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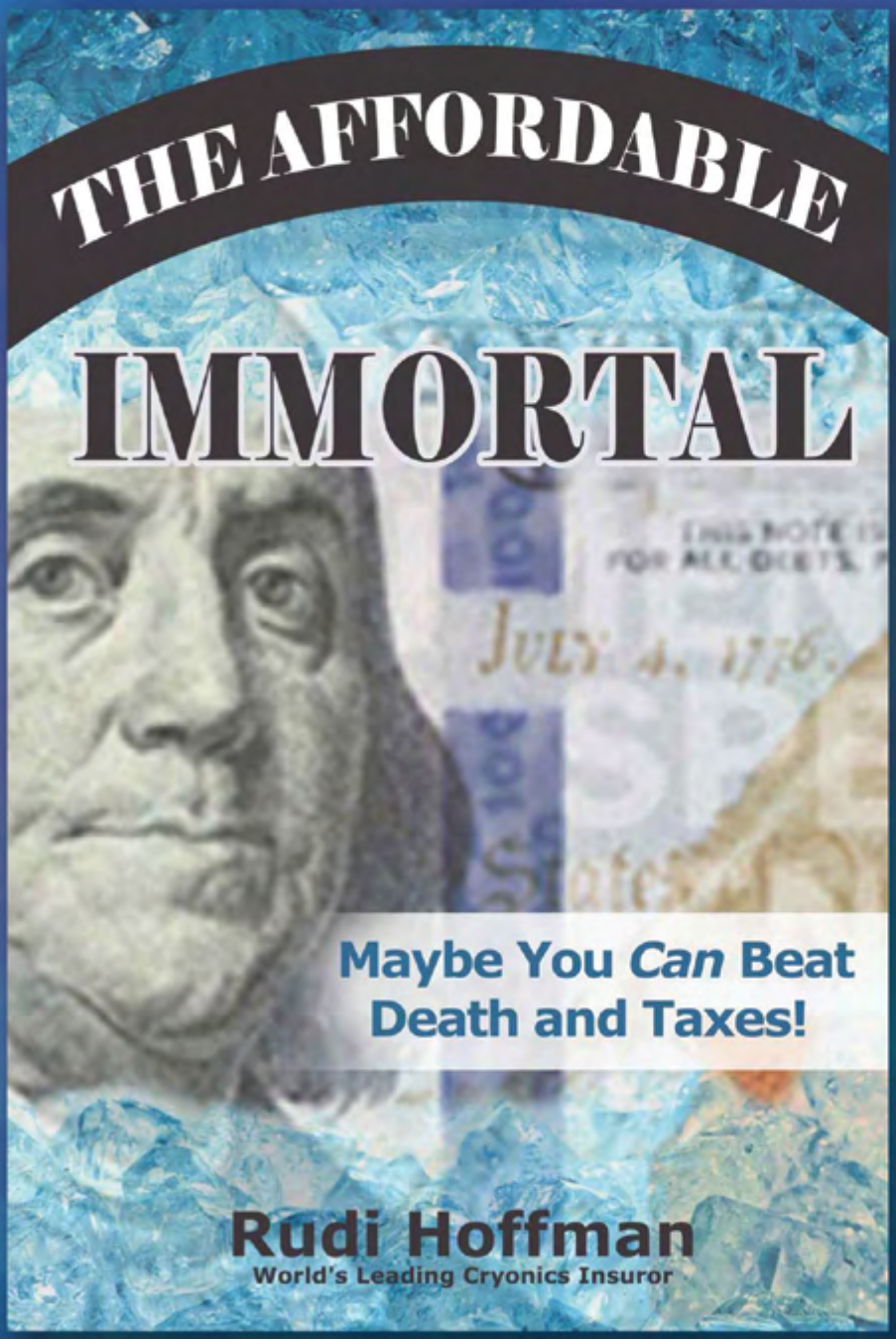
LONG LIFE

Longevity Through Technology

Volume 50 - Number 03



The Immortalist Society wishes to thank the American Cryonics Society (ACS) and cryonics trusts managed by ACS for sponsoring non-subscriber mailings for this edition

Who will be there for YOU?

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Suspended Animation fields teams of specially trained cardio-thoracic surgeons, cardiac perfusionists and other medical professionals with state-of-the-art equipment to provide stabilization care for Cryonics Institute members in the continental U.S.

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CRYONICS INSTITUTE
Technology for Life

Why should You join the Cryonics Institute?

The Cryonics Institute is the world's leading non-profit cryonics organization bringing state of the art cryonic suspensions to the public at the most affordable price. CI was founded by the "father of cryonics," Robert C.W. Ettinger in 1976 as a means to preserve life at liquid nitrogen temperatures. It is hoped that as the future unveils newer and more sophisticated medical nanotechnology, people preserved by CI may be restored to youth and health.

1) Cryonic Preservation

Membership qualifies you to arrange and fund a vitrification (anti-crystallization) perfusion and cooling upon legal death, followed by long-term storage in liquid nitrogen. Instead of certain death, you and your loved ones could have a chance at rejuvenated, healthy physical revival.

2) Affordable Cryopreservation

The Cryonics Institute (CI) offers full-body cryopreservation for as little as $28,000.

3) Affordable Membership

Become a Lifetime Member for a one-time payment of only $1,250, with no dues to pay. Or join as a Yearly Member with a $75 inititation fee and dues of just $120 per year, payable by check, credit card or PayPal.

4) Lower Prices for Spouses and Children

The cost of a Lifetime Membership for a spouse of a Lifetime Member is half-price and minor children of a Lifetime Member receive membership free of charge until the child turns 18 years of age.

5) Quality of Treatment

CI employed a Ph.D level cryobiologist to develop CI-VM-1, CI's vitrification mixture which can help prevent crystalline formation at cryogenic temperatures.

6) Locally-Trained Funeral Directors

CI's use of Locally-Trained Funeral Directors means that our members can get knowledgeable, licensed care. Or members can arrange for professional cryonics standby and transport by subcontracting with Suspended Animation, Inc.

7) Funding Programs

Cryopreservation with CI can be funded through approved life insurance policies issued in the USA or other countries. Prepayment and other options for funding are also available to CI members.

8) Cutting-Edge Cryonics Information

Members currently receive free access to Long Life Magazine online or an optional paid print subscription, as well as access to our exclusive members-only email discussion forum.

9) Additional Preservation Services

CI offers a sampling kit, shipping and long-term liquid nitrogen storage of tissues and DNA from members, their families or pets for just $98.

10) Support Education and Research

Membership fees help CI, among other things, to fund important cryonics research and public outreach, education and information programs to advance the science of cryonics.

11) Member Ownership and Control

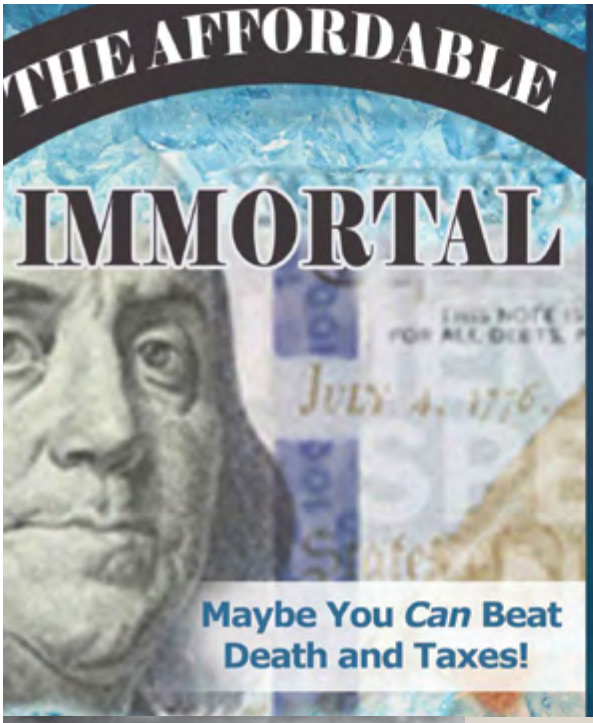
CI Members are the ultimate authority in the organization and own all CI assets. They elect the Board of Directors, from whom are chosen our officers. CI members also can change the Bylaws of the organization (except for corporate purposes).

The choice is clear: Irreversible physical death, dissolution and decay, or the possibility of a vibrant and joyful renewed life. Don't you want that chance for yourself, your spouse, parents and children?

To get started, contact us at:

(586) 791-5961 • email: cihq@aol.com

Visit us online at www.cryonics.org



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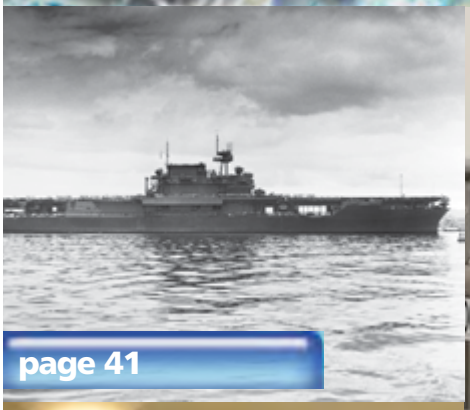

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LONG LIFE
MAGAZINE

A publication of the Immortalist Society

ORGANIZATION NEWS

FEATURE STORIES

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3. Change PDF viewing settings / extensions on your browser (*advanced users only*)
4. Try a different browser (especially if you're using Internet Explorer.) We recommend Google Chrome.

You've signed up for Cryonics Now what should you do?

Welcome Aboard! You have taken the first critical step in preparing for the future and possibly ensuring your own survival. Now what should you do? People often ask "What can I do to make sure I have an optimal suspension?" Here's a checklist of important steps to consider.

- ☐ Become a fully funded member through life insurance or easy pre-payments

  Some members use term life and invest or pay off the difference at regular intervals. Some use whole life or just prepay the costs outright. You have to decide what is best for you, but it is best to act sooner rather then later as insurance prices tend to rise as you get older and some people become uninsurable because of unforeseen health issues. You may even consider making CI the owner of your life insurance policy.

- ☐ Keep CI informed on a regular basis about your health status or address changes. Make sure your CI paperwork and funding are always up to date. CI cannot help you if we do not know you need help.

- ☐ Keep your family and friends up to date on your wishes to be cryopreserved. Being reclusive about cryonics can be costly and cause catastrophic results.

- ☐ Keep your doctor, lawyer, and funeral director up to date on your wishes to be cryopreserved. The right approach to the right professionals can be an asset.

- ☐ Prepare and execute a Living Will and Power of Attorney for Health Care that reflects your cryonics-related wishes. Make sure that CI is updated at regular intervals as well.

- ☐ Consider joining or forming a local standby group to support your cryonics wishes. This may be one of the most important decisions you can make after you are fully funded. As they say-"Failing to plan is planning to fail".

- ☐ Always wear your cryonics bracelet or necklace identifying your wishes should you become incapacitated. Keep a wallet card as well. If aren't around people who support your wishes and you can't speak for yourself a medical bracelet can help save you.

- ☐ Get involved! If you can, donate time and money. Cryonics is not a turnkey operation. Pay attention and look for further tips and advice to make both your personal arrangements and cryonics as a whole a success.

CRYONICS INSTITUTE
Technology for Life

LONG LIFE

A quarterly publication of the

Immortalist Society

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CI EXECUTIVE REPORT

Dennis Kowalski - President, Cryonics Institute

Dennis Kowalski - CI President

Hello All,

Once again we had a fantastic AGM with many new and old faces visiting the Cryonics Institute to see how things are progressing. I cannot begin to say how proud I am of the organization and the great improvements that have been accomplished by our hard-working staff. I would especially like to extend special thanks to Michael McCauley, who has really had a positive impact on the upgrades and changes at our facilities. For those of you who haven't seen the facility recently, it has really transformed into a showcase that we can all be proud of.

The September 9 AGM started with tours of the facility prior to the official meering. Special thanks to our staff for conducting the tours and to everyone who commented to me on the many improvements we've made. Following the scheduled tours, the membership gathered at the ConCorde Inn for our 2018 Annual General Meeting. I'm pleased to say the meeting was well-attended and we also had a lot of interaction between the audience and our speakers. It is always good to see the membership taking an active role asking questions and being involved.

Steve Luyckx, Pat Heller and Joe Kowalsky spoke about the current state of our financial and investment affairs, both of which are doing well, especially with the recent growth in the stock market. They reported that CI has been able to benefit from the very good market run we are having, and no matter what the market has in store for the future, I am confident that CI will continue to maintain and grow our assets over the long term.

All three provided detailed analysis of our investments and strategies, including Pat Heller's six-month financial reports, which can also be found on our web site. I remind you that CI is committed to open transparency in our operations and makes our records publicly available for review. Thanks to Steve, Pat, Joe and our Investment Team for all your effort, hard work and great results.

Joe Kowalsky also spoke about the organ preservation fund and also presented CI with an $11,000 check from a patient estate that he put a lot of time and effort into closing. Although this was a significant contribution, please remember that every donation, no matter how big or small helps CI's bottom line and overall strength. Please consider bumping up the life insurance amounts you currently have in order to give more if you can. The better financed CI is then the better your life raft will be when you need it.

Next up, we had an excellent research report from Aschwin Dewolf that provided very strong evidence that the addition of sodium citrate as an anticoagulant is preferred in all suspensions that will receive vitrification. CI will now recommend and include this medication in its standby.

We also had an excellent talk from Dr Don Kleinsek, CEO of Cellagen, LLC. Dr. Kleinsek spoke about aging reversal and stem cell research and the work his laboratory is doing to further the dream of keeping us all young and healthy. He reported on a number of encouraging experimental procedures and their results and we will all be interested to hear more about the promising research and potential applications at Cellagen.

That said, I, for one, would much rather achieve immortality via an effective age-reversal or longevity treatment and skip the whole cryonics process altogether. However, in spite of promising research on those fronts, I feel that time is just not on our side to wait for these to come to fruition in our life-

times. If those techniques do appear, great, but the rational choice is to have a backup plan and cryonics is mine.

The AGM is also where we announce the election results for our rotating Board of Directors positions.

Constance Ettinger 117

Paul Hagen 84

Patrick Heller 119

Joseph Kowalsky 123

Jim Willard 22.

Congratulations to the all the incumbents who won. I'm sure they will continue to do the hard work and great job that we have all come to expect and appreciate. I would also like to take the time to thank challenger Jim Willard for having the courage to step up and toss his hat in the ring.

Remember, just because a member isn't a Director on our Board that doesn't mean that he or she can't also do great things to help CI. We are always looking for volunteers to make CI better and stronger. Currently, we are looking for members with experience coding and managing IOS and Android apps. We are also always on the lookout for members with computer, internet and marketing experience including SEO, programing, video production, website design, social media marketing or Wikipedia moderation experience. If you have any of these talents give us a call or drop us an email at dg@cryonics.org

We can always use donations of money but donating time if you have the skills and background we are seeking can go a long way as well.

The current group of CI officers up for election within the board went unchallenged this year, so it is with great pride and pleasure that I serve you for another year as our President. It is a great honor to serve you all and I will do my best to honor this position. Thank you for your continued support and good wishes.

Dennis Kowalski
President - Cryonics Institute

2018 Annual General Meeting

Meetings of The Cryonics Institue and Immortalist Society - Sept 9, 2018

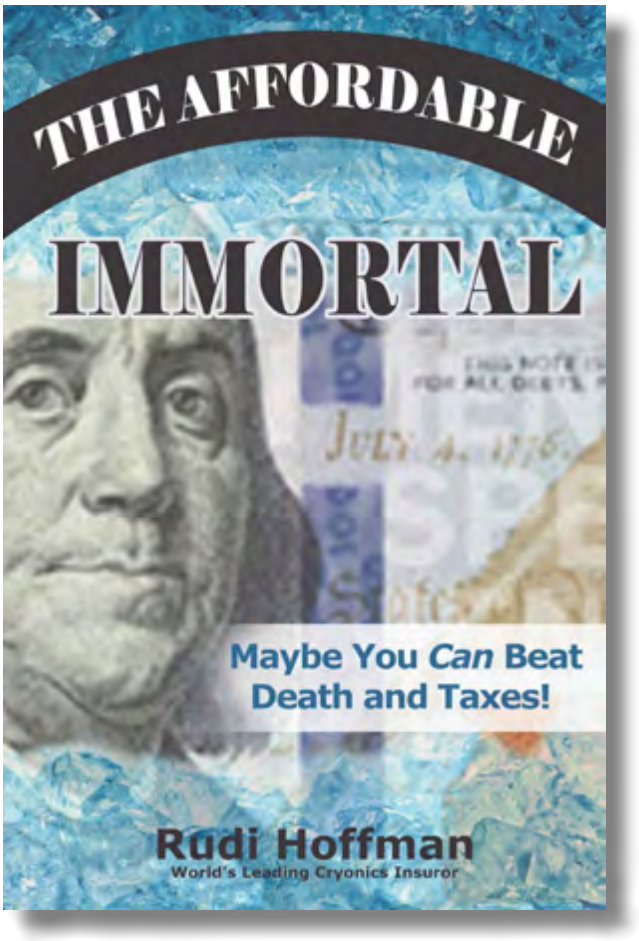
Facility Tours

Meeting at the ConCorde Inn


EXIT

"The Affordable Immortal"

Special to Long Life Magazine



Introduction by York W. Porter, Immortalist Society President

My long time friend, Rudi Hoffman, has very graciously allowed his recently published book, The Affordable Immortal, to be republished here in the pages of this magazine. Knowing Rudi as I do, I can assure everyone that his intention in writing this extremely informative and useful volume has been in line with the articles he has been kind enough to allow to grace the pages of this magazine in previous years. Rudi is simply, like most of the rest of us in cryonics, a dedicated cryonicist who realizes the deep wisdom of Robert Ettinger's tremendous and world-changing concept. He is also someone who is willing to share his own professional experience and the wisdom he has gathered with his fellow humans for no other purpose than to have them benefit from this outstanding idea.

The point is that whether you choose Rudi or someone else to help you deal with the practical problem of helping fund your situation, Rudi's main intent has been to spread the knowledge he has gained in his years in both the financial world and in the cryonics world in order to help you make good decisions.

Rudi's book is going to be reprinted in this magazine in installments. For those who, quite understandably (especially after reading this first installment), "just can't wait", the Amazon website offers, for a very small amount, a way to get the information to you in a much speedier fashion. Rudi's contact information is as follows for those who need help even sooner than that. Simply use the following references:

Email: rudi@rudihoffman.com

Phone: 386-235-7834

Website with "Quote Request" form and short videos under the "Cryonics" tab can be found at www.rudihoffman.com

Finally, in our usual "caveat emptor" style, even with great and long-standing friends like Rudi, Long Life readers should note that the following information entirely represents Rudi Hoffman's viewpoints. Cryonics is a large subject and thinking on many points can and will vary from individual to individual. Also no one individual is omniscient about this complex field. Don't hesitate to double-check any information (even from yours truly) with other folks to try to get as well rounded a perspective as you can reasonably attain. That being said, what follows is an excellent attempt to try to deal with a practical problem in cryonics and that is the necessity of coming up with a reasonable mechanism to fund it. As the saying goes, in this world there are no "free lunches". Cryonics organizations don't necessarily provide services to make money but they simply must have money in order to provide services and in order to insure the continued safety of the individuals already under their care. Rudi Hoffman offers a very readable approach to helping individual cryonicists answer that need. We start, of course, at the beginning and will take you through Chapter One. Future chapters will be printed in future issues as space permits. My hat is off to my long time friend Rudi for both his excellent result in giving good information to his fellow cryonicists and for his yeoman like effort in reaching that point. Many thanks as well for his years of friendship and fellowship with myself and my family down through the years.

The Affordable Immortal:

Maybe You *Can* Beat Death and Taxes!

Rudi Hoffman
World's Leading Cryonics Insuror

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Contents

To YOU, the reader: Benjamin Franklin once said, "In this world nothing can be said to be certain, except death and taxes."

Well, times have changed. Take advantage.

"I wish it were possible, from this instance, to invent a method of embalming drowned persons in such a manner that they may be recalled to life at any period, however distant; for having a very ardent desire to see and observe the state of America a hundred years hence, I should prefer to any ordinary death the being immersed in a cask of Madeira wine with a few friends till that time, to be then recalled to life by the solar warmth of my dear country!" ~ *Benjamin Franklin, in a 1773 letter.*

Introduction: Welcome to the Future

Why This Book Was Written

My mission in this book is two-fold. First, to cover some of the ideological assumptions which underlie cryonics as an emerging technology.

Second, to propose that cryonics is financially feasible for you, if you are fairly healthy, and have some reasonable but not necessarily extreme financial resources. Whether reanimation is possible or not becomes a moot point to you if cryonics is only available to the affluent or would require great sacrifice on the part of your loved ones.

What do I hope you get out of this book? Here are five ideas I would like you to consider. Figuring out an interesting way to convey these foundational memes has kept me wide awake many nights. You will be the judge of whether I succeed in framing these themes in a cogent and compelling way.

Five Take Aways

1. Cryonics is a legitimate, though currently unproven, medical intervention.
2. Assuming the above, you may want to be in the cryonics "experimental group" and not in the "control group."
3. This choice may be affordable for you through the leverage of life insurance.
4. If cryonics does indeed work and you are revived, it will probably be in a really spectacular and fun future.
5. There are resources and people to help you in your research and decision-making. I am one of those people.

Yes, it just may be possible for you to beat death and taxes! This book is written to explain why that sentence is not as unlikely (crazy?) as it may seem. I acknowledge this is a mind stretching claim, and I welcome your skepticism.

This book will explain how and why most individuals might reasonably incorporate the amount of money required for cryonic suspension into their budget. This is generally accomplished through the financial "leverage" of life insurance. where a relatively small amount of premium paid to an insurance company blossoms to an enormous amount of money upon pronouncement of "death."

The cryonics procedure is not actually carried out until there is a medical professional's pronouncement of "death." At that point, when an individual is pronounced "dead" by current *legal* (not necessarily medical) standards, any life insurance policies on the individual are fully collectible and will be paid by the life insurance company.

What this means, in practical terms, is that nearly everyone reading these words, and I do include *you*, dear reader, now has the financial ability to afford this potentially life-preserving technology.

This Is a Huge Deal!

If this does not astonish you, if you do not sense the life-changing and society-transforming power of this simple idea, then I have yet to do my job, and you should perhaps reconsider the implications of these technologies. By the time we finish the journey of this book together, my hope is that you will deeply consider the life enhancing possibilities now available to millions of irreplaceable and unique individuals.

But Will Cryonics Work?

Whether or not you consider cryonic suspension as a rational or reasonable gamble is your decision, based on research that you have perhaps already done and will continue to do. Whether cryonics will work and whether the cryogenically suspended individual can be reanimated with memories intact and able to function and enjoy life is an open-ended question. While this is perhaps among the more important questions of our age, and an especially vital question for you to make regarding your personal cryonics choices, this book will not focus primarily on the technical feasibility of cryonics.

Disclaimer

It is considered good form, especially in scientific literature, to disclose bias. With this in mind, the reader should be warned that my bias is that cryonic suspension is an enormously reasonable, rational, affordable, and scientific choice. You, as a perceptive reader, have probably figured this out already.

Isn't cryonics suspension just science fiction?

The answer to this question is that cryonic suspension is a reality, although future revival remains an open question. We'll go into explicit detail about the current realities of this fascinating endeavor as we proceed.

A major premise of cryonics is the expectation that future science and technological advances will, at some point in time, be able to restore an individual with their memories and sense of self intact.

There is a consciousness in the 1.5 kilogram universe sitting between your ears as you read these words, remarkably similar to the awareness I feel as I craft these same words. I intend to create verbiage that *may* change your worldview in a profound way, a bridge from my mind to yours. I want to share some ideas that may preserve your consciousness, whatever you consider to be at the very heart of "you."

Let's get started. This will be fun. And, if you approach the ideas in this book with a reasonably skeptical but open mind, these ideas may impact your life dramatically in a positive direction. Would you choose life in Chapter One's scenario?

What would you do?

Chapter 1

A Life or Death Decision: WWYD?

Ponder this very real and gritty metaphorical story...What Would You Do?

You never thought it would happen to you. "There must be some mistake in the diagnosis!" you tell your doctor and your wife. "I have never smoked, I eat a healthy and mostly vegetarian diet, I work out a few times a week, and I am training for that half-marathon coming up in two months. Doctor, are you sure you got this right?"

Your attention is riveted on the rail thin oncologist in his starched lab coat. You glance over at your wife to see how she is taking this, and notice her brave face, but you can also see the detail of how her eyes seem especially bright, as the tears she will not let fall well up in her eyes. You have been waiting with her in this tiny room for the doctor to come in and discuss the results of the PET scan you had last week.

The doctor still seems too young, but you have heard he is the best available. And you have had some deep, even philosophical, conversations with him. Could it just be three weeks ago that you and your wife were making plans for your long-awaited and much needed vacation? After many years of postponed vacations and planned trips, this trip to Hawaii was going to be the trip of a lifetime, a way to make up for the many late nights and missed dinners that were just a part of doing "whatever it takes" to make your business work. She understood, of course, but this trip was the one you both had promised each other would not be postponed - no matter what.

You consider whether it would be wildly inappropriate to grin at your wife sardonically and say, "Welcome to 'no matter what.'"

You ponder the best way to handle this. Conflicting demands vie for attention in your thought process. You want to set the right positioning and posture with this doctor, although a part of you wonders why this could possibly matter. Another voice inside your head wants to impress your wife with the wisdom and maturity you are showing in the face of what seems to be a very serious cancer diagnosis. Yet a third part of you wants a way out of this, to find a way to minimize how this is going to be impacting your life and plans. You are already negotiating with death, surprised that you feel more sadness over the lost

Hawaiian vacation than anything else, and you speculate it is because the "anything else" does not feel real as of now. Yet a fourth voice in your head is rating the doctor on his professionalism, judging him on a one to ten scale as to how he delivers bad news.

The doctor may be too young, but he has obviously had many awkward conversations like this before. Much to your surprise, he is forthright and unvarnished. His directness is startling.

The Diagnosis

"I am afraid I have some bad news. You have an inoperable brain tumor we call a glioblastoma. There is simply no way to operate on it. Traditional chemotherapy and radiation are not effective options."

You simply cannot believe what you are hearing. Surely this is not happening! You clear your throat so you can speak with a level and rational voice. "Doctor, what is the prognosis? What do we expect to happen, and exactly what are we going to do about it?"

As you end this question you look deep in this doctor's unlined face. You burn a hole in his left eye with your steady gaze. Surely, if the universe awards points for handling bad news in a rational way, you will get some for the steadiness you are showing, the fixity of your gaze into the doctor's surprisingly deep blue eyes.

Some part of you notes this is somewhat silly and irrational in itself. You struggle to maintain eye contact and note an unusual pressure in your own eyes. It is an odd sensation, and you realize this is the feeling of tears welling up as you search your doctor's face for something resembling hope.

He maintains his eye contact with you, but as he does, he also says words you never expected to hear. "There is simply no operating cure with this particular type of glioblastoma. It is deep in your brain stem. You need to get your affairs in order. I have consulted with the radiologist and my colleagues, and our best guess is that you have between two to six months left to live. To be honest, with this type of mass and at stage three, it is probably closer to the two months. You will start to notice balance problems at first, then your legs, and later your arms will become uncontrollable, followed by loss of function in your core organs."

Again, the feeling of unreality overcomes you. You feel like a character in a television drama, hearing some lines, and then you realize you don't know what your lines should be. You wait for the director to yell "Cut!" before realizing that this is you, not a character in some fiction show. This moment you are experiencing is about as real as life gets. You have just been given a death sentence.

The small room seems even smaller now. The part of you that always loved dramatic dialogue notes, with appreciation, that no outside noises or distractions from the hall interrupt this dramatic moment being shared between three human beings. In the sudden stillness, you hear your wife stifling some quiet sobs, and you want to comfort her.

Most of all, you want to fix this problem. You have taken an engineering approach to many problems in life, and there surely must be some way to fix this massive dilemma. Your business heroes and mentors became your role models because they took on difficult or impossible challenges. Can't this doctor see that you are special, that you don't deserve to have your life cut short by some incredibly stupid lump of tissue that doesn't know enough to stop growing?

"Listen, Doctor," you are pleased to note how calm and compelling your voice sounds in the confines of this room. "I believe in technology, human rationality, engineering, and enlightenment values. We are not in the dark ages. There simply must be something we can do!"

The quiet intensity of your question reaches beyond the professional facade of this young man. You feel the deep connection that is so rare between humans. You know he has spent thousands of hours of his life so that he can help people like you in this exact circumstance. And you sense his deep compassion, which goes well beyond his professional obligation. You recall earlier conversations with him and know that he shares much of your worldview. You share a passion for what science and technology have done for humanity. And, almost an equally strong revulsion for superstitions, which make for bad decision making even among supposedly modern people.

"Well," the doctor hesitates, subtly shifting in his chair. He is now even closer, confirming your earlier belief that he genuinely likes you personally, and that delivering this news is breaking his heart. Your wife and you, seated in the plastic chairs in this tiny alcove, could reach out and touch each other. The physical intimacy is somewhat uncomfortable. You can see your doctor's stubble on the left side of his deeply cleft chin. The part of you that plays director in your head notes with approval that this guy could be from central casting to play the part of the celebrated oncologist, series superstar and heartthrob of attractive nurses. But this is not the vicarious experience of movies and television. This is real. It is happening to you,

in real time.

"Listen, Doc!" You realize the outwardly calm demeanor you have been projecting is not going to be maintained. Maybe it is time to show some intensity, to use some colloquial and decidedly unprofessional language to connect on a more personal level. "Goddammit, Doc! I do not intend to die in a few months! If there is anything… anything that can be done, I want to know about it!" Your voice has become suddenly very loud. Although you are almost within touching distance of these two people, you realize you are shouting at maximum volume.

You look over at your wife to see how she is handling your outburst. She is staring at you with an expression that is hard to read. Anger? Love? Grief? Embarrassment? Respect? What does she want from you?

You deeply want her to feel that you are handling this news without resorting to the kind of religious platitudes that you both have agreed are not helpful to the human condition. "It is all in the hands of God," is one such phrase you both had agreed on in earlier discussions which basically pleads ignorance and abdicates our personal accountability. If this cancer was a type that was curable with treatment, which has a good chance of working, would we "Leave it up to God?" Of course, we would not! Intelligent humans, living in the 21st century, simply do not do that kind of thing. So, what do intelligent human beings do when faced with imminent death?

"Well," he continues, "There is one chance. There is an experimental treatment for your condition; however, it is still in medical trials, it is not FDA approved, and we don't know what the odds are of this treatment working. It is called gene therapy. You should also know that, because it is not FDA approved, your insurance company will not pay for it. It is quite expensive. While we have lots of proof of concepts that this should work, and we have clinical and lab experiments on animals which look promising, we cannot guarantee you results or even give you accurate odds that this will work. We may be able to get you into an experimental trial, in which case most of your costs would be covered; however, you should have no illusions that we can guarantee the outcome. But, we *can* guarantee that you are most likely going to die if you don't sign up for this clinical trial."

"Now we are talking! Now we can talk about making a smart decision!" you say with some relief. You had in earlier discussions asked your doctor to be straight with you, but you are still surprised by his breathtaking directness. At the same time, your training on rational decision making enables you to realize that making important decisions in the heat of the moment is often unwise. Is it now unwise to decide on an experimental therapy right now, in this moment, and to perhaps spend your life savings as well as what would be left to your wife and family, on an experimental treatment?

Your training in rational decision making drilled you on the many cognitive biases that even well-educated and smart people repeatedly demonstrate. Availability bias, you remind yourself, is the fact that we simply don't know what it is we don't know. In an attempt to get back in touch with your executive decision-making forebrain, you run some of the other well-known cognitive glitches that we humans are prone to, replaying the parts of the list you can remember through your mind. *Availability bias, recency bias, confirmation bias, ignoring relevant information, neglect of probability, anchoring, self-serving bias, fundamental attribution error, belief bias, framing bias, and hindsight bias* all reel through your mind. While you know this list is incomplete (in itself, you reflect, a type of *availability bias*), you know that we, as humans, have developed a solid repertoire of ways to fool ourselves and others.

Your doctor has just told you that you are going to die. In essence, you are going to drown in a sea of ignorance because modern medicine has simply not figured out how to fix you yet. And he has thrown you a life preserver, but this life preserver does not have a stamp of approval from regulatory agencies and mainstream medicine.

You wonder, "Am I being stupid, pathetic, and desperate to consider a non-FDA approved treatment? I have always been harsh in my criticisms of those who seem to reject science in favor of new age type modalities. I have had such a smug superiority to them, feeling that they simply lack the empiricism and scientific training that I have tried my best to learn over many years of study. They believe something is true because they simply want it to be true. How embarrassing is that? Could we ask for any clearer example of wishful and magical thinking, the opposite of scientific decision making? Would my considering this experimental treatment put me in the same boat as new age crystal wavers and tarot card readers?"

Once again, life has given you an opportunity to regret your earlier arrogance. It turns out that making a real-world decision, with massive personal impact, in the face of unknown variables and even unknown unknowns, is perhaps easier to observe in a movie theatre than in real life - especially when it is your own life, or that of a loved one. The tendencies we all have, which may or may not be

Continues on page 27

Options for Safe, Secure and Legal Asset Preservation for Post-Resuscitation Access

The Tenth Annual *Young Cryonicists* Gathering

Teens & Twenties 10 2019: Getting to Know You - You Getting to Know Each Other

Fri-Sun; May 17-19, '19 Fort Lauderdale, FL Host: *Biomedical Research & Longevity Society* SCHOLARSHIPS

★★★

Greetings to *ALL Young Cryonicists*,

You are receiving this invitation because you are the future of cryonics.

All attention will be focused on:
our getting to know you and
you getting to know each other.
PLUS: an update on the latest emergency response technologies and revival strategies.

Who is Eligible?

Fully signed up young cryonicists from all acknowledged cryonics providers in their late teens *through* age thirty *(18-30) as of May 16, 2019* - may apply to attend.

Younger Cryonicists With Parent(s):

Thirteen through seventeen year olds may attend when accompanied by their parent(s) or guardian(s).

Parents/guardians of attendees aged 18-19 are also encouraged to accompany their child. All attending parents will be put in touch with each other should they choose to have their own "get together" during the "young cryonicists" gathering.

Program

Some individuals are social butterflies. This is not so for everyone. And we want *everyone to meet everyone.* Therefore, I have designed a diverse range of "getting to know you" activities. *IF* you would enjoy participating in these various getting acquainted activities, *THEN* this is for you.

Enjoy this exciting & fulfilling weekend.

SCHOLARSHIPS:

Biomedical Research & Longevity Society, through a generous education grant, offers *40 scholarships* paying ALL of the following:

- U.S. airfare to/from Fort Lauderdale, FL (up to $1000 for origin outside the U.S.)
- Hotel accommodations for Friday & Saturday nights - plus Thursday & Sunday nights (specifically) for scholarship attendees who room together.
- Meals and beverages on Friday night, all day Saturday, & Sunday breakfast & lunch
- Registration fee - $350 - also covered

Please click on this website for a full packet with all details and application forms.

VIEW AND DOWNLOAD

Forever,

Cairn Erfreuliche Idun
Founder/Director: T2

PS Come Early. Stay Late.

Some attendees to T2 enjoy spending *extra time in Florida* - especially since their flight is already paid for via their scholarship.

This is at their own expense for additional lodging and food.

I look forward to getting to know you.

Worldwide Cryonics Groups

AUSTRALIA: The Cryonics Association of Australasia offers support and information for Australia & nearby countries. caalist@prix.pricom.com.au. Their Public Relations Officer is Philip Rhoades. **phil@pricom.com.au** GPO Box 3411, Sydney, NSW 2001 Australia. Phone: +6128001 6204 (office) or +61 2 99226979 (home.)

BELGIUM: Cryonics Belgium is an organisation that exists to inform interested parties and, if desired, can assist with handling the paperwork for a cryonic suspension. The website can be found at **www.cryonicsbelgium.com**. To get in touch, please send an email to **info@cryonicsbelgium.com**.

BHUTAN: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Thimphou & Paro. Contacts : Jamyang Palden & Tenzin Rabgay / Emails : **palde002@umn.edu** or **jamgarnett@hotmail.co** Phones : Jamyang / 975-2-32-66-50 & Tenzin / 975-2-77-21-01-87

CANADA: This is a very active group that participated in Toronto's first cryopreservation. President, Christine Gaspar; Vice President, Gary Tripp. Visit them at: **http://www.cryocdn.org/**. There is a subgroup called the Toronto Local Group. Meeting dates and other conversations are held via the Yahoo group. This is a closed group. To join write: **csc4@cryocdn.org**

CHILE: Community oriented to provide reliable information on human cryopreservation, as far as technical scientific as well as other practical aspects. Dissemination, awareness and education on issues related to the extension of life in general and cryonics in particular. Contact José Luis Galdames via **galdamesjoseluis@gmail.com** or via facebook at Cryonics Chile

QUEBEC: Contact: Stephan Beauregard, C.I. Director & Official Administrator of the Cryonics Institute Facebook Page. Information about Cryonics & perfusion services in Montreal for all cryonicicts. Services available in French & English: **stephan@cryonics.org**

FINLAND: The Finnish Cryonics Society, (KRYOFIN) is a new organization that will be working closely with KrioRus. They would like to hear from fellow cryonicists. Contact them at: **kryoniikka.fi** Their President is Antti Peltonen.

FRANCE: SOCIETE CRYONICS DE FRANCE is a non profit French organization working closely with European cryonics groups. For more information: J.Roland Missionnier: phone: 33 (0) 6 64 90 98 41 or email: **cryonicsnews.inpi@yahoo.fr**

GERMANY: DGAB There are a number of Cryonicists in Germany. Their Organization is called "Deutsche Gesellschaft für Angewandte Biostase e.V.", or short "DGAB". More information on their homepage at **www.biostase.de**. If there are further questions, contact their Board at **vorstand@biostase.de**

GERMANY: CRYONICS-GERMANY is an active group providing cryonics support, including a special 8-member Standby Response Team. Members from Germany or Internationally are welcome to join. at **http://cryonics-germany.org**. Direct inquiries to **contact@cryonics-germany.org**.

INDIA: Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr and authority in Bangalore & Vellore Area. Contacts : Br Sankeerth & Bioster Vignesh / Email : **vicky23101994@gmail.com** Phones : Bioster / 918148049058 & Br Sankeerth / 917795115939

ITALY: The Italian Cryonics Group (inside the Life Extension Research Group (LIFEXT Research Group)) **www.lifext.org** and relative forum: **forum.lifext.org**. The founder is Bruno Lenzi, contact him at **brunolenzi88@gmail.com** or Giovanni Ranzo at: **giovanni1410@gmail.com**

JAPAN: Hikaru Midorikawa is President Japan Cryonics Association. Formed in 1998, our goals are to disseminate cryonics information in Japan, to provide cryonics services in Japan, and eventually, to allow cryonics to take root in the Japanese society. Contact **mid_hikaru@yahoo.co.jp** or **http://www.cryonics.jp/**

NEPAL: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Kathmandu. Contact : Suresh K. Shrestha / Email : **toursuresh@gmail.com** Phone : 977-985-1071364 / PO Box 14480 Kathmandu.

THE NETHERLANDS: Dutch Cryonics Organization is the local support group since 2002 and able to provide advice, standby, perfusion and shipment 24/7, in case of need. We are an active group utilizing the latest equipment. New members from The Netherlands welcome.

E-mail: **info@cryonisme.nl**
website: **http://www.cryonisme.nl**

NORWAY : Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr, funeral home and authority at Sandvika. Contacts : Gunnar Hammersmark Sandvika Begegravelsesbyraa / Phones : 011-47-2279-7736

RUSSIA: KrioRus is a Russian cryonics organization operating in Russia, CIS and Eastern Europe that exists to help arrange cryopreservation and longterm suspension locally, or with CI or Alcor. Please contact **kriorus@mail.ru** or **daoila.medvedev@mail.ru** for additional information or visit **http://www.kriorus.ru**. Phone: 79057680457

SPAIN: The Spanish cryonics group in Sociedad Crionica **www.sociedad-crionica.org.** The president is Dr. Lluis Estrada. This is a large group of people, and those interested in cryonics are welcome to contact them at **info@sociedad-crionica.org.**

SWEDEN: **www.kryonik.se** or Facebook: Svenska Kryonikföreningen. Initially, the society will focus on providing information and assistance to those who wish to sign up for cryonics. Eventually, we also hope to provide practical assistance in cases, possibly in collaboration with other European groups.

SWITZERLAND:
www.cryosuisse.ch

CRYOSUISSE The Swiss Society for Cryonics.
To join, **email info@cryosuisse.ch**

UNITED KINGDOM: Cryonics UK is a nonprofit UK based standby group. **www.cryonics-uk.org** Cryonics UK can be contacted via the following people: Tim Gibson: phone: 07905 371495, email: **tim.gibson@cryonics-uk.org**. Victoria Stevens: phone: 01287 669201, email: **vicstevens@hotmail.co.uk**. Graham Hipkiss: phone: 0115 8492179 / 07752 251 564, email: **ghipkiss@hotmail.com**. Alan Sinclair: phone: 01273 587 660 / 07719 820715, email: **cryoservices@yahoo.co.uk**

Can help Cryonics Institute Members who need help, funeral home, transport at London. Contact : F.A. Albin & Sons / Arthur Stanley House Phone : 020-7237-3637

INTERNATIONAL: The Cryonics Society is a global cryonics advocacy organization. **www.CryonicsSociety.org**. They publish an e-newsletter *FutureNews*. Phone: 1-585-643-1167.

Please note, this list is provided as an information resource only. Inclusion on the list does not constitute an endorsement by Long Life magazine or our affiliated organizations. We urge our readers to use this list as a starting point to research groups that may meet their own individual needs. We further note that readers should always use their own informed judgment and a reasonable amount of caution in dealing with any organization and/or individual listed.

Please send any corrections or changes to the address below. If you know of, or are considering starting a support, standby or other cryonics-related group in your area, please send details to

dg@dgmedia-design.com.

Oregon Cryonics on the Move

By Jim Yount

Location! Location! Location! Those are the three things real estate professionals tell us we should look for in buying or renting a new property. Oregon Cryonics (OC) has just that: Location! Location! Location! There are *three locations*. I was among a small group of likeminded cryonicists to visit those locations on May 20th of this year. This was part of a field trip, organized for the Asset Preservation Cryonics group which followed an annual meeting. The discussion group is called *Options for Safe, Secure and Legal Asset Preservation for Post-Resuscitation Access (OSSLAP)*, and was first formed to explore ways for people to take their money with them when they go into cryopreservation. The plan is for such money to be made available to them after reanimation. So maybe you *can* take it with you with when you go! This year's meeting was in Portland, Oregon. After the meeting members of OSSLAP visited Oregon Cryonics in its Salem location. OC founder, Executive Director and "chief bottle washer" Jordan Sparks, DDS, was not available that day. Jordan's Operations Manager Mathew Sullivan conducted the tours.

Oregon Cryonics Operations Manager Mathew Sullivan. Mathew was tour guide for the OSSLAP group's May 20th visit.

I once heard cryonist Jerry White describe the cryopreservation of a brain only (with the intention of later reanimating the person whose brain has been so preserved) as the "quintessential cryonics." The subject of the cryopreservation reduced to its most basic constituent. In 1992 he was one of the first (if not the first) person to preserve only a brain with the aim of *someday reconstituting the person*. The brain belonged to his mother. OC is the first cryonics organization to specialize in this quintessential cryopreservation of brains. *Long Life* readers may recall my earlier article on Oregon Cryonics which appeared in the second quarter issue of *Long Life* magazine in 2015. Here's a link: http://immortalistsociety.org/LongLifeV47-02.pdf.

Our first location to visit had the look of a small business center. There was no sign heralding the "brain freezing" business. Our guide Mathew explained that this was where patients were first received to undergo surgery to reduce the body to a brain. The brains were often left encased by the cranium. OC has perfected this surgery by working with cadavers. Mathew Sullivan said OC has about 60 human brain specimens. This includes both OC members whose brains or brains of relatives are in storage, and the brains of cadavers intended for research. OC now has half a dozen actual patients. These are people whose brains are cryopreserved in the hope of future reanimation. All but one of these are chemically preserved rather than treated as cryonics subjects. Chemical preservation is thought by some as an interim step. The hope is that chemical preservation will be followed by freezing in liquid nitrogen; that is, when the money becomes available for this long term goal. Besides the preserved human brains OC has the cryopreserved brains of 5 companion animals.

We were then escorted through several rooms where diagnosis and surgical operations take place. OC has two CT scanners used to give feedback during the process. The company does aldehyde fixation as a first step regardless of whether or not technicians will follow the fixation with cryopreservation. Some specimens are stored at room temperature; others refrigerated. Still others are cryopreserved.

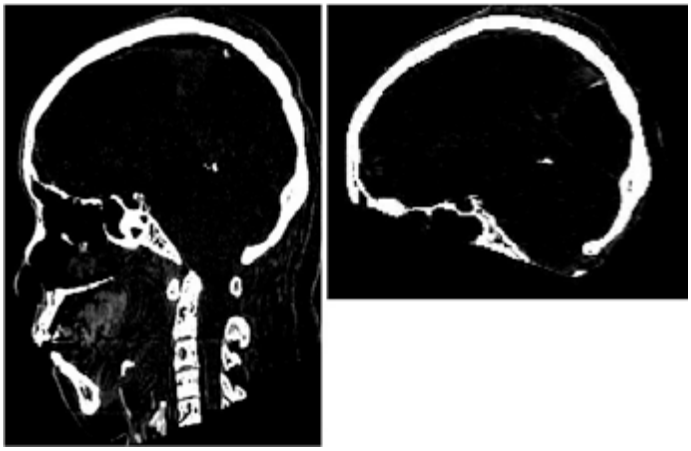
I had the feeling of *déjà vu* when I walked into one of the rooms. This was the room pictured in my earlier *Long Life* article on OC: the OC patient room (deanimation room). Under Oregon's *Death with Dignity* laws, an OC member may end his life before suffering the agony that often comes with death. It cannot be overemphasized how important it is to determine the time and place of one's deanimation. A team can be at the patient's bedside with all necessary equipment and avoid delays that are often associated with cryopreservation.

OC's *second location* was roomier than the first; the main room at this facility has a very high ceiling. Traditionally high ceilings are good for cryonics companies because they allow a patient to be lowered into a cryostat with ease. But with OC's present

plan to concentrate on cryopreserving brains the benefit of a high ceiling may be mute. Part of this room was devoted to liquid nitrogen storage of patients and specimens. This second location is in the same building where Jordan Sparks has a customer service "boiler room" for his burgeoning dental software company. We saw row after row of office cubicles where individual operators answer phone inquiries and give support to dental offices throughout the country. Jordan's business, Open Dental Software, is doing quite well and Dr. Sparks is funneling some of the profits into research through OC. I asked Mathew if the employees of the dental service company knew they were sharing their building with OC. He explained that the dental software people all know of the sharing, and there had been no problems. I expect the Open Dental Software phone operators tell interesting things to their friends and family about where they work!

We viewed an ambulance which had been modified by OC (modifications almost completed). The plan is for the ambulance to be parked close to the location of a cryonicist just before deanimation. Upon pronouncement of death by a doctor or nurse, the patient would be quickly moved to the ambulance. There the cryopreservation procedure would be started. After stabilization, the patient would be transported to the OC facility itself. If the patient was a great distance from the facility, then most of the cryopreservation would occur in the modified ambulance.

Onward to the *third* location! Dr. Jordan Sparks has purchased 20 acres of land near the onramp of a major highway in Salem for his business operations. This site includes a sizeable house now the administrative headquarters for OC. On these 20 acres two buildings are under construction, one largely finished, for Open Dental Software. The site for the new home of Oregon Cryonics is at this campus; now an empty lot. When completed, the OC headquarters will be moved into the new building. The building is expected to be 8,000 square feet, all first floor space. Construction will be such that a second floor can be added later. There are plans for a drive-in bay for the ambulance. At this time there is no estimated date of completion.



On the left is an X-ray of a human skull. On the right is the same skull now paired down to the Brain case and brain. This technique allows the brain to remain in its protective skull casing while greatly reducing size and weight.

There are several impressions a visitor gets from such a tour.

First, *plenty* of research is going on at OC. Oregon Cryonics is in no hurry to acquire either patients or members until basic research is done with proven, repeatable results. Currently OC is only accepting patients who are either terminal or recently deceased.

Second, OC is in flux; being spread out over three active locations, but soon to merge operations in this final largely unbuilt location. Oregon Cryonics is indeed *on the move*.

Third, unlike most other startup cryonics companies OC is not handicapped by a lack of money. Jordan has the means and the willingness to use his talent and money to give OC a head start. As Open Dental Software prospers Oregon Cryonics should also do well.

Fourth, one cannot help but be impressed with the *uniqueness* of OC's plans. If it turns out that all we need do is preserve our brains then reanimated folks of the future will be asking why ACS and CI wasted all that money with cryopreservation of whole bodies. Consider that the average weight of an American over age 20 is about 182 lbs (according to the Center for Disease control, averaging the weight of male and female). If all we need do is preserve the grey matter, then we can pair that weight down to the weight of a brain (about 3 lbs). Why take the rest of that stuff through time? In dollars and cents, if a whole-body cryopreservation and long-term storage is correctly priced at $28,000, then what price for a brain? 182 lbs divided by 3 lbs is 60.66 (brains). So, the *price* for long term storage of a brain might be $28,000 divided by 60.66, or $462.

On this location in Salem, Oregon Cryonics plans to build its new multiuse cryonics facility. It is part of a 20 acres campus that will also house Dr. Jordan Sparks' Open Dental Software company. OC's new home is planned to be single story of 8,000 sq. ft. A second story may later be added.

If we want to refine our cancellations a bit then we subtract $12,000 as initial preparation costs from the $28,000 to get $18,000 as the funding to pay for keeping the brain frozen through time to come. Keeping with the 182 lbs for average person size and 3 lbs for a brain and 60.66 brains to weigh the 182 lbs then: the *price* for long term storage of a brain would be $18,000 divided by 60.66, or $296.74.

Uncle Jake likes the idea of cryonics but he doesn't have much money. We truly love Uncle Jake, but not so much that we're willing to pay $28,000 for the old geezer. So... we point old Jake toward the Northwest and lend him 462 dollars. If the brain only approach to cryonics proves successful, then we have a product almost anyone can afford.

Not so fast. The price of $462 is based upon having the efficiency and volume of CI. A startup cryonics company is not apt to achieve that for many years. Just the same, this indicates that the price of *long term cryostorage* of a brain followed by cremation of the body *may become* less than conventional earth burial.

As for 2018 prices: the OC website gives prices for head, brain, and brain-in-the-braincase. OC calls this the *Patient Care Fund*, that is the finances needed to keep the specimen frozen for a *very* long time. Brain case cryopreservation may need some explanation. OC can leave the brain in its protective skull, but pare away most of the cranial excess to thus reduce the specimen to brain plus protective brain case.

Preparation, transportation, and establishing a patient care fund is $36,000 for head only according to the OC website.

However, just the OC Patient Care Fund (the OC funding to carry the patient through to the future) comes in at:

$25,000 for head.

$13,000 braincase with enclosed brain.

$8,000 for brain only.

OC has a starter price of $1,000 for just doing chemical storage in aldehyde. Here's what the OC website says about that service. The underlining of text is by this author.

Liquid Storage

$1000

Storage in aldehyde. This can be used for either temporary or permanent situations in which funding is not available for cryopreservation. It can also be used when the initial preservation quality is so poor that the expense of cryopreservation cannot be justified. We will accept and store any brain that is sent to us. Payment is not required in advance.

Cryonics Protocols at the Cryonics Institute: Research and Practice

Part 4: New Research and Future Development

By Aschwin de Wolf

Introduction

In this 4-part series we will review cryonics protocols at the Cryonics Institute, discuss recent research to validate and improve cryonics protocols, make recommendations to improve those procedures, and discuss future research directions in the field. Each installment will cover a single topic: (1) Patient Monitoring and Standby, (2) Stabilization, (3) Cryoprotection, and (4) New Research and Future Developments.

New Research

In prior installments of this series, we have articulated the elemental procedures that comprise the *Cryonics Institute's* cryopreservation protocol. In ideal circumstances, the patient is rapidly stabilized, cooled, and cryoprotection is started without delay. In sub-optimal circumstances, which are sometimes and very regrettably unavoidable, rapid stabilization after pronouncement of legal death is not possible and/or cryopreservation is conducted after prolonged transport times (24 to 48 hours) on water ice. We know from Yuri Pichugin's CI research that ischemia reduces hippocampal brain slice viability in a time and temperature-dependent fashion. *Advanced Neural Biosciences'* subsequent investigations revealed that under sub-optimal (ischemic) conditions the patient will gain weight during cryoprotection, the blood brain barrier breaks down, and equilibration of the brain with the vitrification solution is compromised. This compromise can lead to ice formation despite attempts at cryoprotection.

In 2017 and 2018 we obtained the first credible images of VM-1 cryoprotected brains. The fine structure appears well-preserved but in a significantly shrunken state (see part 3 of this series). What we do not know at this point is how the fine structure of the brain looks after cryoprotection of VM-1 is delayed. It is very easy for a case to arise in cryonics in which delayed response and air transport of the patient imposes enough warm and cold ischemia for breakdown of the blood brain barrier to occur, regardless of blood washout. Without an intact blood brain barrier to limit cryoprotectant penetration, will the fine structure of the brain appear more normal, or will exposure of brain cells to full-strength VM-1 cause more damage? Do outcomes improve when we add a chemical to the vitrification solution to break up blood clots prior to cryoprotection? In select cases, will the fine structure of the brain look better if we chemically fix the patient prior to transport to the cryonics facility? Can such procedures be conducted by local volunteers or funeral directors? These are some of the questions we hope to answer in an exciting proposed new research collaboration involving financial support from various organizations and/or individuals.

Medications

In prior investigations our lab, *Advanced Neural Biosciences*, validated that two medications (or chemicals) make a meaningful difference in outcome if administered promptly after circulatory arrest: sodium citrate and heparin. If administration is not delayed by more than 15 minutes post clinical death, ice-free cryoprotection is still possible after at least two hours of warm ischemia.

As discussed in our previous installment, if we would manage to replace the blood of the patient with a so-called organ preservation solution (MHP-2 produced the best results) prior to transport, ice-free cryopreservation of the brain may still be possible after *up to 48 hours of cold ischemia*. In many sub-optimal cases, however, we would not expect rapid cooling and blood washout to occur prior to transport of the patient to CI. Is it possible to modify CI's cryoprotection protocol to achieve better results in such cases?

In our new research, we aim to simulate a scenario in which one or both medications are administered, followed by variable periods of warm ischemia (to simulate transport to the funeral home) and variable periods of cold ischemia (to simulate shipping of the patient to the *Cryonics Institute*). Obtaining electron micrographs after simulating such scenarios will provide another set of data to greatly help evaluate the effectiveness of pre-transport medications administration.

Field Cryoprotection

In a typical international case, the delay between pronounce-

ment of legal death and arrival of the patient at the cryonics facility can be significantly delayed, which often results in a decision to ship the patient on dry ice instead of water ice. To prevent such a "straight freeze" without cryoprotection, the *Cryonics Institute* permits a procedure named field cryoprotection for overseas cases. This procedure is often erroneously described by some as "field vitrification" or "field cryopreservation." The reason to call it field cryoprotection is because when a patient is perfused with a vitrification solution and shipped on dry ice, the temperature will still be too high for vitrification to occur although the greatly lowered temperature of dry ice will tremendously slow deteriorative processes. Vitrification occurs at temperatures lower than dry ice and requires cooling in liquid nitrogen.

The easiest way to understand the idea of field cryoprotection is to imagine that all procedures that are usually done at CI in Michigan will be done on location instead. This minimizes the long transport times and delays that usually occur for overseas patients. After the patient is cooled to a temperature of about +5 °C, the VM-1 vitrification solution is introduced to the patient in 3 distinct steps: (1) 10% ethylene glycol, (2) 30% ethylene glycol, and (3) 70% VM-1. After the target concentration for the vitrification solution has been achieved, the patient is shipped on dry ice by airplane to the CI facility in the US.

If conducting field cryoprotection in international cases improves outcome by doing all the important procedures prior to shipping the patient to the facility, it is reasonable to ask why this should not be done for all US non-local CI cases. The traditional answer has been that local volunteers and/or funeral directors do not have the expertise, equipment, and supplies to perform this procedure. In our opinion, a lot depends on what the typical results are if we do not do field cryoprotection.

If there is a lot of ischemia-induced cell damage and ice formation in the brain of a patient who is first shipped on water ice before the procedure starts, a cautious case can be made to extend the CI field cryopreservation protocol to more US-based CI cases. On the practical side, this means that whenever CI is notified of a patient who is expected to need its services soon, a set of vitrification solutions with detailed administration instructions should be sent to a cooperating funeral director in advance or prepared by a competent individual who is suitably placed in the general area of where the patient will be located when the solutions are needed. Given the widespread use of the Internet, the administration instructions can include multimedia presentations on-line and/or sent on CD or DVD media to help in maximizing the efforts carried out. Conducting this procedure in accordance with CI protocol is important because if, for example, the patient is pumped full of air, or extremely high pressures damage the circulatory system, a second attempt at the CI facility is not possible.

Since field cryoprotection entails basically the same cryoprotection protocol but is done at a different location there are not a lot of new research questions. The most important thing we need to know is how viability and the fine structure of the brain look like after field cryoprotection compared to several typical CI transport scenarios. As discussed in a previous installment of this series, VM-1 is a rather potent vitrification agent but it would be prudent to further understand how well a cryoprotected brain that is stored for 24 or 48 hours on dry ice before further cooling to liquid nitrogen temperatures remains ice-free.

Aldehyde-stabilized cryopreservation

Cooling critically-ill patients who have been pronounced legally dead to cryogenic temperatures (-196 °C) to arrest metabolism is not the only proposal to preserve humans in anticipation of future medical advances. There has always been small faction within the life extension movement who argued in favor of using conventional chemical fixation techniques as an alternative to cryopreservation. In such proposals the emphasis is strictly on preservation of the structure of the brain, which is deemed sufficient to permit future revival assuming nanotechnological capabilities are robust enough, as some experts in nanotechnology strongly believe they will be. If chemical fixation with chemicals such as formaldehyde or glutaraldehyde is good enough to preserve the fine structure of the brain in research, it should be good enough for preservation of the identity-specific structures that are specific to an individual person. These structures would involve such things as memory and the individual personality traits of a particular person. The structures will be, to some degree, unique to each individual since every individual has, by and large, a unique life history and experiences.

A common argument against this position is that we have little understanding and data about the *long-term* preservation of chemically fixed brains. There is also the concern that strongly chemically fixed cells have lost, at least for the moment, any viability signs at all. This is in contrast to the fact that some research with neural tissues cryopreserved at liquid nitrogen temperature does show what can be thought of as signs of viability in those tissues in the form of the apparent attempts of nerve cells to use their innate sodium-potas-

sium pump after exposure to cryogenic temperatures and subsequent return to normothermic conditions.

The countervailing argument is, of course, that other individuals point out that present techniques of storage at ultra low temperatures also destroy viability. That is to say, no tissue stored at present with current techniques used in cryonics will function upon warming to room temperature. Even the successful and deeply laudable result of Dr. Greg Fahy, et al, several years back, the recovery of a cryopreserved rabbit kidney, was done in controlled laboratory conditions by highly trained cryobiologists. These conditions are not present in normal cryonics work (or routine emergency room medical work for that matter).

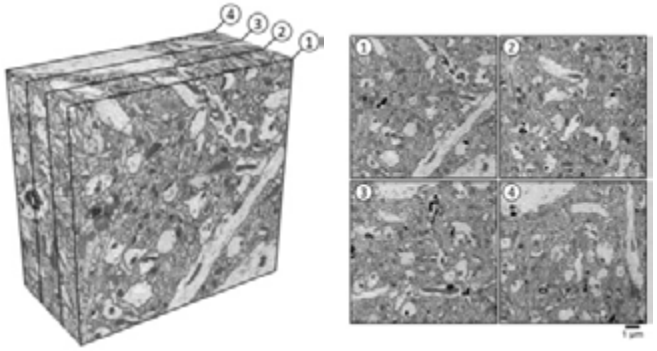
A further concern about strictly depending on a strictly chemical approach is that conventional fixatives do not preserve all bio-molecules in an equal fashion (proteins, lipids, etc.) and concerns about insufficient preservation of identity-critical information as have been articulated above. Another serious concern about room-temperature storage of fixed brains is that perfusion fixation in ischemic patients could be incomplete due to collapsed and/or damaged vessels, clotting, and red blood cell aggregation. These unfixed or poorly fixed areas of the brain will continue to degrade as if the tissue was not fixed at all.

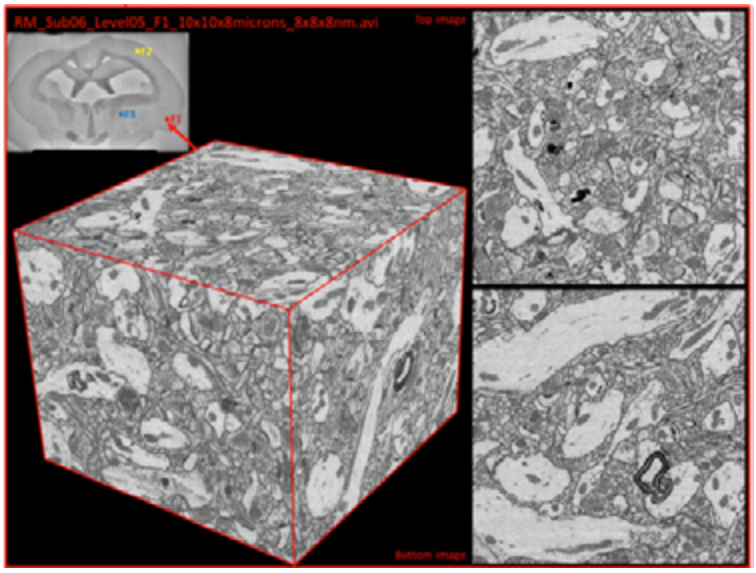
A new technology named aldehyde-stabilized cryopreservation (ASC) seeks to combine the advantages of both bio-preservation approaches: chemical fixation and storage at cryogenic temperatures. The procedure works as follows. First, the patient is perfused with a chemical fixative such as glutaraldehyde (the aldehyde-stabilization part), followed by perfusion of a vitrification agent to prevent freezing at cryogenic temperatures. After cryoprotection the patient's temperature is lowered to -196°C. Proponents of this procedure claim that this method achieves more robust protection through the cross-linking of proteins *plus* storage at cryogenic temperatures. The recent award of the Brain Preservation Prize to McIntyre, Fahy, et al for their outstanding work in the preservation of the ultrastructure of neural tissue subjected to cryogenic temperatures is an extremely hopeful development. The electron micrographs, as reproduced below, show an excellent appearance of brain tissue subjected to the ASC procedure. (A lengthier article on the procedure as used in winning the Brain Preservation Prize may be found in the Vol. 48, No. 1 (First Quarter 2016) issue of Long Life starting on page 20.)

An additional advantage of ASC is that if, for example, all the liquid nitrogen in a dewar (or cryostat) would boil off, the brain of a traditional cryonics patient, since they do not contain any aldehydes such as formaldehyde and/or glutaraldehyde would start to decompose. That decomposition would continue to progress until lowered temperatures were again instituted. But the brain of an aldehyde-stabilized cryopreservation patient would still be chemically fixed. Other advantages associated with "vitrifixation" include reduction of cold ischemia and the ability to introduce ultra-high concentrations of vitrification agents that would be normally too toxic to cells without prior chemical fixation.

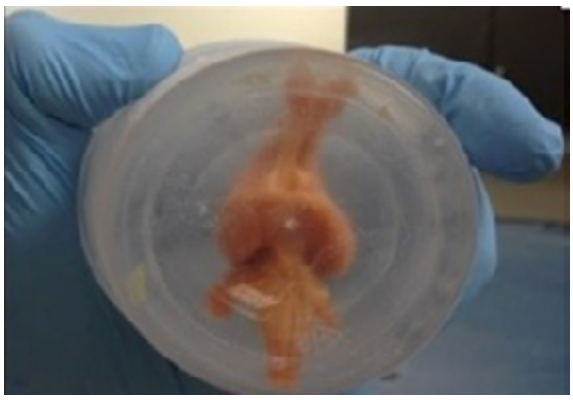
There is a detailed ongoing technical discussion between proponents and detractors of this procedure but there is a consensus that a subset of cryonics patients can benefit from ASC. A good example would be a scenario in which extended transport delays of a cryonics patient are expected (due to, for example, the weather) but a funeral director perfuses the patient with a solution of formaldehyde to stabilize the patient's brain and preserve critical structures that would otherwise begin to break down. After transport issues have been resolved the patient is shipped to the cryonics facility for cryoprotection and then stored in liquid nitrogen. This option to perfuse the patient with a chemical fixative to prevent a straight freeze due to possible extensive delays raises a broader question. What are the conditions in which ASC is a sensible alternative to delayed cryoprotection or even a straight freeze? Can ASC be seen as an equivalent procedure to traditional cry-

Frames from a FIB-SEM stack of rabbit neuropil near the CA1 band of the hippocampus. "Overall structural preservation is excellent: processes are clearly defined and organelles are intact. When observing slices of this volume in sequence, it is easy to track the progression of any process through the stack, demonstrating that connectivity in this region was not impaired by our preservation method (see full video available in online supplemental materials)". "KR8H washout solution. Vitrified; CPA removed by diffusion. Experiment date: 2015-04-15." Source: R.L. McIntyre, G.M. Fahy / Cryobiology 71 (2015).





Left: 3D Electron Microscopic Evaluation. Bottom: Actual whole rabbit brain vitrified and stored at -135 °C prior to slicing for evaluation. Source: The Brain Preservation Foundation.



onics procedures in terms of the probability of successful revival, repair, and rejuvenation of cryonics patients given what is expected to be very powerful capabilities represented by the promise of high-resolution scanning and nanotechnological repairs?

As discussed above, one approach to prevent the sub-optimal cryopreservation associated with extended transport times is to conduct cryoprotection *prior* to transport. Field cryoprotection holds a lot of promise but is not likely to occur in cases without a professional standby team present or without a funeral director that has been informed and provided clear instructions beforehand about human cryopreservation procedures. Another limitation of field cryoprotection is that a typical funeral director (or local response team) usually does not have the chemicals (VM-1) to cryoprotect the patient. As an essential part of their profession, funeral directors *do* always maintain supplies of chemical fixatives. Stabilizing the patient by circulating a formaldehyde solution is something that they are intimately familiar with. After this procedure, the patient would be shipped to the *Cryonics Institute* for cryoprotection. Allowing funeral directors to perfuse a CI patient with a chemical fixative could be an attractive option for CI members without standby arrangements or located in remote, sparsely-populated areas with limited rapid transportation options.

There are several practical and scientific questions associated with funeral director-controlled aldehyde stabilization. Can funeral directors with no prior training in cryonics procedures be clearly and effectively instructed to chemically fix cryonics patients without high arterial pressures, and taking due diligence to prevent introducing air or particulate matter? Will funeral directors make sure to close the incisions in a way suitable for subsequent cryonics procedures, i.e. leaving the circulatory system in a state that is compatible with subsequent cryoprotective perfusion? Are the most common fixative solutions used by morticians compatible with aldehyde-stabilized cryopreservation?

On the scientific side of things, there are also questions. How does the ultrastructure of patients subjected to this procedure compare to that obtained through a more conventional field cryoprotection? What if there is a long delay between chemical fixation and cryoprotection (2 weeks, 1 month, etc.). Should field cryoprotection or ASC be favored in cases with existing (extensive) warm and cold ischemia?

Future Developments

The state of cryonics is at a crossroads. Since Robert Ettinger published his seminal book "The Prospect of Immortality" two stable cryonics organizations (CI and Alcor) have emerged who together care for more than 300 patients. Gone are the days of patients stored in garages, patients abandoned due to lack of funding, and poor or non-existent cryoprotection methods. In principle, the elemental components for cryonics to succeed are in place: rapid response capabilities, modern vitrification and storage technologies, and the rise of molecular medicine. Research to further improve and refine human cryopreservation technologies continues. But how many patients do fully benefit from these technologies?

One point that has been elaborated on extensively in this series of articles is that for many patients there is still a large gap between the potential of these

technologies and the quality of cryoprotection received. The research directions outlined in this article are aimed at closing the gap between the good preservation of the brain that is possible in the lab and the logistical and practical challenges faced by a cryonics organization with many members in various locations across the world. Traditionally, the Cryonics Institute has been associated with a model in which funeral directors play an important role in collecting, stabilizing, and transport of the patient. How will the emerging new procedures (field cryoprotection, aldehyde-stabilized cryoprotection) be attuned with this model, and what are the logistical and scientific questions involved in maximizing their effectiveness?

We complete our investigations into the science and practice of CI procedures by noting that it is quite plausible that incorporation of some elements of these new procedures can raise the overall quality of cryonics at CI, a provider that, like Alcor, has a deep interest in trying to insure quality service as best as can be carried out in any particular situation. The recently proposed research effort is, in our opinion, an exciting opportunity to further the efforts of one of cryonics' two major service providers. We are looking forward to making progress in this interesting and possibly quite beneficial area of cryonics research.

The Affordable Immortal - *Continued from page 16*

well informed by our rational minds, are certainly evidenced when the stakes are so high, like this life or death decision.

You ask yourself, "Should I take a chance to live, or should I do nothing and die?"

After a moment you recognize that your decision is not of science versus pseudoscience but is instead one of current and proven science vs. proto-science, an early and unproven, but reasonable and logical extension of current scientific trends.

The experimental treatment you are considering is a scientific and technological intervention, among the most medically advanced interventions possible.

What Do You Do Now?

In this scenario, which I hope has enough details to emotionally resonate, we see the human condition writ small: a single individual facing the fact that his life will end. The difference between him and you, as you read this sentence, is just a matter of time. Our hero had about two months. You have a little longer. Maybe.

On the scale of biological time or geological time, the 20 or 50 or 70 years you may have before you die, is a mere flicker, a span of time so small that it can't even be seen at these scales.

One of the cognitive biases we all share is that it is difficult for us, even as reflective and deeply philosophical beings, to consider our own non-existence.

So, given a choice for an experimental treatment or certain death, which would you choose? Please be assured that you *will* be making a choice. By doing nothing and letting nature "take its course," you will almost certainly die. The difference between you and the scenario you just read is only a matter of time.

On a very personal note from the author to you, as I write these words in April of 2018, it is almost two years to the day that I woke up with a lump on my leg that turned out to be stage 2 lymphoma throughout my body and spleen. The parts of the above scenario that seem the most visceral are directly from my very recent life experience. I am still here writing these words, and you are reading them, as a result of successful hyper-current medical interventions.

Could it be that there may be an experimental treatment which could save you? Is it possible you could be fortunate enough to live in an age where science and technology may give you a chance to live and not die? How important would this be if it were true? Let's agree to simply keep an open mind and review some facts together in the journey of this book.

Editor's note: The "experimental treatment" Rudi alludes to is, of course, cryonics. In his next chapter, he will begin to explore the subject in more but still interesting detail. Don't miss the next issue of Long Life magazine as Rudi Hoffman continues to fill in the basic argument for this life and world-changing subject.

Joe Kowalsky Continues To Help Keep The Cryoprize "Front and Center"

By: Joe Jowalsky

My name is Joseph Kowalsky. I am the project coordinator for the Immortalist Society's Organ CryoPreservation Prize ("The CryoPrize"). (See the webpage *www.CryoPrize.Info*).

We usually think of the Immortalist Society as a cryonics related organization.[1] But its mandate extends beyond this to encouraging anything which will enhance the human condition – specifically relating to our health and long life. The CryoPrize project is one such endeavor. (Please see our 3-minute video at *www.CryoPrize.Info* and put it on your Facebook Page!)

While society at large has not come to embrace cryonics, most people are enthusiastic about organ transplants and many people are organ donors. Organ donation is an amazing gift – but one that must be given quickly or the organ will not be viable. We are encouraging research into methods of using low temperatures to allow for longer viability of organs for organ transplant.[2]

Not so long ago freezing of sperm, eggs and embryos was a questionable theory. Today it is fact. We are close to being able to do the same with organs. Interestingly, there have been many cases of people being revived after cessation of bodily functions in cold temperatures for 12 hours or more. But we still cannot keep a heart or lungs viable outside of the body for more than 5 or 8 hours, respectively.[3]

If you buy anything from Amazon you can help with this venture at no cost to you![4] Amazon will make a donation for each purchase which you make! Simply go to *Smile.Amazon.com* and sign up to have them donate to the Immortalist Society whenever you make a purchase. Then immediately e-mail us to let us know that you want the donations that Amazon makes to go to the CryoPrize. That's it! After that, whenever you make a purchase sign in from the *Smile.Amazon.com* website and Amazon will donate to the CryoPrize! (They will not make a donation if you sign in through the regular *Amazon.com* website.)

For those of you who are not cryonicists, this project is something which I hope you will appreciate. It could help you, your friends, family and others soon -- perhaps in the next ten years. For those of you who are cryonicists, research done into low temperature suspension of organs, aside from being a wonderful thing in and of itself, could be useful and a "stepping stone" to cryonics as well.

So I again encourage you, if you use Amazon, to put down this magazine and immediately sign up to have them donate to the Immortalist Society via Smile.Amazon.com. (Then continue to read the magazine ....)

Thank you! Long and Healthy Life to you!

1 Cryonics, as most reading this article likely know, is whole body suspension at very cold temperature (typically below -400 degrees Farenheit), at what is now considered death, in the hope that we can repair and revive the patient using future medical technology. We now revive people using a defibrillator and CPR from what was thought, not so long ago, to be "death" – i.e. irreversible cessation of bodily function. (Imagine what a 19th century physician would think about trying to revive someone with no vital signs! You might be thrown in jail for desecrating a body!) Cryonicists and others have come to realize that in the future medical science may see our view today of what is "death" as erroneous and reversible.

2 There are three main types of research being done to make organs more viable and available for transplant: Freezing/vitrification; keeping the organ alive by giving it regular nutrients to make it "believe" that it is still in a body (this is being done with some success with livers); and building an organ from scratch on a scaffolding, via a 3-d printer, etc. Of these, we believe that the first is the closest by far to viability for most organs.

3 *http://www.dailymail.co.uk/news/article-5588047/Dying-man-53-resuscitated-18-hours-heart-stopped-France.html;*

https://www.washingtonpost.com/news/morning-mix/wp/2016/01/20/being-frozen-to-death-saved-this-mans-life-it-could-save-others-too/?noredirect=on&utm_term=.cb2c8f7dcd05;

https://abcnews.go.com/Health/frozen-man-revived-brink-death-found-snow-pulse/story?id=36380318

4 Neither I nor the Immortalist Society encourages or discourages purchases from or through Amazon, nor do any of us have any connection with, or personally benefit from, any purchases made, aside from the donation which they make to the Immortalist Society as described. (Yes, I was a practicing lawyer for over a decade.)

Looking Back:
The Big Chill

(Editor's note: The Immortalist Society Vice-President, Deb Fleming, made an excellent suggestion a while back that Long Life should have a regular column called "Looking Back" in which articles of interest from prior issues appear. The column below, from the February, 1990 issue of The Immortalist, as Long Life magazine was known in those days, is one such offering).

Introductory remarks
by York W. Porter,
Immortalist Society President

Relations between the press and cryonics have been mixed at best. In the very early days, it appeared that cryonics was going to catch on very rapidly and become a routine part of life. Robert Ettinger made appearances in various venues including the then extremely prominent "Tonight Show". Alas, for reasons that are not clear, the hoped for initial progress didn't materialize and Mr. Ettinger began what was a long, slow, but determined effort to promote the concept he had originated. Sadly, down through the years, numerous members of the press wouldn't seem to give cryonics a fair evaluation but just relied on worn out phrases from news articles that had previously been written on the topic. Just as bad, they would repeat information from so called "experts" whom, when you examined things closely, really didn't know anything about the subject as they had no background or training related to it. The same worn out objections, which Mr. Ettinger had invariably addressed in his intelligent, logical, and quite rational way, were trotted out again and again to be dealt with again and again..

In this article from the September, 1990 issue of The Immortalist, which was the name of this magazine back in those days, an article from Barron's magazine, a major financial weekly, was republished. We'll leave the judgment as to the quality of the article to each of our readers but it seemed that Andy Zipser, the author, made a genuine attempt not to produce a "run of the mill" article but worked to try to really understand the concept from the standpoint of both its pros and cons. A few comments are at the end where the staff of this magazine at that time thought a few clarifications were in order. It should also be noted that Mr. Zipser's seemingly very sincere attempt should not be confused with him being absolutely right on every sentence and point. Readers should basically look at the following offering as a "snapshot in time" of one journalis'ts attempts to fully understand a very complex and dynamic field of human endeavor.

The Big Chill
Freezing the Newly Deceased Is an Idea That Won't Die

By: Andy Zipser
Barron's September 10, 1990

It is said that the only certainties in life are death and taxes. Robert C.W. Ettinger begs to differ—and not about the taxes.

"People think you can't be just a little bit dead, just like you can't be a little bit pregnant," he says. "They're wrong. And they're wrong because they don't understand the relativity of death."

Ettinger, a retired math and physics professor, has been thinking about the relativity of death for nearly half a century. In 1964 he published a book, *The Prospect of Immortality*, that got quite a few other people thinking along the same lines. And while *The Prospect of Immortality* doesn't live up to its billing of having started a cryostasis "movement", there's little question that it started *something:* Add its high-tech musings to a fascination older than Egyptian mummification and you get cryonics, a fledgling science that advocates freezing freshly deceased bodies in the hope that some day medical science will thaw them out safely—and have a cure for whatever caused death initially.

Morbid though such speculation appears, it persuaded Dr. James Bedford to become the world's first suspended "cryonicist" in 1967—although not without a legal challenge from some of his grandchildren, who couldn't understand why their college trust fund had been diverted to such a loony enterprise. The grandkids lost and lawyers chewed up much of the trust, but Bedford sleeps on in a tank filled with liquid nitrogen. At least 25 others have since followed suit, including Ettinger's own mother and first wife; and Ettinger, now 71, has made similar preparations for himself. Meanwhile, he continues spreading the gospel as president of the Immortalist Society and of the Cryonics Institute, although it's been an uphill battle all the way.

"I thought it would take off much sooner, much faster than it has," he sighs. "The popularization of the movement has been disappointingly slow, but I attribute it to simple inertia. We're dealing with the weight of thousands of years of tradition, and to reverse that in one generation isn't easy."

Indeed, Cryonics is ridiculed by much of the medical community, offends some ethical

thinkers, and has been described as a cynical exploitation of desperate old people. Cryobiologists, who work with organisms at temperatures barely above freezing, are especially sensitive to the possibility of being tainted by anything so macabre. The Society for Cryobiology's by-laws, for example, call for expulsion of any member "misrepresenting the science of cryobiology, including any practice or application of freezing deceased persons in the anticipation of their reanimation".

Yet because of Ettinger's thesis, there now are two non-profit organizations in California and one in Michigan that collectively claim more than 300 members who have arranged for freezing after their deanimation". Such arrangements are neither cheap nor simple. Membership applications run to two inches of legal deocuments that try to anticipate every legal and medical contingency; filling them out is a four-month ordeal, says one organization director. And costs vary widely, but typically include an initiation fee of several hundred dollars, annual dues (for the living) and suspension costs of $10,000-$45,000.

Then there's the yearly maintenance fee and the great imponderable of what it will cost to reverse the whole process. Just like the cost of decommissioning nuclear reactors, "reanimation" costs are left to the imagination and as hefty a life-insurance policy as a cryonicist can afford. The standard minimum apparently is $125,000, with post-suspension balance administered by a trust fund.

Despite all these obstacles and uncertainties and Ettinger's disappointment, business is getting better. Trans Time, Inc., the nation's only commercial firm offering cryonic suspension, nearly failed to survive the early 'Eighties: After five suspensions between 1974 and 1980 it underwent an eight-year dry spell before it got any new customers.

But now the pace is picking up, averaging a suspension a year, and Trans Time recently prepared a prospectus for its first offering of securities (which, however, the current state of the stock market might put in deep freeze).

On one level, concedes President Art Quaife, Trans Time is selling little more than "pure and hopeful speculation"—with the emphasis on hopeful. Among his patients, for example, is a 15-year-old murder victim who was struck in the head and not found until eight to 10 hours later. The injury would have assued massive brain tissue destruction even without the long decomposition period, making reconstitution problematic by even the most optimistic cryonics standards. Yet even the healthiest tissue will suffer from profound freezing, with deep fissues appearing as the body is cooled to 320 degrees below zero. "Yes, there is damage that takes place, and damage we don't know how to repair at this time," Quaife acknowledges. "But these are people who love life, and they want to extend their lives into the future as much as they can."

On another level cryonics isn't about hope at all but about attitudes, demanding as

radical a shift in perception as was required by the Copernican challenge to geocentric cosmology. “Under present conditions,” Ettinger insists, “death is not a diagnosis, it’s a prognosis.” Patients who would have been declared dead a hundred years ago now are routinely resuscitated, he points out, in some rare casea as much as an hour after they stopped breathing. Yet today’s medical profession persists in defining death in function terms: Can the heartbeat be restored? Is there an EEG? For cryonicists, these are flawed criteria that fail to recognize death isn’t final until the underlying physical structure is destroyed. And if function can’t be restored now, goes their argument, stabilize the underlying structure until it can be. Freeze it.

“Basically, cryonics is a technical disagreement on the definition of death,” contends Carlos Mondragon, president of the Alcor Life Extension Foundation in Riverside, Calif. “Cryonics is very conservative medicine. It’s our position that conventional medicine is very radical to say that no one can ever help, so let’s incinerate you or feed you to the worms. We want to put you in the best holding pattern that we can devise with current technology until something better comes along.”

Despite a spate of bad publicity a few years ago over its willingness to freeze just the heads of its patients (“It’s basically putting just the brain in suspension,” Mondragon explains; “the head just happens to be a good package”), Alcor, founded in 1972, has grown into the largest cryonics organization in the country and now has members in Europe and Australia. Its patients include six whole-body suspensions and 10 “neurosuspensions,” which Mondragon are preferred by older people who see little virtue in keeping worn-out bodies that presumably will be replaced with cloned substitutes.

Alcor also claims a rosgter of 175 dues-paying members---all of whom plan on suspension—and another 80 are wending their way through the application process. Many, says Mondragon, were inspired by the 1986 publication of a book titled *Engines of Creation* by K. Eric Drexler, a visiting scholar at the MIT Artificial Intelligence Laboratory. *Of Creation* describes the emergence of nanotechnology, a protein technology that manipulates living matter at the molecular level. “When that came out, we suddenly found engineers signing up with Alcor by the six-pack”, Mondragon says.

(Who are these people? An Alcor survey of its membership a couple of years ago produced a few surprises. About 60%, for example, described themselves as “avid readers of science fiction,” and 80% were either atheists or agnostics. But there also were a couple of born-again Christians and a couple of Orthodox Jews. And the median age was a mere 40—but fewer than 10% had children.)

Yet whatever increased interest there may be in cryonics, there’s little question it remains on the fringes of accepted contemporary thought or behavior. As such, it can cause flutters of panic in the business and legal worlds. Last year a Maryland based

company, Cryomedical Sciences Inc., exchanged 560,000 of its common stock for some Trans Time technology it is further refining for hypothermic surgery—a purchase Trans Time likes to publicize but which Cryomedical Sciences would just as soon not.

"We work in a very legitimate scientific area," explains Chief Executive J.J. Finkelstein, such as developing blood substitutes for use in operations where the heart is stopped, currently limited because of blood clotting to 55 minutes. Cryomedical Sciences also has a patent on a cryoprobe, designed to freeze otherwise inoperable tumors of the prostate, liver, pancreas and brain, that it plans to market early next year. "As far as I'm concerned, we have no relationship with Trans Time," Finkelstein emphasizes, "and I would hate for somebody to confuse our goals with their goals".

The California courts, meanwhile, are being challenged to wrestle with life-and-death questions that until now have been voiced more at the other end of the age spectrum. An initial hearing Sept. 14 will consider arguments from Thomas Donaldson, an Alcor member for the past decade, that he should be allowed to enter cryonic suspension before a brain tumor diagnosed last year turns his mind to mush. Donaldson, 46, is a chief scientist with a small computer software company and figure his odds with cryonics are better than the 40% chance he's been giving of surviving the next three years. The California attorney general, on the other hand, thinks Donaldson is trying to commit suicide.

All the recent attention to freezing bodies also has had some unanticipated repercussions. Dave Hanson, is the owner of Inuvik Funeral Services Ltd, apparently the world's northernmost funeral home, in the Northwest Territories of Canada. Three years ago he was surprised to get a phone call from a New York family who wanted him to bury a relative in the permafrost. He did. Then the Canadian Broadcasting System got onto the story and ever since, he says, he's been deluged with similar requests around the world.

There have been a few hitches, however. The Unuvik town fathers decided their cemetery can't handle more than the local population of 3,000 and banned any more burials of nonresidents. And a land dispute with the native population has deferred Hanson's hopes of buying land for a new cemetery. Still, he says, market demand is strong. And if the land dispute is settled soon, he hopes to start burying people 20-25 feet down at a cost of---well, perhaps $50000. Permafrost is rough on equipment.

For cryonics boosters, Arctic burial is essentially worthless anyway because it isn't cold enough. "Burial in the Arctic for three or four years is the same as dead on the floor for a week," contents Mondragon. Chemical reactions that take a second at body temperature, for example, requires five minutes at 65 degrees below zero—but occur over a span of 24.7 million years at 120 degrees below zero, according to Alcor computations. Time, for all practical purposes, is stopped.

And what will these people do with themselves when time starts up again—and they reenter a world that presumably has no room for their antiquated skills? Against that eventuality, some cryonicists establish separate investment portfolios to make themselves financially independent. Their favorite stock picks? Chemical and pharmaceutical companies, on the grounds that cryonic reanimation will be possible only through significant advances in these fields.

Now if they could only do something about taxes…

The comments below are those of Long Life Magazine staff members of the time. They point out a few areas that need to be clarified.

Mr. Zipser's piece is generally a very good one, continuing the trend in recent years toward more accurate and more favorable coverage. But a few clarifications should be made for new readers in particular.

1. The Cryonics Institute's prices are much lower than those he mentions—minimum contract funding of only $28,000, including long term storage. This is whole-body; CI does not offer head-only. Payable through life insurance or out of assets at death.

2. CI paperwork is careful, but not as long or complicated as he indicates.

3. It doesn't come through clearly that we are also counting on a cure for old age, giving the revived patients youthful good health, indefinitely extended.

Robert Ettinger: *The Legacy Continues*

Introduction by York W. Porter, President of the Immortalist Society and Executive Editor of Long Life Magazine

The Legacy Continues: Robert Ettinger on "Alice Rosenbaum's Shoulders"

Preliminary remarks by York W. Porter, President, Immortalist Society:

Introduction by York W. Porter, President Immortalist Society, Executive Editor, Long Life Magazine

Robert Ettinger was a very intelligent person, in fact one of the most intelligent I've ever met. He realized that just presenting the bare bones of his concept of cryonics wasn't necessarily enough to "sell" cryonics. He recognized that new concepts and new ideas frequently have to have some sort of rationale beneath them beyond the obvious ones which the new concept and/or idea may seem to bring by itself. In the following article, Mr. Ettinger goes through the philosophy that he later outlined in much more detail in his last book "Youniverse". This article is from the September 1990 issue of this magazine, called "The Immortalist" back in those days.

As has been written in this column before, the fundamental logic of cryonics is very simple and impeccable. You have basically nothing to lose by participating other than, perhaps, for most people a few relatively easily managed life insurance premiums. At the very, very, very worst, you'll just remain in the state of clinical death which is where you would have been anyway! If only logic and reason were necessary for cryonics to fully succeed, it would have fully succeeded by now. In the words that follow, based on a talk Robert Ettinger gave on August 24, 1990 at the Biostasis Conference, the underpinnings of a philosophical approach to life in general and, thereby, cryonics in the particular, are presented.

Alice Rosenbaum's Shoulders

By: R.C.W. Ettinger

Isaac Newton said that if he saw farther than others, it was because he stood on the shoulders of giants. Of course, that's easier said than done. For one thing, the person you choose to stand on may not be a giant, only a very tall midget. And even if you do find a bona fide giant, climbing up there, and balancing, isn't so easy. But we can try.

Some of you know that I have been fitfully trying, over the years, to develop a rigorous philosophy of life, a conceptual framework for a value system and life strategy. Among other benefits, this might help the progress of immortalism and cryonics. One pair of shoulders I might stand on is that of Alice Rosenbaum.

Alice Rosenbaum, as some of you are aware, was better known by her pen name of Ayn Rand. She was a novelist and would-be philosopher, a guiding spirit of the Libertarians, who are greatly over-represented in cryonics. It may be useful to ask, why was she so successful—and also, why was so she so unsuccessful?

She enjoyed a measure of success because most of us to some degree, and some of us in large degree, put first emphasis on individual satisfactions and aspirations; the tribe is our instrument, not we the tribe's; we reject the slogans of

altruism and the parasitic memes of mindless sacrifice.

She was relatively unsuccessful, in part, because too many people demand a free lunch, and she insisted there ain't no such thing. I think there are ways we can get around that to some extent. But she was also unsuccessful because of her own flaws. In particular, her pretention to a "philosophy" of "objectivism" was simply naïve. Objectivism is not a philosophy worthy of the name; it is just a collection of asserted political and economic and moral principles. In one of her essays, for example, she says, "The source of man's right is...the law of identity. A is A—and Man is Man. *Rights* are conditions of existence required by man's nature of this proper survival." If this isn't gibberish, it is at best a verbal swamp.

Some of her asserted precepts, to be sure, are very sound, and their forceful presentation was her excellent contribution. But others are extremely questionable, and her system as a whole is deservedly ignored by academic philosophers. Perhaps we can remedy this defect, and get the attention of the people who are turned off by her blunders.

She seems also to have failed to provide charismatic leadership and the social cohesion, the sense of community or fellowship, that an ideology or political movement needs. We all recognize that cryonics & immortalistm need to become social and political forces, as opposed to activities of individuals or small groups. Social and political movements need specific, focused targets, and a framework of philosophy or worldview, and a spirit of fellowship and reciprocal loyalty.

We have at least one blockbuster specific goal—the prospect of personal, physical immortality. This is a world-beater of a concept—no other politicians can match. But we not only have to make it credible, we also have to fit it into a conceptual framework. Otherwise many people will tend to feel disoriented and guilty, and will falter.

In some ways, of course, "philosophy" is strictly secondary. If we look at our ideological competition, they almost universally lack any philosophy worthy of the name. What they have instead is fellowship and slogans. What they offer is a sense of certainty and support, and a cause in which the participant can lose himself.

Ironically, a great many people do indeed think you can find yourself by losing yourself—i.e., find a sense of place and prupose by losing yourself in something supposedly larger and more permanent. Remember how the post describes the human predicament—"I, a stranger and afraid, in a world I never made". The various ideologies reach out to this frightened stranger and offer him, first family; second, the illusion of understanding, or at least of stability. Some, like the Christian religion, offer the "sure and certain knowledge" of salvation.

This may seem like impossibly stiff competition, but we have potentially overwhelming resources. So what if you didn't make the world? We offer you a chance to help remake it, and to remake yourself. Outside of the mists of mysticism and the dreams of drugs, is there anywhere with a more splendid vision?

On the intellectual level, we just crowd the competition right off the road. We offer the only reasonable orientation available. But what we must remember is that we can still compete on the emotional level, simply by offering equal support as a family, equally rousing slogans, equally stirring banners, equal zest and energy, and equal reverence and sense of awe. All it takes is organization, meetings, songs, chants, slogans, networks of helping hands—all the usual paraphernalia.

This sort of things is foreign to the nature of many of us. Some of us think of it as flummery, and find its absence part of the appeal of cryonics. But most people need fellowship, and the California organizations have made at least a pretty good start at achieving and offering it. I'll get back to this.

So what is our philosophy? We can't demand that our members toe any party line, of course, but perhaps most of us can agree on a general framework. Anyway here are my suggestions. In the most general terms, first, we offer no cosmic certainties; we admit the universe is a mysterious place. This may seem like a weakness, in competition with other philosophies or ideologies or religions, since so many people demand guarantees or dogmatic assurances. But it has the countervailing advantage of simple honesty, which no one else can claim.

To offset our uncertainties what do we offer, besides honesty? Immortalism, of course—the realistic, non-mystical prospect of indefinitely extended life and open-ended growth. We don't offer ultimate answers—but we do offer the opportunity to find those answers, and enjoy ourselves meanwhile. It is hard to exaggerate the potential appeal of open-ended life on earth (and on other planets).

More generally, we offer enlightened self-interest. This isn't new, but we do have new ways of determining what constitutes enlightened self-interest, both in general and in specific practical situations. This means an end to the hypocrisy and self-deception of altruism as currently understood. This again

has profound potential appeal, since so much psychic stress stems from perceived conflicts between duty to oneself and to others.

I'm not suggesting, by the way, that immortalist philosophy is always easier to implement than others, or avoids hard choices. On the contrary, our path will often be harder, demanding both more brains and more guts than current ideologies. But there are commensurate rewards.

On a social level we offer new motivation for the Golden Rule. We should frequently emphasize that immortalists make better citizens, simply because the enlightened self-interest of immortals demands that we make every effort to keep the world fit to live in and keep our neighbors friendly. Most antisocial behavior, if it isn't simple stupidity, stems from the feeling that one has little to lose by becoming a predator. The street punks would rather swagger through a short life, with lots of highs, than plod through a life of boring routine and dull work. This is also true of the Hitlers and the Saddam Husseins of the world. We can gradually change this outlook.

Today I can only say a little about the specifics of my proposed "rigorous" philosophical system, and I would probably precede even that little with some remarks about its need and justification.

Philosophers through the ages, by and large, with occasional interesting exceptions, have earned ridicule and disrepute by their obscurantism and irrelevance, bordering on clownishness.

Henry Adams has said a philsopher is one who provides unintelligible answers to insoluble problems. William James said a philosopher is one who contradicts every philosopher, including himself. Lord Bowen has said a philosopher is a blind man in a dark room looking for a black cat that isn't there.

The ethical and social philosophers and metaphysicians of the past and present have been characterized mainly by error and irrelevance, blather and vacuity.

Cicero said, "There is nothing so absurd but that it may be found in the books of philosophers".

The amazing St. Thomas Aquinas thought it was useful and meaningful to speculate as to how many angels could dance on the head of a pin, and whether one angel could move another angel's will.

Spinoza thought all motivation stemmed from the instinct of self preservation—and eventually concluded, from that, that we should sacrifice ourselves for a higher good.

Nietzsche derided the *Heerden-moral* or herd morality of Christianity, but could offer in its place only the *Heerden-moral* of the master, a foretaste of Nazism, and still called for individual sacrifice.

Hegel's learned discussion of heat included this passage: "Heat is the self-restoration of matter in its formlessness, its liquidity the triumph of its abstract homogeneity over specific definiteness; its abstract, purely self-existing continuity as negation of negation is here set as activity". Any questions?

Of course, even a blind hen can find a corn once in a while, and we can find some useful hints even in ancient writings. For example, the Hedonists had a partial handle on truth, saying that our aim should simply be to maximize pleasure. The problem is that there's nothing simple about it—since, for one thing, there are too many kinds of pleasure, some of them inconsistent with each other or ultimately self-destructive. For this reason their teachings fell into disrepute, as did those of the Epicurians and Utilitarians, and others—all of whom had found a fragment of something valuable.

Nevertheless, we can find periods in history when philosophers were generally respected and even played dominant roles in intellectual and social life. One of those periods was the eighteenth century in Europe and in the newly created United States of America—a century in many respects much more admirable than our own. Historian Will Durant wrote that "it was the philosophers and the theologians, not the warriors and diplomats, who were fighting the crucial battle of the eighteen century," and that a "word of praise from Voltaire, Diderot, or d'Alembert was more valued than the favor of a prince." This was the background in which such men as Condorcet and Ben Franklin partly anticipated immortalism and cryonics.

That flush of enthusiasm for philosophy and science failed of its promise, mainly because the road of technological progress was longer and harder than anticipated. Science and reason did not provide a quick fix for all our problems. In particular, the biological sciences were nowhere near fruition in control of disease and function. But now at last we may be ready for a new age of enlightenment.

The most modern, most recent philosophers have done splendid work in some areas, such as symbolic logic and analysis of language. But they also have failed in the most basic task of philosophy, which is to provide rigorously derived guidelines

for individual goals and behavior. A few years ago Harvard's Robert Nozick published a book supposedly dealing with bottom-line philosophical problems, and it was pitiful. Most of his answers were either wrong or unhelpful, and he even had the wrong questions.

I—and we—can do better than that, which isn't really as immodest as it sounds. It doesn't take genius---just honesty and nerve. When I wrote *The Prospect of Immortality* I didn't say any one thing that was really new. What was new was the synthesis. I tied together several modern developments, which were (and are to this day) still poorly understood—especially the relativity of death—and pursued the implications, faced the logical conclusions.

To build the first really scientific personal philosophy, we need to do primarily two things—both logically easy (at least in hindsight), but also emotionally or socially difficult and even risky, and both also full of subtleties and complexities.

The first is to accept the primacy of self-interest. While there have been many distinguished defenders of self interest—including Alice Rosenbaum—they have also all fallen short by neglecting the biological bottom line.

The second is to realize that we are talking about the developing self--that we are concerned not only with what we seem to want or need now, but with what we are likely to want or need in the future. To my knowledge, this has never been done—certainly not in any systematic manner.

Some of you have seen pieces of my proposed system; it doesn't lend itself to a brief talk. But it begins—on one level—with the nearly indisputable premise that the only thing that matters (directly) to anyone, ever is what goes on in his own head. If we ask what it is we want, in the most basic and necessary sense, the answer is that we want to feel good. Everything we do, if it is motivated rather than random or accidental, is done to please ourselves—i.e., to satisfy the currently cominant aspect of the psyche—or to avoid a worse alternative. I have summed up this basic motivation with the deliberately provocative terms of "me-first and feel-good" The goal of life—of any individual—is to maximize his personal feel-good over time.

Art Quaife has said something similar: "one leads the perfect life by maximizing the integral of one's pleasure function over time". And so have some of the classic philosophers. Baruch Spinoza, in his early rational phase, said his ambition was "..to inquire whether I might discover and attain the faculty of enjoying throughout eternity continual supreme happiness". He didn't quite make it, but maybe we can come closer.

Now a critic could immediately complain that the goal of maximizing satisfaction over time isn't really very clear. What does it mean? Does it mean our ultimate aim is perpetual orgasm, stretching to infinity? Or some other kind of perpetual high?

I think it probably does not mean perpetual highs, at least in the foreseeable future, if for no other reason than the need to do other business, including protecting ourselves against potential threats, and general growth and development. If someone just plugs electrodes into the pleasure centers of his brain and turns on the current, he isn't going to last very long. My philosophy doesn't offer simple rules of behavior, chiseled in stone. It is not at all vague in principle—its rules are explicit—but it necessarily leaves room for new information, especially about the structure of the brain, and for new circumstances. Perhaps we could say that it doesn't offer an anchor, to keep you safely in harbor, but it does offer a compass, giving useful guidance even in new territories.

All right, so we want to feel good. The condition precedent to feeling good, or to any kind of feeling, is survival, hence in almost all circumstances self-preservation is a basic value. The exception would be a situation in which one justifiably decides the future will bring a preponderance of pain over pleasure, or dissatisfaction over satisfaction. I doubt there could be a situation in present circumstances, so for practical purposes self preservation is a primary value.

This doesn't mean we never take risks—but it does mean we never deliberately sacrifice our lives—not for anyone or anything, unless you truly believe that otherwise the future would be hopeless. Everything depends on realistic estimates of the likely outcomes of your choices.

Another obvious question that conventional people will ask is this: If you are totally self-centered, what becomes of love? What becomes of loyalty and patriotism and community spirit? The short answer is that they become better. To explain this fuly would take more time than we have today, but we can make a couple of remarks.

In part, we must remember that the virtues of self-sacrifice are usually overstated. In fact, there is an old saying: Beware the man who will sacrifice himself—he will sacrifice you first.

More generally, the drive to self-preservation and the drive to self-sacrifice are both the result of evolutionary pressures. Obviously, people who lack an urge to self-preservation tend

to die out. At the same time, if there were no urge to self-sacrifice, parents would not protect children and soldiers would not protect the community. The urge to self-sacrifice is also related to the concept of duty, including one's duty to the future self at the expense of present pleasures. My philosophy will for most people shift the balance in favor of self-preservation, and against the claims of altruism and authority, but it will not elimnate the need for self-discipline and attention to duty.

Perhaps by now even people new to this philosophy will begin to perceive its subtleties and difficulties. Maximizing feel-good over time means basing your values on probability estimates. It means sorting out goals and values that may be in frequent conflict. It means distinguishing long-range from short-range wants, and giving preference to the former. It means separating what (at first thought or impulse) you think you want, and finding what you ought to want. It means growing by successive iteration, trying to penetrate the haze of down-time to guess what your future self will want, and trying to satisfy those goals rather than the more obvious ones—and it includes changing yourself. Well, nobody promise you a rose garden. Immortals have to meet a higher standard.

That higher standard includes the self-discipline to achieve tactical and strategic goals, even at the temporary or permanent sacrifice of some cherished habits. In particular, some of us must be willing to pay a higher price than we have done so far. Again, everything depends on estimates of probability.

If you think there is only a slim chance of revival after cryostasis, you may be unwilling to spend much money or effort to achieve it. Even in this case, you are probably wrong, since, in statistical jargon, the prize is so immense—the rewards of indefinitely extended life in a future of boundless treasures—that even a minuscule chance would make the "expected gain" very large, hence worth a great deal of effort and expense.

For comparison, one could look at a state lottery. In the lottery, the "expected value" is negative: if you buy a great many tickers on a regular basis, over a long period you will lose about half of what you pay in. Yet hordes of people play, because the prize is so tempting.

In the cryonics case the "expected value" is positive and enormous; but the payoff is not immediately, and its appreciation requires more imagination than most people have---even most cryonicists. The implication is that many of us—maybe most of us—are not spending as much money on our organizations as our enlightened self interest requires.

An even more difficult rational sacrifice may be that of certain bad habits. I have mentioned that a movement needs community, fellowship, and mutual support. In any movement, these are opposed by centrifugal forces of competition, jealousy, and divergent policies. This can be especially bad in cryonics, because cryonicists almost have to be independent, opinionated, and strong willed people. They also tend often to be non-gregarious. In the contest of our survival and ultimate success, these can be counterproductive traits.

How can we improve and broaden a feeling of fellowship and mutual support, both within the separate organizations and in cryonics as a whole? In part, if we simply recognize the need, perhaps we can gradually modify our habits.

I do have one simple suggestion, which I think clearly has more benefit than cost for everyone—namely, that the organizations refrain entirely from making comparisons with competitors. Just state your own virtues, and your own problems, and leave it to the prospective member to investigate and make the comparisons.

Well, we know one thing for sure. Life is interesting, and is becoming more interesting every day. *L'Chayim.*

Post scriptum: Reactions to the talk, and to pieces of the philosophy written over the years, highlight the difficulty of driving home certain radical ideas without (or even with) a book-length exposition. For example, the simple notion that we are driven entirely by self-interest not only outrages ordinary people, but may even find immortalists and Libertarians full of doubt. Some say: "There is no such thing as valuing the interests of others, apart from our own. We might refuse to sacrifice those we love, even for a long-term benefit to ourselves". Lee Corbin notes that we might refuse to sacrifice them even if we could be assured that we would immediately forget the action, and live happily and guiltless thereafter.

My answer is that the operative self-interest here lies in avoiding the immediate psychic pain that the decision to sacrifice others would cause. An analogy: You have endure a day's extreme physical torture, and are now offered two choices—to endure another years' torture followed by eternal bliss, or to die right now with eternal oblivion. Almost everyone would choose to die now, regardless of any theoretical calculations, simply they are overwhelmed by present pain. Theoretically, an eternity of bliss is worth any finite amount of torture—but only a superhuman could make and sustain that kind of decision. We are gradually going to become superhuman—and yes, that's very scary too.

the american cryonics society

cryonics society

Reasons to Join ACS

1) We have been in business a long time

We were incorporated in 1969; our first cryopreservations were in 1974. We are a Calilfornia nonprofit corporation formed to advance research into cryonics and cryobiology. Two well-known medical doctors, Dr. M. Coleman Harris and Dr. Grace Talbot, were among our founders which also included Jerry White and Edgar Swank. Jerry and Edgar are in cryopreservation at the CI facility.

2) We work closely with the Cryonics Institute (CI)

Starting with our first frozen patients, ACS has maintained funds to keep these patients frozen. This responsibility has required that we focus on a practical approach to managing our resources. By working closely with CI with it's ever increasing "patient load" we are able to keep long-term storage costs down while adding to the funds of both ACS and CI.

3) Initial Preparation by Suspended Animation, Inc and other Options

We don't have all the answers. Cryonics depends upon anticipating future technological developments, and taking action NOW to benefit from those breakthroughs. This means there is a speculative aspect to cryonics. We give our members a wide a choice of options which include initial preparation by Suspended Animation, Inc. We also offer less expensive options. See our website for all choices.

4) ACS Utilizes the Tools of Risk Management

The ACS program employs the tools and techniques of risk management, such as inspection and verification of good practices at facilities where ACS members are in cryostasis. Financial planning includes diversification and decentralization to help guard against adverse financial consequences for ACS assets..

5) ACS Sponsors Research

Some research programs of the American Cryonics Society have been very well publicized. The successful cool-down and recovery of Miles the Beagle led to appearances of ACS scientists on Good Morning America, The Sally Jessy Raphael Show, and The Phil Donahue Show.

6) ACS Maintains its Own Emergency Response

Long term storage should be centralized but stand-by and emergency response, by its very nature, is local. In that regard we maintain emergency response equipment and responders in the San Francisco Bay Area which can also can be deployed to most locations in the US.

7) ACS is a Democratic Society

One internal control, absent in some organizations, is the fact that ACS is a democratic organization. That is, our governors are elected from among the members, by the members. A number of procedures have evolved over the years, to help ensure that this electoral procedure is safeguarded.

8) ACS Patients have Live-Member Sponsors

To ensure that the obligation ACS has to people in suspension continue to be considered, ACS has a program whereby live members act as "Sponsors" on behalf of the people in suspension. Sponsors get reports of suspension facilities housing the patient, and information on investments used to benefit the continued suspension of that person. Whenever possible, a good friend or relative of the person in suspension is named as a Sponsor. We prefer that the Sponsor also be enrolled in our suspension program.

9) ACS Manages Growth

The strength of a cryonics society is not dependent upon how many people it has in suspension. There must be a reasonable allocation of resources to meet the obligation of those in suspension. Societies who accept underfunded or non-funded patients must then make up that deficit through raising membership dues or by receipt of an endowment. Both of these fund raising methods involve significant risk, with results considerably in doubt.

The American Cryonics Society is not a kingdom built on a house of cards. The balance between those enrolled in our pre-need suspension plan, those in suspension, and the allocation of resources between these two programs is balanced to ensure our survival and prosperity. We are not dependent upon luck, endowments, windfalls, or even growth to sustain us.

10) We Make use of Individual Trusts

While other societies have more recently begun using trusts, the American Cryonics Society adopted this technique as its primary recommended funding vehicle in 1982. The individual trust is a mechanism to isolate and manage risk, ensure some oversight, obtain acceptable tax treatment, and address various problems and requirements unique to each individual member.

11) "Freeze-Wait-Reanimate" is our Only Purpose

The American Cryonics Society is not a "Utopian" organization. We don't have a political agenda to transform our current political or social structure to make our version of a perfect world. That is far too ambitious an undertaking; and besides, we don't all agree on what political and social changes are desirable. We are a cryonics society: PERIOD. Our program is simple: freeze-waitreanimate. We support cryonics research, education, and information dissemination. That is what ACS is about. That is ALL ACS is about.

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Final Thoughts

York W. Porter - Executive Editor

The U.S. Navy aircraft carrier USS Enterprise (CV-6) entering Pearl Harbor on 26 May 1942, following the Battle of Coral Sea and shortly before the Battle of Midway. *Source: Wikimedia Commons*

Modern life is filled with a lot of conveniences. Even in what we think of in the USA as more primitive parts of the world, relatively modern technology has gradually intruded. At one time, as an example, telegraphs were ubiquitous in many parts of the globe, no matter how seemingly remote.

In the 1960's, even the Soviet embassy in Washington utilized the services of commercial telegraph companies to communicate with the Kremlin on some matters of very significant importance. In 2006, with a corporate announcement that would have astounded folks in earlier decades, Western Union stated it would discontinue all telegrams and commercial messaging services. E-mail and Internet messaging, where one has their own personal and very high tech "telegraph" built into locally available equipment had led to the demise of the commercial need for this type of service on a level to make it no longer financially profitable for companies like Western Union.

In terms of messaging services, in my part of the country at least, cell phones have resulted in the ability for folks to stay in touch with each other at pretty much all hours, day or night. Patients in the hospital where I work, as well as the visitors, frequently are seen in their rooms clicking away on the touch screen while reading messages and looking at pictures and videos their friends and family have sent. I kid some of my co-workers that if the local cell phone towers were to collapse, we'd have "mass and total cell phone withdrawal syn-

drome" to occur and the ER would be flooded with stressed out folks.

But, even in the case of cell phone towers collapsing, that seemingly "high tech disaster" pales in comparison to what some folks have faced down through the decades. One such situation occurred during the very early days after the entry of the United States into World War II. For folks like me, who moan and groan at such a recent "disaster" in our household of a TV remote that wasn't functioning properly, the tale of Harold Dixon, Tony Pastula, and Gene Aldrich should put us all to shame.

This trio formed a flight crew on one of the planes associated with the famous aircraft carrier, the USS Enterprise, during the days of World War II. After leaving the carrier on a mission, it was of the utmost necessity, in the month of January of the year of 1942, to maintain strict radio silence during their flight. The US fleet had suffered the devastating raid on December 7, 1941 at Pearl Harbor in which numerous navy vessels had been sunk by the attack of the Japanese. To risk, however slightly, giving away the location of the aircraft carrier and to, thereby, possibly lose a ship with the importance of the Enterprise would be even more devastating to United States naval forces. Thus, once the crew of three took off from the deck of the Enterprise, they were very much "on their own" until they got back.

In the Navy, as in all areas of life, the fact of "Murphy's Law" is present and sometimes rears its ugly head. The reality that what can go wrong will go wrong and at the worst possible time, became a reality for this group of men when a glitch in their navigation equipment resulted in them being unable to locate the Enterprise on their return flight. The crew of the Douglas Devastator torpedo bomber finally ran out of fuel and faced the daunting prospect of having to crash land in the ocean.

The very fact that they had to try to ditch the plane in the ocean was dangerous enough. Upon their rough but fortunately successful landing in the water, Murphy's Law entered the equation again and the plane sank much faster than anticipated. It took virtually all of their onboard survival equipment with them in its plunge to the bottom of the sea.

Initially the rubber raft they had managed to get out of the plane failed to inflate using its built in CO2 cannister. In the cold water, one of the crew managed to get the canister to work and get the raft inflated, albeit with it resting upside down in the water.

After considerable work, the crew got the raft upright and managed to climb over the side into it. Their initial plan, which was to sleep until the next morning when the sun would come up, was problematic at least. The space available was only four feet by eight feet with the sea slapping very rapidly, mercilessly and very loudly at the bottom of the raft and dousing the three with what seemed like buckets of cold seawater. Their precarious situation was made even worse by the fact that all they had with them was a very limited amount of supplies. They had no oars or food or water. They did have the raft itself, a police whistle, a pair of pliers, a can of rubber cement and some patching material. A pistol with some ammunition was also present along with a pocketknife. The only other things they had were their innate intelligence, the training the Navy had provided them and, equally if not more important, they had their will to survive. This latter would prove very important in the desperate and trying days that lay ahead.

The first day passed relatively well, although the crew was forced to cut up a jacket for some cover for their otherwise unprotected heads which burned in the hot sun. They were grateful for the onset of the end of the day but the chill of the night made their wet clothing seem cool and clammy and the three huddled together for warmth. They had not had food or water since lunch on the Enterprise the previous day.

One of the downhearted moments of the first day had come when a plane had come in their vicinity but it failed to notice the three, in spite of their vigorous attempts to wave their arms and shirts to try to attract attention. All of their emergency signaling equipment was roughly three miles below them on the sea floor. By the third day, they realized that their ship had no doubt moved on as in war time the fleet did not have the resources to continue to search indefinitely for a lost crew. The only one to save them was going to be themselves. And it was a daunting thought.

Dixon, at 42 the "senior" member of the bunch, had been to many flight briefings and realized, in general, that they needed to try to find their way to land. In the direction of West and North were the islands controlled by the Japanese. In the East were islands that were uninhabited. That left only the South and West. The problem was that it was roughly 500 long, long miles away to any sort of help.

Water, of course, was a big problem. By the fifth day, their mouths were bone dry and their throats were parched. That night, Mother Nature came to the rescue and it rained. The lifejackets were used to collect the fresh rain water and drink-

ing all they could helped to revive their spirits.

The days ahead were full of challenges. For food, one source was an unlucky Albatross which landed on their craft. The pistol they had dispatched it. In another case, a school of fish gathered around the raft. With a quick stab with the pocketknife, one of the men managed to snag one and toss it in the raft. In another situation, a group of sharks came near the raft. Once again, the pocketknife came in handy and a four-foot shark, speared in the gills, was drug aboard where it served as a source of nourishment for the famished men. Raw food didn't faze the trio at this point and they ate whatever they could harvest, including a tern that landed where one of the men could grab it. Two coconuts that accidentally floated by formed some of their meager sustenance.

Dixon's numerous years in the Navy came in handy, as he had studied navigation and had attended numerous flight briefings over the years. The 18-inch sides of the raft functioned, surprisingly, as a very small sail. Using a small cloth dropped in the water to measure the raft's speed and using the stars above for helping to judge the miles they had traveled, the men made small but measurable progress. They found, though, that their hands and feet were insufficient for effective propulsion. A coconut stem that floated by originally had begun to offered hope but it broke when they tried to use it as an oar. Finally, they used a pair of their shoes to form some cups to form a makeshift paddle. With two men rowing while one rested, they soon noticed a wake behind the raft. The very next day, a high wind in the wrong direction erased all their progress using the home made "shoe oars".

By the thirty-fourth day, high winds that run before a hurricane caused the seas to roll and gallons and gallons of seawater assaulted the raft. At almost the end of their rope, the men found the amazing reserve to bail water. By the end of this, their raft had turned over three times and they had lost most of what little equipment and supplies they had.

Still being "Navy men" they also continued to "stand watch" at various times apiece for anything that would be of help or for the hoped for sign of rescue. While on his watch, Aldrich said that he saw "a beautiful field of corn" No one else spoke, as they believed Aldrich was just babbling. The raft entered into a trough in the ocean waves and the "field of corn" went out of sight. When it crested on a wave again, Aldrich said that he definitely saw something green in the distance. The "field of corn" turned out to be palm trees lining the beach on a just distant shore. These brave and determined men had survived in spite of it all.

They had traveled over a thousand miles and had landed on the Puka Puka atoll. The local people, who were American allies, brought them to the resident commissioner. After seven days rest and recuperation, a seaplane returned them to the United States fleet to, no doubt, the astonishment of those who assumed that the three were lost at sea forever.

No doubt their training and experience in the Navy helped them to endure this harrowing ordeal. But, in this author's opinion, it was one of the oldest and strongest aspects of human nature that made the difference. As one of the men put it in later years, "We did what we had to do to survive and I'd do it again".

In the 1960's, a very intelligent and good man and former member of the World War II military himself, by the name of Robert Ettinger, proposed a "life raft" of his own for those who were beyond traditional medical help. By the use of the sciences and technology involved with human beings' study of ultra low temperatures and their effect on biological systems, it forms an "ambulance to the future". This should be a future when medical science will be able to repair the damage done by any illness and/or injury along with any damage caused by the procedures used in cryonics. With the amount of control over atoms and molecules offered by the ever-advancing area of nanotechnology/nanoengineering, aging should be able to be dealt with as well. Future medical procedures that seem incredible by present standards will become routine. This is very similar to many of the medical procedures today that would seem miraculous to practitioners of centuries gone by.

And this concept is available to you today. Cryonics is an up and going venture with organizations formed to help you and your loved ones to benefit from Robert Ettinger's wonderful and life saving concept. Joining these groups will take a lot less effort and will than were exhibited by the brave men who faced death on a daily basis for the thirty-four days they were lost at sea. Take the first step towards the survival of yourself and your loved ones and join our efforts today. You'll be very, very, very glad you did!

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