to humanism, with the focus on making the most of this life without hopes of the conquest of death or an afterlife.¹⁰

LIFE STANCE VERSUS RELIGION

Harry Stopes-Roe (1924-2014) was a British philosopher known mainly for his role in the humanist movement in Britain. His work led him to seek a non-religious basis for morality which in turn, it might be said, is rooted in concerns about what is of ultimate significance, which in turn is often thought to be the province of religion.¹¹ In

1976 he suggested adopting the term *life stance* (already in some use) in an effort to avoid misunderstandings associated with *religion*.¹² In a follow-up article (1988) he wrote (quoted from a Wikipedia article, also referenced later¹³):

“Humanists are divided into two camps... according to how they respond to the word ‘religion’. Do they... respond negatively or positively? The ferocity of the antipathy on the one hand, and the power of the concern on the other, that is generated by this word quite obliterates reasoned discussion of many substantial and important questions on how we should develop Humanism. Likewise, our discussions with the god-religious are confused and frustrated. We need a new term for the idea and ideal of religion, opened out so that it is not discriminatory. Let this be ‘life stance’. Could we, perhaps, bury the hatchet of ‘religion’ and work together?”

In his 1976 article Stopes-Roe offers, as a brief definition of *life stance*, “Whatever the individual finds to be involved in his response to ultimacy.” A more elaborate definition might be the following: “A life stance is a state of being grasped by an ultimate concern, a concern which qualifies all other concerns as preliminary and which contains within itself the answer to the question of the meaning of one’s life.” Perhaps this is a bit strong, however, and might be toned down as in the Wikipedia article: “A person’s life stance, or *lifestance*, is their relation with what they accept as being of ultimate importance. It involves the presuppositions and theories upon which such a stance could be made, a belief system, and a commitment to potentially working it out in one’s life.”

In fact the second, strongest definition is essentially the definition of religion given by Protestant liberal theologian Paul Tillich.¹⁴ And indeed, a life stance may be “religious,” as the Wikipedia article affirms. Yet not all life stances fit this requirement, at least as “religion” is generally understood today, in which there is some belief in supernatural or other metempirical elements to accompany the life stance. Tillich’s definition of religion makes no reference to such metempirical elements. One might have a perfectly atheistic religion, for instance – with a careful and sincere effort put toward working out what one should regard as being of “ultimate concern” and how to respond to this interest in the course of

living one’s life. But Tillich’s point of view is something of an outlier, as far as I can tell (after some effort to promote and defend it) so the more generic term of life stance seems appropriate for what I am calling Divinitism. (This does not, of course, preclude regarding Divinitism as a religion, but does not demand it either.)

“The endless existence should also be endlessly progressing, and each person will have ample, rewarding work in developing and helping others develop to higher levels.”

A religion, as more usually understood, has been described as combining two elements, a *Mythos* – mystical or metempirical elements, including, for example, belief in a supreme being or God – and a *Logos* – the rational, logical, and scientific theories and practices that accompany the *Mythos*.¹⁵ The *Mythos*, then, provides an overarching world-view, which is fleshed out by the *Logos* that determines how adherents are to participate. For a life stance I propose a variation of this basic framework: *Setting*, not necessarily mystical or metempirical, is to provide the worldview. *Praxis* will cover the day-to-day practices and accompanying knowledge and theories that determine participation. *Setting* and *Praxis*, in the more generalized life stance, correspond to *Mythos* and *Logos* in a religion. In this way Divinitism, as one case in point, can be “like” a religion but not actually what most people think of as a “real” religion, with its mystical, supra-rational elements.

THE SETTING: A LONG, HOPEFUL VIEW

The Setting of Divinitism can be stated in a few principles. Much of it is highly speculative, and it is not offered as a dogma. But it also, I hope, can be taken seriously as something open to rational, scientific, and philosophical investigation, and can meanwhile inspire us.

1. Reality as a whole is a steady-state object, with universes or worlds

within it forming and dissipating or transforming themselves in endless profusion. The evolution of worlds follows laws of physics. There is no necessity of invoking any metempirical agent or process. From the standpoint of a hypothetical extraneous observer who is not part of the process it might appear that “nothing is permanent” – yet an observer who is involved and present in one of the evolving worlds might see things quite differently. By analogy, someone watching an upward-moving escalator from a fixed vantage point outside it will have an impression of steps going by endlessly and repetitiously as people get on, go up a ways, and are lost from sight. Others meanwhile get on the ever-moving track and replace those who are lost to sight. A very different impression will be had by one who is riding the escalator. The steps underneath the observer appear fixed. Others nearby who are also on the escalator engage in pleasant conversation – life goes on. There is no replacement of individuals by others, so long as the ride continues. Objects in the surrounding space outside the escalator appear above and forward, pass by on one side or the other, and recede into the distance below and behind.

2. Suitable worlds give rise to sentient life forms which develop through natural selection and, at least in some cases, finally give rise to an intelligent species. The intelligent species in turn, perceives the inadequacy of life from its own point of view, through the presence of death and suffering in particular, and seeks a remedy. At first it may conjure up the thought, elaborated into various doctrines, that a higher power or powers – a supernatural Agency – has shaped the world, and accordingly should be appealed to in an effort to remedy the evident shortcomings. Later (or concurrently) a viewpoint may develop that death at least is something unchanging and unalterable, so that one must make

peace with it and try to optimize what is seen as a necessarily brief existence.

3. The intelligent species eventually develops enough scientific knowledge and technology to raise the question of whether death can be conquered scientifically. We are at this stage now. A small movement called cryonics has come into existence in which the recently deceased are stored at cryogenic temperatures in hopes that developing technology will provide the means to revive and restore them to healthy consciousness in a world where aging and now-terminal illnesses are curable. More generally, transhumanists today anticipate a time, perhaps a few decades or a century or so from now, when radical extension of the human lifespan will be possible with options for enhancement of intelligence along with improvements in compassion and other positive characteristics.
4. Taking a longer view, the main goals of traditional religions (especially Western), including an endless, rewarding existence for each individual, should be achievable through rational means rightly applied. The endless existence should also be endlessly progressing, and each person will have ample, rewarding work in developing and helping others develop to higher levels. With a suitable notion of what constitutes personhood and personal survival, the dead should be resurrectable to take their place in the developing civilization. Evil persons will be cured of their moral afflictions along with any other maladies to join the advance, along with nonhuman sentient creatures, all in due course. Cosmic limitations may seem to preclude an endless existence or true, mathematical immortality but any barriers to this can hopefully be circumvented in the eons that will be available for the task. The fate of the cosmos may well depend on the conduct of intelligent creatures within it. An endlessly developing civilization

in some form does not preclude the steady-state nature of reality as a whole, in which whole universes are forming and also dissipating. It is not precluded that an individual could exist beyond the collapse of a universe in which that individual was at some point instantiated, since instantiations are multiple.

5. Other civilizations throughout reality as a whole must also be developing and pursuing paths comparable to ours. Some no doubt will have developed far beyond our level. Some may be in our own universe and may contact us at some point (though empirical evidence does not seem to support claims that such contact has already occurred). But that there are beings somewhere who are already godlike is not precluded, and indeed, is expected. Yet here in our world, barring evidence to the contrary that does not seem to exist, our work in elevating ourselves must truly be our own.

THE PRAXIS: A BUDDHISTIC APPROACH¹⁶

Besides a Setting or worldview, Divinitism is to offer a Praxis with a plan of action informed by what, in this case, is a growing body of scientific knowledge and technological expertise. The ground that must be covered in the Praxis ranges from the day-to-day affairs of each individual to larger enterprises such as research projects in many fields. Only some bare suggestions can be offered here as a starting point.

There is, in fact, an ancient tradition that has already pioneered an approach to life that would serve as such a starting point. This is Buddhism. Buddhism is usually classed as a religion and is said to have at least some mystical elements inasmuch as there is a belief in reincarnation and perhaps some other beliefs about a spirit world. Yet it is grounded strongly in the idea that each person charts his or her own path to nirvana, the Buddhist notion of “salvation,” and the mystical elements are subdued, or in some versions, absent altogether. The Divinitist Praxis will be a modification of the very simple Buddhist Praxis involving the Four Noble Truths and the Eightfold Path.



The Buddha

THE FOUR NOBLE TRUTHS (DIVINITIST VERSION):

1. Life incorporates a mixture of pain, hardship and unsatisfying experiences (*dukkha*) and also rewards or benefits (*sukha*). One likes to eliminate or minimize the former and optimize or maximize the latter.
2. The cause of *dukkha* is inappropriate attachments. Appropriate attachments instead lead to *sukha*.
3. Thus one is concerned with eliminating the inappropriate attachments and cultivating and enhancing the appropriate attachments.
4. These twin objectives can be achieved using the Eightfold Path:
 - i. Right understanding.
 - ii. Right aspirations.
 - iii. Right communication.
 - iv. Right occupation.
 - v. Right effort.
 - vi. Right action.
 - vii. Right mindfulness
 - viii. Right concentration.

Overall Divinitism, like its more traditional Buddhist counterpart, proposes to *put the aspirant to work* to achieve a

desired goal. In the case of Divinitism the “goal” is open-ended and might be described as endless progress or *pragata*, in which one advances to greater and greater status: greater knowledge, greater satisfaction, greater compassion, greater enlightenment. There is no point at which one is “finished” and not open to further advancement. Life always has meaning and is always worth continuing. It is also assumed that as one advances memories of earlier experiences are retained and become part of a growing archive. To seek endless *pragata* is, of course, a highly appropriate attachment if pursued in a proper manner. *Pragata* in the end must overcome and supersede *samsara*, the endless round of suffering, death and replacement by others which is now the lot of earthly creatures with their limited advancement.

As for here and now: the Divinitist might closely follow current Buddhist practice for many of the day-to-day activities, practicing virtuous conduct, showing compassion, helping others, and using moderation in simple enjoyments. Overall, the Divinitist should also have a positive outlook on scientific progress to improve the human condition and eventually halt aging and now-terminal diseases, along with eliminating such sources of misery as poverty and crime. This support should take tangible forms which might include choices of career or monetary contributions. Here there is not space to go into much detail. But one issue does deserve special mention.

In the 1960s a practice was started called cryonics, in which the recently deceased were stored indefinitely at cryogenic temperature, halting the process of deterioration. The hope was that at some future date the progress of technology would allow those who apparently were dead to be restored to a functioning, healthy state. Cryonics thus provided a possible escape from the physical destruction of the body that otherwise must follow the usual course of life of a few decades. Cryonics unfortunately is both expensive and unproven, and its adherents relatively few. Yet cryonics, and by extension, other possible means of biostasis or halting tissue deterioration after clinical death, can be rationalized as a Divinitist practice aimed at overcoming death scientifically.¹⁷

An interesting issue is raised, inasmuch as Divinitism holds that eventually the dead will be raised anyway, thus apparently

an expensive practice like cryonics might be superfluous, however well it works. Being a cryonicist even in the face of this “superfluity” has been defended on grounds that one would like to return sooner with less disruption. One could then take part in a larger amount of the historical process which is the essence of living, doing more good in an overall, worthy cause, benefiting others in ways that would not otherwise be possible, and gaining reciprocal rewards and enlightenment thereby.

COMPARISON WITH OTHER TRADITIONS

For better insight it is useful to compare Divinitism with more traditional attempts to address the problems of death and the meaning of life. Three interesting possibilities which we consider are Mormonism, Buddhism, and Spiritism. In addition we shall examine Frank Tipler’s Omega Point Theory which has clear affinities to Divinitism though differences also.

Mormonism. The quote at the beginning from the Mormon prophet and founder Joseph Smith offers a remarkable anticipation of the main tenets of Divinitism. We must *learn* to become gods, he says. We must progress, “going from one small degree to another, and from a small capacity to a great one; from grace to grace, from exaltation to exaltation.” Finally we “attain to the resurrection of the dead,” and are “able to dwell in everlasting burnings, and to sit in glory ...” In one other respect Divinitism is compatible with Smith’s view: others before us have become gods. Such gods actually amount to advanced extraterrestrials who may be in other universes or closer to home. (There are other exotic possibilities too, such as ourselves and our whole universe being in a computer simulation of some very advanced civilization, where a “sysop” would in effect be our god.) But the gods, wherever they are, do not appear ready to help us in any way that we can influence. Perhaps they are too far away and unaware of us, or if not, they presumably have their own reasons for noninvolvement. We must fend for ourselves, though the manifesting of divinity as we do so should lead to a happy outcome. Gods we will hopefully “see” someday (various possibilities exist) but not until we are further along in our own divinization.

Buddhism. Buddhism, as we have seen, is at the heart of the Praxis of Divinitism – indeed perhaps Divinitism should be considered a version of Buddhism. It is a hopeful variant in any case, stressing the attainment of sukha along with elimination of dukkha and not denying that the person has permanence. The goal of Divinitism can be described as pragata or (endless) progress, rather than a final nirvana or “extinction of craving” as in traditional Buddhism. The “impermanence of all things” of Buddhism is not total in Divinitism. Material things may indeed be impermanent. But we hope that all sentient beings will be permanent and eternal in a reasonable (informational) sense though eternally progressing and not stagnating or staying “the same” forever. So in many ways we must change as we reach ever higher levels under pragata, even though some things should stay the same (information in memory archives for instance, even if on occasion it must be recreated).

Spiritism. Spiritism is a movement that developed in the nineteenth century. Its principal exponent was the French educator Hippolyte Leon Denizard Rivail, who wrote under the pen name of Allan Kardec.¹⁸ It postulates that humans are essentially immortal spirits who temporarily inhabit physical bodies, passing through various incarnations until necessary moral and intellectual enlightenment is attained. Through passive or active mediumship spirits can have good or bad effects on the world, and – most important for answering skeptics – the existence of the spirit world can be scientifically verified. (The scientific community at large has not accepted the alleged verifications, however.) Divinitism similarly posits that sentient beings are essentially immortal phenomena that will pass through stages of endless moral and intellectual progress, possibly including “reincarnation” in a resurrection project. (More than one such resurrection is also possible, and might be necessary – death could happen more than once and need to be overcome.) Divinitism does not, of course, make any claims of present-day verification beyond what most scientists would accept.

Omega Point Theory. In his book, *The Physics of Immortality*, physicist Frank Tipler imagines a future scenario in which the universe collapses in such a way that infinite subjective time will be

experienced by observers inside, before the collapse occurs. Shorter and shorter scales of distance that occur during the collapse lead to speedup of basic processes including computation and sentience. Along with the speedup, photons from past events will come streaming back toward observers to enable information retrieval that otherwise is impossible and make resurrections feasible through advanced archaeology. Divinitism, like Tipler’s self-named Omega Point Theory, is to be purely physics-based and thus owes a considerable debt to Tipler’s pioneering ideas. But it posits a different mechanism for resurrections, assuming there is no Tiplerian information-friendly collapse (a doubtful prospect in the minds of most physicists). It differs in other ways, for example having an explicit Praxis based around Buddhism. (Tipler’s scenario is slanted toward Western-style theism, though not offering an explicit Praxis.) In addition Divinitism emphasizes, in a way that Omega Point Theory does not, that our civilization today can evolve and be the principal vehicle for our own divinization, including resurrections of past individuals. Moreover, we have a special opportunity ourselves, today, to participate in this process through cryonics.

SOME QUESTIONS ADDRESSED

Here we imagine a good-natured skeptic and sometime devil’s advocate S engaging with a Divinitist D on the main tenets and implications of the proposed life stance. Some of S’s argumentation is based on the opening chapter of *Heaven and Hell* by Allan Kardec, an exposition of Spiritist doctrines.

S. Let me see if I understand you right. Divinitism you say is based in the natural world, no supernatural or other scientifically unverified beings or properties, just physics. Yet you have something you call divinity, which you say, is “manifest”? This sounds like Pantheism to me.

D. Manifesting, rather than *already* fully manifest. The manifesting of divinity is a progressive effect, going from lesser to greater with advancing time. As for Pantheism, yes, Divinitism might be called a version of that, though we don’t say there is a God in the usually understood sense, unlike some who style themselves “Pantheists.” Instead we refer to it – our “Ordering Principle” if you will – as just divinity, to avoid misunderstandings with theists who might think we are talking

about a personal God. You could also think of divinity as holy spirit, in contrast to *the* Holy Spirit, something that pervades and inspires the good-acting beings but is not a being itself.

S. So, are you saying there is no God, I mean the personal variety, which *is* a being?

D. We are not dogmatic. We think one’s opinions on things should be apportioned to the evidence. On this basis, a large fraction of us doubt the existence of a personal God. However, each of us is free to form whatever opinion appears to be warranted, and not all will agree, even when motivated, as they sincerely think, by pure reason and logic. But we do think that we must work on and work out our own destiny. Any help that we might get along the way is appreciated, whatever being or beings might be involved – but if it doesn’t come, well, we are prepared for that also.

S. Still, though, you speak of divinity, which suggests a perfect Whole.

D. Perfect, in the limit of time, otherwise always perfecting and improving. A Supreme Becoming rather than a Supreme Being. Or another way of looking at it is that divinity is, in and of itself, a perfect Principle, but its manifestation in a universe is a process that unfolds over time and thus will have its ups and downs, its imperfections, successes, and failures.

S. And this divinity also “manifests itself,” as you say, in many alternate worlds?

D. Yes, and, we think, over and over; it has happened and will happen again, if time has any meaning on a scale beyond single universes. Either way you’d still have a multiplicity of manifestations.

S. But isn’t this divinity, as it applies to any one universe, ours in particular, at all times made up of those beings, with all their foibles and sins?

D. Not exactly “made up,” but something that you can think of as manifesting itself, once again, with gradually increasing effectiveness, first as biological evolution, or something like it, then advancing civilization, gives rise to improved varieties of sentience. We are hoping, of course, that this for us will have a happy outcome. We’re not perfect now, just trying to do better.

S. Well, I think many would say you have your work cut out. Some people today are hardly “trying to do better” by most people’s standards, and are making the news. What are you doing about them, or what are your plans?

D. So far we are very few and even if we were many we don't say we could work miracles. But we think the world will get better overall and we think ways will be found for managing problematic people.

S. And everybody's coming back someday, even the worst along with the best?

D. Evil is caused by blindness, our great sage and forerunner Fedorov said. We think evil is a curable affliction, not an identity determiner. In the great advance we anticipate, with all people coming back, even the worst will become good, though the process for them may be long and hard. But finite minds can only do a finite amount of wrong in a finite time, and a finite wrong at most deserves a finite punishment.

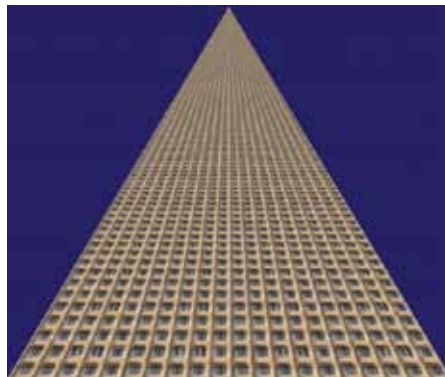
S. Some of course will just doubt you can ever raise the dead. The physicist for instance will say that you can't get people back who have crumbled to dust, the information is lost, the process is irreversible, thermodynamics is against you.

D. We propose to recreate people when the information is lost. We would use intelligent guesswork where needed to fill out the missing information, and depend on similar processes in parallel branches of reality to see to it that every lost version of everybody comes back in some appropriate setting. Thermodynamics is still intact. We aren't proposing to "reverse" any process where information is lost, not at the single-universe level. But at the multiverse level you have conflicting histories so there's really less information overall than would exist in a single branch, if you didn't have the information loss. So overall you don't create information in your resurrection, but at the single-branch level you do.

S. Yay! Seriously, all that sounds impressive enough, if you can pull it off – which of course remains to be seen. But then there's the issue of where are you going to put all these people, not to mention the sentient nonhumans.

D. It's a big universe, and we don't see any occupancy yet by other life than our own. Beyond that, given that even the universe has limits, we should have a long time to work on the problem. Maybe reality as a whole is something like the Hilbert Hotel which can always accommodate new guests even when all its rooms are occupied due to its having infinitely many rooms: Each guest can just move over to the next room and vacate the room they currently occupy,

so the first room in the collection becomes empty and available for a new occupant. You could also vacate every other room, to make an infinite collection of vacancies and still accommodate all the existing guests, and so on.¹⁹ Once again, we will have a long time to work this out – and lots of space too.



With its infinitely many rooms, the Hilbert Hotel can always accommodate new guests, even when full.

S. Indeed. Well, then, will we preserve our individuality in the great advance you hope for, or lose it by absorption in a general Whole?

D. I like very much to think that individuality will persist but in a world that also becomes a harmonious whole. What actually happens will be determined by ourselves as we advance, and I would expect that mutual respect and love will prevail, once we can get past some initial hurdles.

S. But – all right, I'll concede for the sake of argument that your "advancing beings" will keep their individuality. But doesn't that involve you in a difficulty? Your impersonal divinity can certainly have no unitary will. It is just an amalgam of myriads of divergent individualities. Besides, since each soul is an integral part of the divinity, no soul is subjected to the sway of any power superior to itself.

D. No, that's certainly not true. The "souls" or sentient beings will form an advancing community. Some will have higher status than others and more privileges and freedom, but all will be subject to the community as a whole and pressure back and forth from each other.

S. Okay, at least each person has some controls over what might in some cases degenerate into bad conduct.

D. And I think that, as advances are made in a world of abundance

without aging and disease, there will be considerable motivation for each person to have harmonious relations with others, more benefit should follow in that way to the individual than would occur through alternatives. Tendencies toward bad conduct will not be immutable and will increasingly diminish.

S. What about your Praxis, what you propose as a standard of conduct for here and now?

D. For a number of reasons, Buddhism seemed to offer a good model for that. Maybe "Buddhism without beliefs," without, that is, any belief in mystical or metempirical elements.

S. Well, you do have some beliefs, or hopes at any rate, that are rather "out there," one might say almost mystical: parallel universes, eventual recreation of past persons, and so on.

D. Divinitism has to meet the twin goals of being scientifically rational on one hand, yet, on the other, offering a serious hope of an afterlife and immortality.

S. Not an easy combination.

D. No, but I think a possible combination, if you think about it carefully.

S. All right, I won't contest this point for now, though I'm not fully convinced. But I do want to bring up one other issue, about cryonics. You have said yourself that this practice, which is both expensive and uncertain, might be considered superfluous if everybody is coming back anyway. Yet you still advocate it. Somehow it will lead to "more rewards and more enlightenment" if it works. Can you elaborate on that?

D. Yes. But I want to start with a little background. Today we have a tough situation in the world. Cryonics has not garnered much public support, and *is* expensive, yet certain scientists who have taken a hard look say its chances of working are good or at least worth taking seriously.²⁰ I have to say myself that I think its chances are good, despite the fact that no large organism has been resuscitated from a cryopreserved state yet. What we *can* verify is that tissue including brain ultrastructure that ought to encode the critical features of a person's identity, seems to be well preserved by the techniques that are used. On the other hand, think about future technology. What ought to become possible? What do you think?

S. Er – I don't know, but I think maybe you're working up to the idea of

nanotechnology, doing things at a very fine scale. I've heard about that, and the promise it seems to offer for a lot of things. I don't think it's a slam-dunk, but I'll go along with the idea that it *could* be perfected – maybe. Then I guess you could work on your super-chilled brain tissue, and all that?

D. Yes, exactly. And it ought to be possible to do the necessary restructuring, rebuilding, whatever, to get the brain and everything else going again. In short, the patient would recover and could walk away in perfect health. So on this basis, it's hard to take the position that cryonics should *not* be used. You can think of it as a kind of experimental medicine that does definitely offer hope of saving the life of the patient, when other treatments have not worked and the doctor is ready to give up.

S. Yes, I see where you're coming from. Heart transplantation is something that's expensive also, yet it's used when it can be. But there, of course, you have verification that it works, some of the time at least. For cryonics it requires a leap of faith.

D. Yes, I can't deny it, however the evidence seems compelling to some of us, so we advocate it, much as we would a more conventional medical procedure, like, as you say, a heart transplant under the right circumstances. I will say too that we are looking into lower-cost methods that might accomplish the same thing or something close. Storing the genome with a "mindfile" of recorded past experiences might make it possible to substantially recreate the person as they were, for instance, at much less cost,²¹ though there are tough issues there that are not yet resolved. But that brings us back to what I think is your main question, why bother with trying to extend a life by an expensive, unproven method, or even a cheaper, unproven one, when you expect to get everybody back someday in a general resurrection?

S. Yes. As far as I can see, does it really matter *when* you come back as long as you do in fact come back?

D. Yes, it does. When you come back, the circumstances do definitely determine what future history you will live through, what you will do, what memories you will accumulate for later inspection and reflection. Divinitism strongly promotes the idea that doing good in the world is a good thing *for you in turn*, and better than just indifference. You can get by if your idea of helping others is nothing more than "not

interfering" but it's better to go further and be proactive – carefully, of course. It's better to cultivate an attitude of wanting to do something that others will appreciate, and actually doing it, and this policy should be more beneficial to *you*, at least in the long run, than just noninvolvement – for others should respond in turn. So, do you want to play a proactive part in shaping the future, something that would be furthered by an earlier return as to be expected with cryonics? Yes, you should want this, to have better memories to look back on later and probably gain a privileged position you would lack if you were a later re-arrival.

S. Well, you talk about "doing good," but if the future is going to be so great anyway, what good could you do that hadn't been done already? I mean, you've got immortality, perfect health, wealth probably, or no need of it, and so on.

D. No, there will always be a need to do something more, and interactions with others should have significance. So, while it's hard for us today to imagine some of the things we might be doing as we advance beyond where we are now, still there should be plenty of scope for "doing good" even if our basic needs are provided for, as you say. Just keeping ourselves going will be an unending need, and we will need good reasons to keep going. We will always have a spiritual hunger that no amount of merely material goods and services can satisfy. But some specifics come to mind also, that are not so hard to grasp and may be important.

S. What do you have in mind?

D. One thing would be just a resurrection project. If you are going to recreate past persons with all their ways of thinking and acting, how would you bring them into a world that even we today find hard to imagine? There would be a big need for the resurrectors to put forth an effort, and revived cryonics patients could take part in this labor of love, as we imagine it would be. Much later, you could reminisce about these times and you should have happy memories of those you helped who were less fortunate than you. This of course would not be possible in the same way if you were just a benefiter yourself rather than a benefactor. You know the old saying, it's more blessed to give than to receive.²²

S. Yes, but isn't it really a rather subtle point?

D. Maybe not so subtle as the future unfolds. We will arguably continue to value

what is hard to get, over a wide spectrum, much as we have always done, and once the opportunity is passed, it won't come back.

S. Well, this has been informative and I wish the best in your benevolent efforts.

D. Thanks, it's been my pleasure.

AFTERTHOUGHTS

Who, we ask, will take Divinitism seriously and endorse it, beyond a handful of aficionados who now are attracted to similar ideas? The biggest stumbling block is probably not the metaphysics (multiple universes and such, and the general resurrection) but the emphasis on the use of biostasis right now to try to reverse clinical death. Acceptance of that idea has been slow in coming – cryonics has been in existence for half a century and still is only pursued by a tiny minority (a few thousand people worldwide). People like to say they will consider it "when the process is perfected" yet there isn't much effort to put funds to use toward this end. People are reluctant to admit that cryonics should be taken seriously at all, in any positive sense, despite any scientific arguments in its favor. And indeed, it would turn the world on its ear if death is not really death because people can have this extra, realistic chance at living on. So in the meantime the best we can expect may be the usual slow progress. If Divinitism is not to become a mass movement, maybe its ideas can still serve as food for thought as to how the important promises of religion could be realized scientifically. ■

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ENDNOTES

1. [Pa].
 2. [Sm].
 3. [F].
 4. [P2] (has additional references).
 5. [WK].
 6. This section is adapted from [P1], ch. 10; see also [T].
 7. See, for example, [P1], 32.
 8. [T].
 9. [P1].
 10. [W1].
 11. [W2].
 12. [SR1].
 13. [W3].
 14. [TI].
 15. [A].
 16. [W4], [W5].
 17. [P1] ch. 2; [SD]; [SOL].
 18. [W6], [K].
 19. See, for example, [H].
 20. [SD]; [SOL].
 21. See, for example, [L].
 22. Acts 20:35.
- I thank Ronald Putirka for his interest in this project and for proposing that I use "life stance" rather than "religion" (à la Tillich) as a term of reference.

JoAnn Martin (A-1151) becomes Alcor's 151st patient on May 25, 2017

JoAnn Martin (A-1151), the wife of former Alcor Board Member Saul Kent, was pronounced on May 25, 2017 at 11:04 in Riverside, California. She is a public, whole body member.

JoAnn was initially taken by ambulance to the ER, accompanied by her nurse, around 14:30 PT on May 24th with generalized pain and shortness of breath. She was stabilized and doctors attempted to determine the cause of her symptoms, running tests, performing scans and monitoring her. Her vitals were good and she was able to talk through that evening. On May 25th at 03:45, The Chief Operating Officer of Alcor's cryonics stabilization and transport contractor, Suspended Animation, Inc., Catherine Baldwin contacted Alcor's Director of Medical Response, Josh Lado.

Catherine stated JoAnn was in grave condition and informed him that Suspended Animation (SA) would be starting a standby immediately at the hospital. At the hospital, JoAnn twice went into cardiac arrest and was revived

twice. After a neurological evaluation, it was decided that additional resuscitation attempts would not be made if cardiac arrest occurred again. She was pronounced legally deceased following another cardiac arrest at 11:04. Stabilization was started immediately by SA. Transport was set up by Catherine by private plane to transport JoAnn directly to Scottsdale.

JoAnn arrived in Scottsdale at 14:25 and was transferred to Alcor. Surgery started at 14:46. The surgeon accessed the aorta and vena cava. Washout was attempted with B1 solution but there was no return through the vena cava. The surgeon attempted to re-cannulate both vessels with no success. Phone calls were made to Alcor's Chief Medical Advisor, Dr. Harris, and a consulting scientist. They made suggestions to ensure adequate suction in the venous drainage line, and open the abdomen and attempt to find a possible abdominal aortic aneurysm.

The surgeon was not able to find any tears or abnormalities in the aorta. The intestines and stomach were filled with B1 solution

and were not draining. Jugular veins were accessed to see if B1 solution was making it to the brain. None was observed by the surgeon. It was decided the best course of action for this patient was to move to field neuro cryoprotection and try to perfuse the brain only. Field neuro was set up and started at 17:10. All 12 bags were flowed in and perfusion ended at 23:51.

JoAnn was moved into the cooldown box and the computer-assisted cooldown began. On Saturday June 3rd, she was at -80 C. She was brought out and placed in a sleeping bag and a dry ice shipping box with dry ice covering her. She was transported to a medical imaging center in North Scottsdale for CT scanning. Her head, torso, and abdomen were scanned. Once finished, she was transported back to Alcor and placed in a patient pod and lowered into a single-patient cooldown dewar. The computer-assisted cooldown for liquid nitrogen was started and has been completed at time of writing. ■

Robert Whitaker (A-1649) becomes Alcor's 152nd patient on June 4, 2017

Robert Whitaker (A-1649), a public, neuro member, was pronounced on June 3, 2017 in Columbia, SC and became Alcor's 152nd patient on June 4, 2017.

On Saturday June 3rd at 16:25, Medical Response Director Josh Lado received a Telemed alert that Robert Whitaker was found clinically deceased at home. His personal assistant had gone out shopping and when she arrived home, she found Robert. She immediately called Alcor's emergency line. When Josh contacted her, he directed her to immediately call 911 and report Robert's condition. He then called Alcor president Max More to discuss what could be done.

It was decided to do our best given the situation, which was to complete a field neuro cryoprotection. Working with the Lexington County Deputy Coroner and Pathologist, Josh was able to coordinate Robert being taken to the hospital morgue where the entire field neuro procedure could be done as soon as Josh and Steve Graber, Alcor's Technical and Readiness Coordinator, arrived the following day.

Josh and Steve left Phoenix, AZ just before midnight and arrived in Columbia, SC Sunday morning. At the hospital they were able to start surgery just after 09:30 AZ time. Surgery went well and perfusion went better than expected. Good flow was

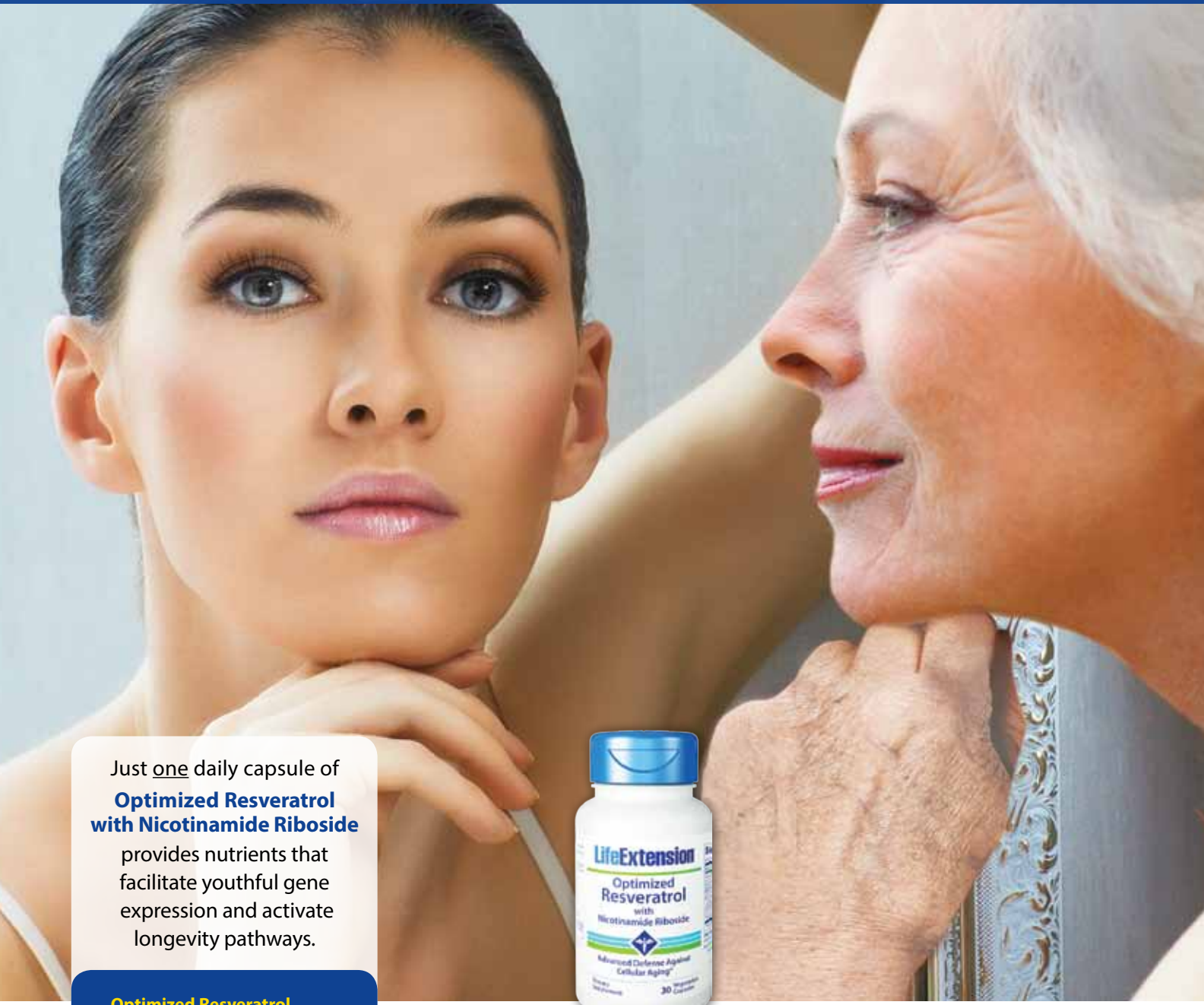
established and all bags were finished at 12:50 AZ time.

Robert was placed into the neuro dry ice box shipper for immediate cooldown to dry ice temperature. Additional dry ice was added that night and again in the morning before shipment. He was transported back to Scottsdale, arriving Monday morning. He was placed into a (small) cooldown dewar on Wednesday morning as cooldown needed to be completed for the previous Alcor patient. Robert will continue to cool and a CT scan will be performed before he is placed in a Bigfoot dewar. ■

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Progress in SENS Rejuvenation Research Over the Past 15 Years

By Reason



Reforming and rebuilding an entire field of medical research and development isn't an easy task, and sadly nor is it something that can be achieved overnight. A comprehensive reformation of the aging research community is nonetheless the goal of the SENS initiative, the Strategies for Engineered Negligible Senescence - a way to build rejuvenation therapies that work by repairing forms of cell and tissue damage that cause aging. SENS came into being precisely because aging research was not heading in the right direction: researchers were not attempting to treat aging as a medical condition, influential figures were in fact actively suppressing any sort of impetus in that direction, and where there were glimmerings of hope in the form of a few scientists interested in intervening in the aging process, these individuals were focused on strategies that could not possibly do more than slightly slow down age-related degeneration.

Over the past fifteen years SENS has progressed from a position statement and a vision for the end of aging, a set of ideas and supporting evidence only, to a modestly sized set of research programs that are now producing results, several non-profit foundations, a web of relationships with an outsized influence on the research community, and the clinical development of the first rejuvenation therapies. SENS has come a long way from the first meetings of a few like-minded researchers and advocates, just after the turn of the century. Now

many researchers are openly talking about the causes of aging and the construction of therapies to meaningfully treat aging. The old suppression of this topic has crumbled entirely. It remains the case that most researchers are still stubbornly pursuing approaches that cannot have a large effect on human health and life span, but the initial battle to change the direction of the research community has been fought and won. Now it is just an increasingly vocal and public debate over how best to proceed, and here SENS will win in time as therapies that repair age-related molecular damage are proven to be far cheaper, more effective, and more reliable than other efforts.

We have come a long way, but one of the necessary parts of advocacy that I think that our community does poorly is the presentation of this growth and success of past years. There is so much we can point to, and show where and how we came together to make a difference, to change the course of research, to fund and build new advances, to change minds and gather allies. We don't do a good job when it comes to clearly showing the progression from (1) initial idea to (2) non-profit scientific foundations to (3) philanthropic support of research to (4) broader research community participation to (5) proof of concept technology demonstrations to (6) founding of biotechnology companies to (7) venture fundraising to (8) clinical trials of rejuvenation therapies. That long chain now exists nearly end to end for senescent cell clearance as a rejuvenation treatment,

and all of the other potential branches of SENS research are underway in some form.

So with that in mind, the following timeline references some of the important developments and advances in rejuvenation biotechnology since the origin of the SENS program, from the slow and incremental start to the present more rapid pace. It is by design a high-level and sparse overview, as I wanted to capture the bigger picture without getting dragged down into the details. Watching early stage progress in research from year to year can be a frustrating process, but as senescent cell clearance demonstrates, once a field reaches the tipping point of viability and support, things then move very rapidly. Further, given that this all started with a few ideas and a little persuasion, it is certainly the case that mountains have been moved over the years, even if it feels all too slow on a day to day basis. There is much more to be done ahead, but all who have participated in the past should feel rightfully proud of what has been accomplished, and what continues to be accomplished today.

2002

- The first of Aubrey de Grey's collaborative papers, describing SENS as a goal-driven approach to the treatment of aging as a medical condition, is published in the *Annals of the New York Academy of Sciences*.

2003

- The Methuselah Foundation is created, and the founders launch the Mprize for longevity science, a research prize aiming to spur greater interest in extending healthy life spans.
- The first SENS-focused academic conference is held in the UK under the auspices of the International Association of Biomedical Gerontology.



Credit: www.sens.org

2004

- The Methuselah Foundation begins to assemble the 300, a core group of donors who go on to be influential in the course of advocacy and development of rejuvenation biotechnology. Their funds power the early work of the foundation, and some start their own initiatives in later years.

2005

- An individual whose identity remains a mystery to this day makes a \$1 million donation to the Methuselah Foundation to expand the Mprize purse.
- The Methuselah Foundation begins funding (a) LysoSENS research, searching for enzymes in soil bacteria capable of consuming age-related metabolic waste, and (b) allotopic expression of mitochondrial genes, aiming to remove the consequences of mitochondrial damage in aging.

- The Methuselah Foundation sponsors the Supercentenarian Research Foundation, supporting a program of autopsies of supercentenarians. Over the next few years this demonstrates transthyretin amyloidosis to be the majority's cause of death.

2006

- Peter Thiel publicly supports SENS research with a \$3.5M grant.
- Researchers first demonstrate the creation of induced pluripotent stem cells, a foundation for much of the future of regenerative medicine to replace cells lost to aging.

2008

- The Methuselah Foundation expands allotopic expression funding to support a French research group that will go on to establish Gensight Biologics on the strength of this work. The foundation also announces the commencement of research initiatives for most of the other SENS programs: clearing senescent cells, removing metabolic waste such as amyloid and cross-links, and investigation of alternative lengthening of telomeres (ALT) in the context of cancer.
- The first US SENS conference is held at UCLA.



Credit: www.sens.org

2009

- The SENS Research Foundation spins off from the Methuselah

Foundation to focus entirely on SENS rejuvenation research.

- GSK and Pentraxin Therapeutics begin a collaboration to develop a therapy capable of clearing transthyretin amyloid.
- The Methuselah Foundation makes its first outside investment in the Organovo tissue printing startup.

2010

- The SENS Research Foundation's yearly budget reaches \$1 million. The foundation sets up a laboratory facility in Mountain View, California for ongoing intramural research projects.
- Jason Hope pledges \$500,000 to the SENS Research Foundation to start a research program aimed at developing a viable cross-link breaker for glucosepane in humans.
- Researchers find that transplanting a young thymus into an old mouse restores immune function and extends life.

2011

- Aubrey de Grey devotes the majority of his \$16.5M net worth to funding SENS research.
- The SENS Research Foundation is funding either in-house or external research projects in all of the seven strands of SENS rejuvenation research. Some are very early stage, focused on building tools or discovery, while others are building the basis for therapies.
- The first demonstration of targeted senescent cell clearance is carried out by an independent research group, producing benefits in mice with an accelerated aging condition.
- The Methuselah Foundation launches the New Organ tissue engineering initiative.

2012

- Gensight Biologics is founded to commercialize allotopic expression of mitochondrial gene ND4, based on the research program supported initially by the Methuselah Foundation, and later the SENS Research Foundation.
- The SENS Research Foundation demonstrates bacterial enzymes that can break down 7-ketocholesterol in cell culture.
- Methuselah Foundation supported tissue printing company Organovo becomes publicly traded on NASDAQ.



Credit: YouTube.com

- Covalent Bioscience is founded to advance work on catalytic antibodies (or catabodies) to clear the amyloid associated with Alzheimer's disease.

2013

- Gensight Biologics raises a \$32M series A round.
- The Methuselah Foundation announces a \$1 million research prize for liver tissue engineering as a part of the New Organ initiative. This year the foundation also sponsors organ banking initiatives at the Organ Preservation Alliance.
- The important Hallmarks of Aging position paper is published, the authors taking a cue from the SENS rejuvenation research proposals, but carving out their own view on damage and repair.
- Google Ventures launches Calico, adding a great deal of support

to aging research with the size and publicity of the investment. Unfortunately Calico goes on to focus on areas of aging research unrelated to rejuvenation.

- Cenexys is founded to work on the creation of means to selectively destroy senescent cells in aged tissues.

2014

- The Methuselah Foundation and SENS Research Foundation provide seed funding to launch Oisin Biotechnologies, to develop a method of targeted clearance of senescent cells.
- The SENS Research Foundation begins the Rejuvenation Biotechnology conference series, bringing together industry and academia to smooth the path for development of rejuvenation therapies.



Credit: www.sens.org

- Following the Hallmarks of Aging, leading researchers publish their Seven Pillars of Aging position, again echoing the long-standing SENS view of aging and its treatment.
- The SENS Research Foundation funds development of catabodies to break down transthyretin amyloid, and the work shows considerable promise.
- Human Rejuvenation Technologies is founded to commercialize a treatment for atherosclerosis based on SENS Research Foundation

LysoSENS program approaches to clearing metabolic waste compounds.



2015

- The SENS Research Foundation's yearly budget reaches \$5 million.
- The Spiegel Lab at Yale announces a method of creating glucosepane, a vital and to this point missing tool needed to develop glucosepane cross-link breaker drugs. This work was funded by the SENS Research Foundation.
- A research team demonstrates the first senolytic drug candidates capable of selectively destroying senescent cells. The number of candidate drugs increases quite quickly after this point.
- Pentraxin Therapeutics announces positive results in a trial of targeted clearance of transthyretin amyloid. Meanwhile, evidence continues to emerge from other groups for transthyretin amyloid to have more of an impact in age-related disease than previously thought.
- SENS Research Foundation work on sabotaging ALT to suppress cancer receives more attention. Meanwhile progress is reported on the other half of telomere extension blockade, interfering in the operation of telomerase, an area in which a number of groups are participating.
- The Methuselah Foundation makes a founding investment in Leucadia Therapeutics in order to pursue a novel approach to the effective treatment of Alzheimer's disease.



- The research program producing catabodies capable of breaking down transthyretin amyloid is transferred to Covalent Bioscience for clinical development.

2016

- Ichor Therapeutics begins commercial development of a method of clearing metabolic waste from the retina, based on technology developed in the SENS Research Foundation LysoSENS program.
- Gensight Biologics demonstrates success in a trial of mitochondrial allotopic expression of ND4 as a way to treat inherited mutations of that gene. The underlying technology is proven. SENS Research Foundation scientists, meanwhile, successfully demonstrate allotopic expression of ATP6 and ATP8.
- After more than a decade of high profile failures, amyloid- β is finally cleared from the brain in a small human study using an immunotherapy approach.
-

- The SENS Research Foundation crowdfunds a drug discovery program to find candidates that can interfere in ALT, and thus suppress the telomere elongation that cancer depends upon.
- Cenexys is reformed as Unity Biotechnology with a focus on senolytic drugs. The researchers involved show that clearance of senescent cells in normal mice produces 25% extension of median life span. Later in 2016, the company raises \$116M in venture funding.



- Other work on removal of senescent cells across the year shows restoration of function in aged lung tissue, and improved vascular health. New evidence reinforces the role of senescent cells in osteoarthritis, as well as in atherosclerosis, immunosenescence, and diabetic retinopathy
- The Methuselah Foundation launches a \$500,000 research prize for tissue engineering in collaboration with NASA.
- Michael Greve pledges \$10M to fund SENS research and startup biotechnology companies that emerge from that research.

2017, so far...

- There are now nearing ten different senolytic drug candidates with openly published evidence, and more in the pipeline.
- Oisin Biotechnologies announces that their senescent cell clearance technology can also be applied to cancerous cells, reporting successful animal studies for tumor ablation.
- Methuselah Foundation launches the Methuselah Fund to shepherd more rejuvenation-related biotechnology startups towards success. ■

Reprinted with Permission of Fight Aging!

Neuralink, A Venture to Merge the Human Brain with AI

SpaceX and Tesla CEO Elon Musk is backing a brain-computer interface venture called Neuralink. The company, which is still in the earliest stages of existence and has no public presence whatever, is centered on creating devices that can be implanted in the human brain, with the eventual purpose of helping human beings merge with software and keep pace with advances in artificial intelligence. These enhancements could improve memory or allow for more direct interfacing with computing devices. Musk has hinted at the existence of Neuralink a few times over the last six months or so. More recently, Musk told a crowd in Dubai, “Over time I think we will probably see a closer merger of biological intelligence and digital intelligence.” He added that “it’s mostly about the bandwidth, the speed of the connection between your brain and the digital version of yourself, particularly output.” On Twitter, Musk has responded to inquiring fans about his progress on a so-called “neural lace,” which is sci-fi shorthand for a brain-computer interface humans could use to improve themselves.

Nick Statt@nickstatt / The Verge
27 Mar. 2017

<https://www.theverge.com/2017/3/27/15077864/elon-musk-neuralink-brain-computer-interface-ai-cyborgs>

Brain Circuit Necessary for Memory Formation Identified

When we visit a friend or go to the beach, our brain stores a short-term memory of the experience in a part called the hippocampus. Those memories are later “consolidated” — that is, transferred to another part of the brain for longer-term storage. A new MIT study of the neural circuits that underlie this process reveals, for the first time, that memories are actually

formed simultaneously in the hippocampus and the long-term storage location in the brain’s cortex. However, the long-term memories remain “silent” for about two weeks before reaching a mature state. “This and other findings in this paper provide a comprehensive circuit mechanism for consolidation of memory,” says Susumu Tonegawa, the Picower Professor of Biology and Neuroscience, the director of the RIKEN-MIT Center for Neural Circuit Genetics at the Picower Institute for Learning and Memory, and the study’s senior author. The findings, which appear in *Science* on April 6, may force some revision of the dominant models of how memory consolidation occurs, the researchers say.

Anne Trafton / MIT News
6 Apr. 2017

<http://news.mit.edu/2017/neuroscientists-identify-brain-circuit-necessary-memory-formation-0406>

Project to Boost Brainpower

Stephen Helms Tillery wants to make you smarter — by electrically stimulating your brain. The Arizona State University neuroscientist has been awarded funding for a four-year study to develop a method of brain stimulation that may boost learning and retention up to 30 percent. The money comes from the Army’s Defense Advanced Research Projects Agency, which is the bureau behind technology including GPS, the internet, stealth tech and drones. The brain will be stimulated by a method called Transdermal Electrical Neuromodulation so it learns more quickly, more efficiently and with increased recall. Certain neuromodulators — chemicals that affect transmission between cells — have broad physiological impacts such as arousal and attention. “The one we’ll be focusing on is norepinephrine,” said Helms Tillery, an associate professor in the School of Biological and Health Systems Engineering in the Ira A. Fulton Schools of Engineering.

“You can think of it as the big fight-or-flight hormone in the brain.”

Scott Sekel / ASU Now
26 Apr. 2017

<https://asunow.asu.edu/20170426-discoveries-asus-latest-darpa-project-seeks-boost-brainpower>

New Tumor-Shrinking Nanoparticle to Fight Cancer, Prevent Recurrence

A Mayo Clinic research team has developed a new type of cancer-fighting nanoparticle aimed at shrinking breast cancer tumors, while also preventing recurrence of the disease. In the study, published today in *Nature Nanotechnology*, mice that received an injection with the nanoparticle showed a 70 to 80 percent reduction in tumor size. Most significantly, mice treated with these nanoparticles showed resistance to future tumor recurrence, even when exposed to cancer cells a month later. The results show that the newly designed nanoparticle produced potent anti-tumor immune responses to HER2-positive breast cancers. Breast cancers with higher levels of HER2 protein are known to grow aggressively and spread more quickly than those without the mutation. “In this proof-of-concept study, we were astounded to find that the animals treated with these nanoparticles showed a lasting anti-cancer effect,” says Betty Y.S. Kim, M.D., Ph.D., principal investigator, and a neurosurgeon and neuroscientist who specializes in brain tumors at Mayo Clinic’s Florida campus.

Kevin Punskey / Mayo Clinic News Network
1 May 2017

<https://newsnetwork.mayoclinic.org/discussion/mayo-clinic-researchers-develop-new-tumor-shrinking-nanoparticle-to-fight-cancer-prevent-recurrence/>

3D-printed 'Bionic Skin' Could Give Robots the Sense of Touch

Engineering researchers at the University of Minnesota have developed a revolutionary process for 3D printing stretchable electronic sensory devices that could give robots the ability to feel their environment. The discovery is also a major step forward in printing electronics on real human skin. The research will be published in the next issue of *Advanced Materials* and is currently online. "This stretchable electronic fabric we developed has many practical uses," said Michael McAlpine, a University of Minnesota mechanical engineering associate professor and lead researcher on the study. "Putting this type of 'bionic skin' on surgical robots would give surgeons the ability to actually feel during minimally invasive surgeries, which would make surgery easier instead of just using cameras like they do now. These sensors could also make it easier for other robots to walk and interact with their environment." McAlpine says this new discovery could also be used to print electronics on real human skin. It might then be used for health monitoring or by soldiers in the field to detect dangerous chemicals or explosives.

University of Minnesota College of
Science and Engineering
10 May 2017
<https://cse.umn.edu/news-release/3d-printed-bionic-skin-give-robots-sense-touch/>

Intensive Care: How AI Could Rejuvenate U.S. Healthcare

It's no secret that the U.S. healthcare system needs help. What's more surprising is the role AI can play in fixing it. In a talk at the GPU Technology Conference, Dr. Michael Dahlweid, chief medical officer of digital solutions for GE Healthcare, described the myriad problems in U.S. healthcare, and the scope for finding fixes with the expanded use of deep learning. The numbers can be depressing: About 100,000 people die needlessly every year, he said. Nearly a third of all healthcare spending — more than \$690 billion — is money

wasted. A third of all electronic medical records are inaccurate. And doctors are struggling with information overload. "The focus for AI research in healthcare today is on imaging," said Dahlweid. "We need to apply AI beyond that." AI could one day read medical images faster and more accurately than radiologists. AI has already shown promise, but there's much more potential for AI in healthcare, according to Dahlweid. GE is experimenting with deep learning for a wide range of tasks, including helping doctors make decisions and managing massive amounts of data ...

Jamie Beckett / NVIDIA
10 May 2017
<https://blogs.nvidia.com/blog/2017/05/10/how-ai-could-rejuvenate-u-s-healthcare/>

Neural Activity of Task-Engaged Mice Decoded

Stanford University researchers funded by DARPA's Neuro Function, Activity, Structure, and Technology (Neuro-FAST) program have developed new optical imaging and analysis techniques that allowed them to decode the neural activity of awake mice engaged in an adaptive, decision-making task. The findings of the Stanford team, made in collaboration with researchers at the California Institute of Technology and detailed this week in the journal *Neuron*, give researchers new insight into how the mammalian brain coordinates neural activity to complete voluntary behaviors. The team's overall results advance DARPA's goal of building a knowledge base and toolkit with which the neurotechnology community can accelerate understanding of brain structure and function. "DARPA created the Neuro-FAST program to find new ways to see the brain, and the optical technologies we've developed now allow researchers to observe the brain in detail as it processes behavior," said Justin Sanchez, the DARPA program manager.

DARPA News and Events
18 May 2017
<http://www.darpa.mil/news-events/2017-05-18>

Full-Thickness Hair-Bearing Skin Regenerated

PolarityTE™, Inc. (NASDAQ: COOL) today announced pre-clinical results demonstrating that the Company's lead product, SkinTE™, regenerated full-thickness, organized skin and hair follicles in third degree burn wounds. The findings represent the first known successful regeneration of skin and hair in full-thickness swine wound models, the standard animal model for human skin. The Company expects to initiate a human clinical trial evaluating the autologous homologous SkinTE™ construct in the third quarter of 2017. In pre-clinical models of full-thickness burns and wounds, SkinTE™ demonstrated scar-less healing, hair follicle growth, immediate complete wound coverage, and the progressive regeneration of all skin layers including epidermis, dermis and hypodermal layers. The SkinTE™ product, which utilizes the subject's own skin, is prepared and used to treat the wound in less than 24 hours. Swine models of burns and wounds, used in the study, are known to be predictive of results found in humans due to the unique similarities between swine and human skin.

PolarityTE™, Inc.
8 Jun. 2017
<http://www.polarityte.com/news-media/press-releases/detail/406/polaritytetm-regenerates-full-thickness-hair-bearing-skin>

Bioengineered Human Livers Mimic Natural Development

An international team of researchers bioengineering human liver tissues uncovered previously unknown networks of genetic-molecular crosstalk that control the organ's developmental processes — greatly advancing efforts to generate healthy and usable human liver tissue from human pluripotent stem cells. The scientists report online in *Nature* on June 14 that their bioengineered human liver tissues still need additional rounds of molecular fine tuning before they can be tested in clinical trials. The research was led by Takanori Takebe, MD, a physician/investigator at Cincinnati

Children's Hospital Medical Center, and Barbara Treutlein, PhD, Max Planck Institute for Evolutionary Anthropology. The only current treatment for end-stage liver disease is a liver transplant, and the number of livers available from deceased donors is limited. Because of this, a major goal in regenerative medicine is to attain self-organizing human tissues – in which cells experience a series of coordinated molecular events precisely timed and spaced to form functioning three dimensional liver buds.

Cincinnati Children's Hospital Newsroom
14 Jun. 2017
<https://www.cincinnatichildrens.org/news/release/2017/bioengineered-human-livers>

Scientists Turbocharge High-Resolution, 3-D Optical Imaging

Stanford scientists have found a relatively simple, low-cost fix that substantially improves images obtained via a widely used optical scanning technique, opening the door to “virtual biopsies.” You may not have heard of optical coherence tomography, or OCT. But if you've visited an ophthalmologist recently, chances are your eye came within an inch or two of a scanning device employing the technology. Tens of thousands of these devices are in place in doctors' offices, where they're widely used to check for eye diseases. Now, Stanford University scientists have figured out how to retrofit these high-performance

machines with off-the-shelf components, increasing OCT's resolution by several-fold and promising earlier detection of retinal and corneal damage, incipient tumors and more. The relatively simple, low-cost fix – entailing a pair of lenses, a piece of ground glass and some software tweaks – erases blemishes that have bedeviled images obtained via OCT since its invention in 1991.

Norbert von der Groeben, Stanford
Medicine News Center
20 Jun. 2017

<http://med.stanford.edu/news/all-news/2017/06/scientists-turbocharge-high-resolution-3d-imaging.html>

A Roadmap to Revival

Successful revival of cryonics patients will require three distinct technologies: (1) A cure for the disease that put the patient in a critical condition prior to cryopreservation; (2) biological or mechanical cell repair technologies that can reverse any injury associated with the cryopreservation process and long-term care at low temperatures; (3) rejuvenation biotechnologies that restore the patient to good health prior to resuscitation. OR it will require some entirely new approach such as (1) mapping the ultrastructure of cryopreserved brain tissue using nanotechnology, and (2) using this information to deduce the original structure and repairing, replicating or simulating tissue or structure in some viable form so the person “comes back.”

The following is a list of landmark papers and books that reflect ongoing progress towards the revival of cryonics patients:

Jerome B. White, “**Viral-Induced Repair of Damaged Neurons with Preservation of Long-Term Information Content**,” Second Annual Conference of the Cryonics Societies of America, University of Michigan at Ann Arbor, April 11-12, 1969, by J. B. White. Reprinted in *Cryonics* 35(10) (October 2014): 8-17.

Michael G. Darwin, “**The Anabolocyte: A Biological Approach to Repairing Cryoinjury**,” *Life Extension Magazine* (July-August 1977):80-83. Reprinted in *Cryonics* 29(4) (4th Quarter 2008):14-17.

Gregory M. Fahy, “**A ‘Realistic’ Scenario for Nanotechnological Repair of the Frozen Human Brain**,” in Brian Wowk, Michael Darwin, eds., *Cryonics: Reaching for Tomorrow*, Alcor Life Extension Foundation, 1991.

Ralph C. Merkle, “**The Molecular Repair of the Brain**,” *Cryonics* 15(1) (January 1994):16-31 (Part I) & *Cryonics* 15(2) (April 1994):20-32 (Part II).

Ralph C. Merkle, “**Cryonics, Cryptography, and Maximum Likelihood Estimation**,” First Extropy Institute Conference, Sunnyvale CA, 1994, updated version at <http://www.merkle.com/cryo/cryptoCryo.html>.

Aubrey de Grey & Michael Rae, “**Ending Aging: The Rejuvenation Breakthroughs That Could Reverse Human Aging in Our Lifetime**.” St. Martin's Press, 2007.

Robert A. Freitas Jr., “**Comprehensive Nanorobotic Control of Human Morbidity and Aging**,” in Gregory M. Fahy, Michael D. West, L. Stephen Coles, and Steven B. Harris, eds, *The Future of Aging: Pathways to Human Life Extension*, Springer, New York, 2010, 685-805.

Chana Phaedra, “**Reconstructive Connectomics**,” *Cryonics* 34(7) (July 2013): 26-28.

Robert A. Freitas Jr., “**The Alzheimer Protocols: A Nanorobotic Cure for Alzheimer's Disease and Related Neurodegenerative Conditions**,” *IMM Report* No. 48, June 2016.

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MEETINGS

ABOUT THE ALCOR FOUNDATION

The Alcor Life Extension Foundation is a nonprofit tax-exempt scientific and educational organization dedicated to advancing the science of cryopreservation and promoting cryonics as a rational option. Being an Alcor member means knowing that—should the worst happen—Alcor's Emergency Response Team is ready to respond for you, 24 hours a day, 365 days a year.

Alcor's Emergency Response capability includes specially trained technicians and customized equipment in Arizona, northern California, southern California, and south Florida, as well as many additional certified technicians on-call around the United States. Alcor's Arizona facility includes a full-time staff, and the Patient Care Bay is personally monitored 24 hours a day.

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PHOENIX

VALLEY OF THE SUN:

This group meets monthly, usually in the third week of the month. Dates are determined by the activity or event planned. For more information or to RSVP, visit <http://cryonics.meetup.com/45/> or email Lisa Shock at lisa@alcor.org.

AT ALCOR:

Alcor Board of Directors Meetings and Facility Tours—Alcor business meetings are generally held on the second Saturday of every month starting at 11:00 AM MST. Guests are welcome to attend the fully-public board meetings. Facility tours are held every Tuesday at 10:00 AM and Friday at 2:00 PM. For more information or to schedule a tour, call Marji Klima at (877) 462-5267 x101 or email marji@alcor.org.

CALIFORNIA

LOS ANGELES:

Alcor Southern California Meetings—For information, call Peter Voss at (310) 822-4533 or e-mail him at peter@optimal.org. Although monthly meetings are not held regularly, you can meet Los Angeles Alcor members by contacting Peter.

SAN FRANCISCO BAY:

Alcor Northern California Meetings are held quarterly in January, April, July, and October. A CryoFeast is held once a year. For information on Northern California meetings, call Mark Galeck at (650) 772-1251 or email Mark_galeck@pacbell.net.

FLORIDA

Central Florida Life Extension group meets once a month in the Tampa Bay area (Tampa and St. Petersburg) for discussion and socializing. The group has been active since 2007. Email arcturus12453@yahoo.com for more information.

NEW ENGLAND

CAMBRIDGE:

The New England regional group strives to meet monthly in Cambridge, MA—for information or to be added to the Alcor NE mailing list, please contact Bret Kulakovich at 617-824-8982, alcor@bonfireproductions.com, or on FACEBOOK via the Cryonics Special Interest Group.

NEW YORK CITY

Alcor members in the NYC area can contact Javier El-Hage at javier.elhage@gmail.com for information about local meetings which are held once a month at a midtown location.

PACIFIC NORTHWEST

A Yahoo mailing list is also maintained for cryonists in the Pacific Northwest at <http://tech.groups.yahoo.com/group/CryonicsNW/>.

OREGON:

The contact person for meetings in the Portland area is Aschwin de Wolf: aschwin@alcor.org. See also: <https://www.facebook.com/portland.life.extension>.

BRITISH COLUMBIA (CANADA):

CryoBC, a special interest group within the nonprofit Lifespan Society of BC (<http://www.lifespanbc.ca/>) holds meetings for cryonists in the Vancouver area. To be notified of meetings join the CryoBC mailing list: <https://groups.yahoo.com/neo/groups/cryobc/info>.

TEXAS

DALLAS:

North Texas Cryonauts, please sign up for our announcements list for meetings (<http://groups.yahoo.com/group/cryonauts-announce>) or contact David Wallace Croft at (214) 636-3790 for details of upcoming meetings.

AUSTIN/CENTRAL TEXAS:

A new group for the Austin area has been started for those interested in discussion and understanding of the relevant technologies and issues for cryopreservation, genomics, epigenetics and medical research for increased life/health span. Contact Tom Miller, 760-803-4107 or tom@blackmagicmissileworks.com.

JAPAN

Cryonics meetings are held monthly in Tokyo. Send queries to grand88@yahoo.com.

ALCOR PORTUGAL

Alcor Portugal is working to have good stabilization and transport capabilities. The group meets every Saturday for two hours. For information about meetings, contact Nuno Martins at n-martins@n-martins.com. The Alcor Portugal website is: www.alcorportugal.com.

UNITED KINGDOM

Alcor members in the UK can contact Garret Smyth at Alcor-UK@alcor.org for information about local meetings.

If you are interested in hosting regular meetings in your area, contact Alcor at 877-462-5267, ext. 113. Meetings are a great way to learn about cryonics, meet others with similar interests, and introduce your friends and family to Alcor members!

WHAT IS CRYONICS?

Cryonics is an attempt to preserve and protect human life, not reverse death. It is the practice of using extreme cold to attempt to preserve the life of a person who can no longer be supported by today's medicine. Will future medicine, including mature nanotechnology, have the ability to heal at the cellular and molecular levels? Can cryonics successfully carry the cryopreserved person forward through time, for however many decades or centuries might be necessary, until the cryopreservation process can be reversed and the person restored to full health? While cryonics may sound like science fiction, there is a basis for it in real science. The complete scientific story of cryonics is seldom told in media reports, leaving cryonics widely misunderstood. We invite you to reach your own conclusions.

HOW DO I FIND OUT MORE?

The Alcor Life Extension Foundation is the world leader in cryonics research and technology. Alcor is a non-profit organization located in Scottsdale, Arizona, founded in 1972. Our website is one of the best sources of detailed introductory information about Alcor and cryopreservation (www.alcor.org). We also invite you to request our FREE information package on the "Free Information" section of our website. It includes:

- A fully illustrated color brochure
- A sample of our magazine
- An application for membership and brochure explaining how to join
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Your free package should arrive in 1-2 weeks. (The complete package will be sent free in the U.S., Canada, and the United Kingdom.)

HOW DO I ENROLL?

Signing up for cryopreservation is easy!

Step 1: Fill out an application and submit it with your \$90 application fee.

Step 2: You will then be sent a set of contracts to review and sign.

Step 3: Fund your cryopreservation. While most people use life insurance to fund their cryopreservation, other forms of prepayment are also accepted. Alcor's Membership Coordinator can provide you with a list of insurance agents familiar with satisfying Alcor's current funding requirements.

Finally: After enrolling, you will wear emergency alert tags or carry a special card in your wallet. This is your confirmation that Alcor will respond immediately to an emergency call on your behalf.

Not ready to make full arrangements for cryopreservation? Then *become an Associate Member* for \$5/month (or \$15/quarter or \$60 annually). Associate Members will receive:

- *Cryonics* magazine by mail
- Discounts on Alcor conferences
- Access to post in the Alcor Member Forums
- A dollar-for-dollar credit toward full membership sign-up fees for any dues paid for Associate Membership

To become an Associate Member send a check or money order (\$5/month or \$15/quarter or \$60 annually) to Alcor Life Extension Foundation, 7895 E. Acoma Dr., Suite 110, Scottsdale, Arizona 85260, or call Marji Klima at (480) 905-1906 ext. 101 with your credit card information. You can also pay using PayPal (and get the Declaration of Intent to Be Cryopreserved) here: <http://www.alcor.org/BecomeMember/associate.html>



Call toll-free TODAY to start your application:

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ALCOR



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