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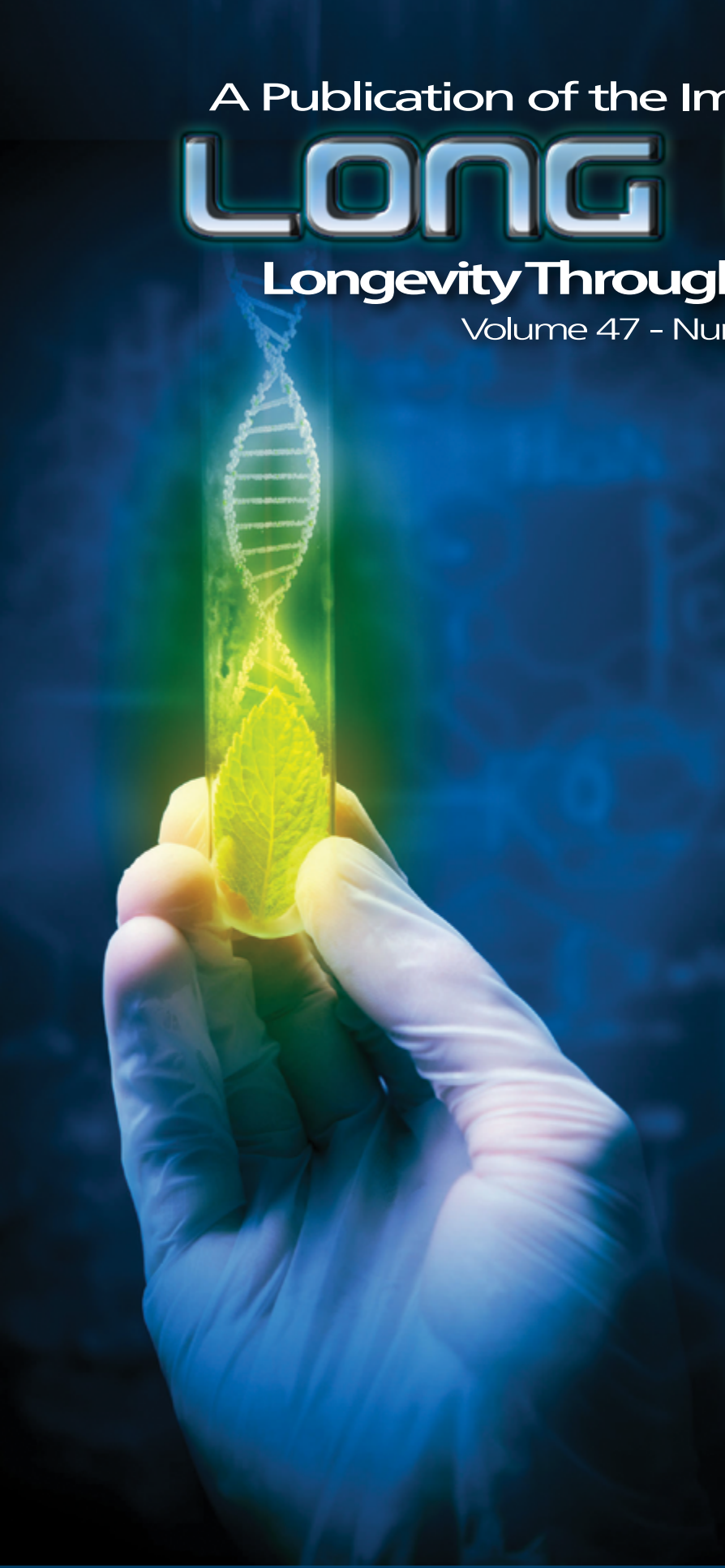
A Publication of the Immortalist Society

LONG LIFE

Longevity Through Technology

Volume 47 - Number 04



- Immortalist Society Meeting Report
- 2015 AGM photos
- Prospect of Immortality: 50 Years Later
- The Case for Whole Body Cryopreservation

www.immortalistsociety.org www.cryonics.org
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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

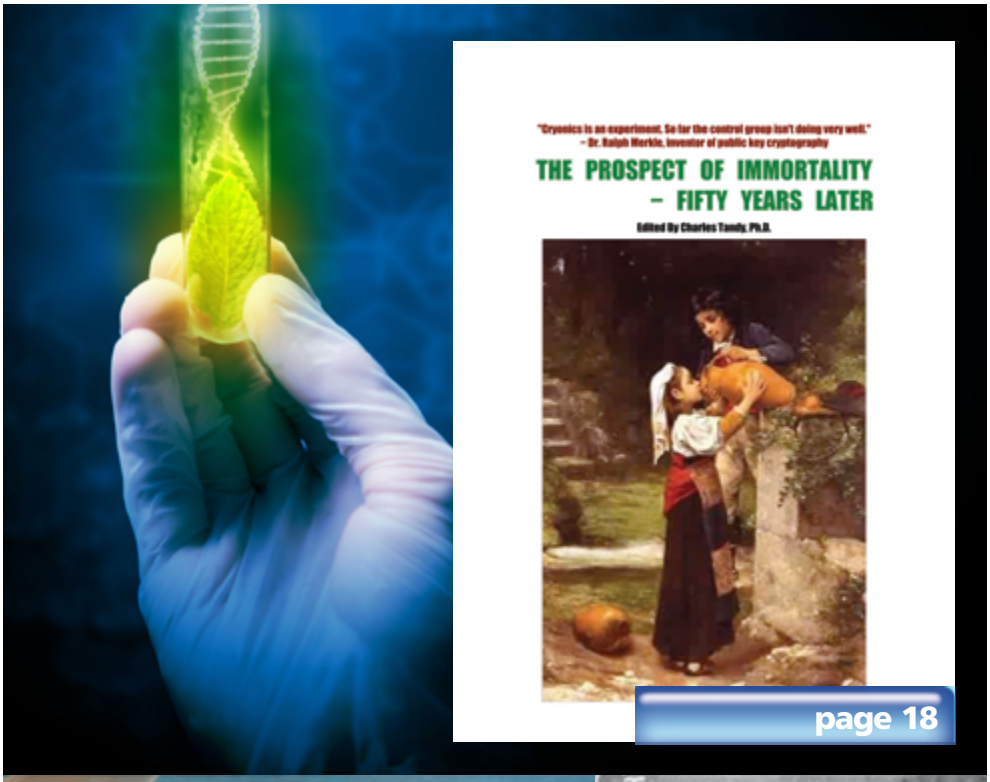
CI Members are the ultimate authority in the organization and own all CI assets. They elect the Board of Directors, from whom are chosen our officers. CI members also can change the Bylaws of the organization (except for corporate purposes).

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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LONG LIFE MAGAZINE

A publication of the Immortalist Society

ORGANIZATION NEWS

FEATURE STORIES

ONLINE PDF HYPERLINK COMPATIBILTY

Since different browser configurations handle pdf links differently, if you have trouble opening any hyperlink(s) in the magazine, try these steps:

1. "Copy and paste"or manually type the hyperlink or email address into your browser or your email application's address field.
2. Download the pdf file to your desktop. Open downloaded file in Adobe Reader or your preferred PDF viewer.
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

24355 Sorrentino Ct. Clinton Township MI 48035-3239

President: York W. Porter

Secretary: Royse Brown • Treasurer: Rich Medalie

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Fourth Quarter, 2015

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CI EXECUTIVE REPORT

Dennis Kowalski - President, Cryonics Institute

Congratulations to all the directors who were reelected for another term. Thank you Connie Ettinger, Joe Kowalsky, Pat Heller and Paul Hagen for your loyal service and dedication to CI and its board. Holding office at CI is a very important and crucial part of keeping CI well-grounded and focused on our collective mission. Recently, the board held its annual officers election and the following officers were reelected: myself, Dennis Kowalski, as President, Alan Mole as Vice President, Pat Heller as Treasurer, Connie Ettinger as Contract Officer, Andrew Zawacki as Secretary, Steven Luyckx as Assistant Treasurer, and Joseph Kowalsky as Assistant Secretary. Thanks for your confidence in me and congratulations to all of our officers. I will do the best I can to lead CI in the right direction, and I'm proud to serve with a board that shares the same dedication to our members and our organization.

It was a great pleasure having the opportunity to see old and new faces at our 2015 AGM. There was much to talk about.

Steve spoke about our financials, and although our investments did not repeat the over-the-top results we had last year, there was ample evidence that we continue to head in the right direction. Our investments are very safe, and we have once again held spending down so that a majority of people can afford cryonics for themselves and their families. In a world where many businesses seek to solve their problems with regular price increases, CI takes a more creative approach to controlling costs, such as utilizing technology to our advantage. We are constantly exploring different ways to get the job done more efficiently. We are committed to leading the way in affordability by getting the most from all of our available resources. I think the precedent we are setting now in terms of minimizing costs and maximizing every dollar spent will help carry us into the future and further illustrates our long-term endurance.

David Ettinger took the time to solicit member input on how to improve CI and lead a group discussion on the pros and cons of the ideas presented. We also passed around a volunteer questionnaire to help us call upon and utilize the tremendous resources and talent right here in the CI community. There are a lot of people who want to help improve CI, not for money or recognition, but instead, simply to help realize our goals and advance a cause that we all feel passionately about.

As you may have deduced, I am very vocal about the importance of basic standby and DIY local planning. I presented a simple demonstration of standby equipment, showing how members can set themselves up in a similar fashion and how such equipment and planning could make all the difference in the quality of suspension we receive. I'm happy to note that CI offers both the Standby Kits (Basic and Advanced) used in these demonstrations for sale to our members.

I also spoke about how easy it is to point out problems, real or perceived, but how what really matters is solving problems. I am not just talking about philosophical issues about how we should operate, but rather hitting the pavement and donating a little personal time or money. Many people have answered the call already, and I'm looking forward to working with everyone who steps forward to help.

DONATIONS

I would like to take the time here to recognize those people who have donated money either through direct check, regular PayPal contributions, and/or overfunding the amount of life insurance needed or trust money reserved for suspension. For privacy reasons, and, frankly, so I don't forget to mention everyone who has donated recently and in the past, I will not mention specific names. To those of you who have made contributions, words can barely express the gratitude we have for your continued support, but I will try regardless…

Thank you for your faith in us and for your generosity to CI. Your donations are truly having an impact on cryonics. We use these funds to improve and strengthen CI, helping to ensure our continued existence and growth. Specifically, your money has helped in our

latest efforts to install a tribute/conference room that not only facilitates our business, but also doubles as a place for families to pay their respects and to reflect on loved ones in suspension. Your money has also gone to much-needed research and development relating to our vitrification formula and operational techniques.

Donations like yours have helped us to address early emergency notification. CI has developed custom-branded File of Life warning decals for vehicles and homes which help emergency responders to carry out our wishes with greater urgency. We have also developed an Android App that checks up on members and automatically alerts a pre-selected list of contacts by text message if you are incapacitated or in need of help. Basically, we know that the cryonics organizations all do a similar and adequate job of suspending and caring for patients long term. But when you look deeply at the data of what constitutes a good or a poor suspension, you will find that what happens in the Standby Phase, prior to a patients arrival at a cryonics facility, more often than not determines the ultimate quality of the suspension. The biggest challenge and potential problem facing cryonics today is the time that elapses between legal death and activation of the cryonics emergency response. Donations like yours are helping us close the notification and response gap.

We take special care in making sure donations are spent wisely on meaningful updates. We watch our budget very diligently and avoid all frivolous expenditures. For instance, CI utilizes a large volunteer staff and contracts out a lot of work for maximum efficiency. We would rather keep our prices affordable for more people, thus saving more lives, rather than spend money on salaries. We want you, the customer, to come first and to always remember that preserving human life is our utmost priority. Today, CI patients receive the best suspensions available, within a budget that almost anyone can afford. Because of your generosity, we can work on these improvements without pulling precious capital away from operations. Your donations allow us to keep our prices at a point where more people can afford to be suspended. Not only are you helping to make us better as an organization, but your generous donations also allow CI to potentially save more precious lives. This is certainly something our donors can be extremely proud of and that we are sincerely grateful for.

I would personally like to invite all CI members and potential members to be a part of our success; if you have not visited CI recently, please arrange to do so to see for yourself the improvements we have done. Come in and check out the facility and operations we all plan to have carry us into the future. We welcome scheduled visits and have a fairly flexible schedule so people can see the various stages of our operations.

We welcome your valuable feedback. What would you like to see at CI? We want to work hard for you and your family. We think you will be very surprised at the positive changes at CI. Thank you all for supporting us and we look forward to the New Year as another one of continued success for CI in both serving our members and in having them involved in giving their input to continue to better our operations..

IMMORTALIST SOCIETY ANNUAL GENERAL MEETING

Secretary's Report - September 12, 2015

by: RA Brown, IS Secretary

Please note: The Immortalist Society (IS) is a non-profit, 501{c}3 , 1967-founded corporation pursuing educational and research objectives in the field of cryonics, and publishing *Long Life: Longevity through Technology* as part of those endeavors. It also maintains a website of *www.immortalistsociety.com*. IS is IRS-recognized as tax-exempt, with donations deductible for federal income tax purposes. Address: 24355 Sorrentino Court, Clinton Township, MI 48035 Phone: (586) 791- 5961. The Annual General Meeting began at about 4PM, with a quorum present, and with Vice-President Debbie Fleming and Secretary, Royse A. Brown, co-presiding due to the absence of York W. Porter, the IS President.

(1) Buffet/Social/Facility Tours.

A. As has been the custom for many years, a full-catered buffet was provided for all participants at about 5PM at. the close of the meeting.

B. It has also been the custom for many years for interested guests and members to meet at a restaurant near the facilities the night previous to the annual meeting.

C. These preliminaries help provide pleasant forums for meeting, cooperation, and issues resolution among participants.

D. Informal tours of the facilities were also provided before and after the meeting. These tours strive to be especially supportive for those remaining in deanimation at the Cryonics Institute, at whose facility the annual meeting of IS was held.

E. This year a "three-ways-to-die" suspension standby presentation was also provided by Cryonics Institute President Dennis Kowalski after the formal IS meeting. Dennis discussed early notification devices, and compared the "why, how, and what" of basic-*vs*.-intermediate standby scenarios. Co-presiding: Deb Fleming and Royse Brown.

(2) Secretary's Report.

Copies of the "Annual Immortalist Society Meeting Report for 2014" by IS President York W. Porter were presented, with IS Secretary Royse Brown indicating agenda therein—these minutes having been published on page 12 of the 4th quarter 2015 issue of *Long Life*. Secretary Brown relayed to the group President Porter's apology—explaining that York was absent due to his car having broken down in the wee hours of the morning north of Lexington, Kentucky while en route to the meeting, making it the first time York had missed the meeting "in around thirty years". Royse gave a short history of IS from its beginning as the Cryonics Society of Michigan. He then outlined to the group the IS web pages, *Long Life*, the IS Cryoprize, and the ANB-contracted research projects, as the four main current tasks of the IS educational and research missions.

(3) Treasurer's Report.

Copies of the "Immortalist Society Annual Report, 9-1-2014 to 8-31-2015" were distributed by IS Treasurer Rich Medalie. Receipts of $7,100 included dues and cryoprize donations. Disbursements included $8,606 for *Long Life* production, and $4,500 for the Cryoprize. Ending balance: $23,393.`

(4) Long Life Editor's Report.

We continue to be proud of the magazine. We would point out the presence of the photographs of Mae Ettinger and John Bull in each magazine near the front, in honor of these two monumental and dedicated individuals, who both served as editors of the magazine in previous years. President & current editor York Porter has emailed to us today that discussions "will be held with the magazine staff over the next month or so" as to how to improve our "getting more timely."

(5) Webmaster's Report.

President York Porter has e-mailed us today, pointing out that "the website will be undergoing some renovation in the next few weeks/months" in a collaboration between York and Doug Golner (with the possibility of help from one or two others). Doug was called to comment briefly on *Long Life* and website progress at this point.

(6) ANB Research Report.

We are planning to continue to work with Chana Phaedra and her company in an ongoing effort "to bring the light of research to bear in improving cryonics procedures." (Words are from York Porter). IS continues to be proud that it was an early supporter of ANB, Inc. Now, ANB has grown substantially in its workload and achievements. Chana then presented to the meeting a rather thorough and lengthy discussion of our research projects. (Please see Chana's passouts for many details.)

(7) Cryoprize Report.

Director Joe Kowalski, Esq., who has put a whole lot of love and effort into originating and developing the Cryoprize, this year addressed the group at this point on its tribulations and progress.

(8-9) Old and new business.

At this point, the hour (5PM) was getting too late to entertain additional topics, and so the group presented none.

(10) Election of Officers and Directors.

After nominations, these were reelected by acclamation: President, York W. Porter; Vice-President, Debbie Fleming; Secretary, Royse A. Brown; Treasurer, Rich Medalie. (They serve, unlike Board Members of the Cryonics Institute, one year terms, starting January 1 of the upcoming year.)

Final announcements/comments were then solicited.

(11) Adjournment.

5:14 PM. On motion by Kevin Doyle, second by Joe Kowalsky.

IS President's note: Readers should note that ANB, Inc. will be offering a detailed article outlining their work in one of the 2016 issues of Long Life.

IS Annual Financial Report

(Presented at Annual 2015 Meeting)

Covering time period of 9/1/2014 to 8/31/2015

I. Beginning Balance.....$29,830

II Receipts

Dues and Gen. Donations 4,186

Cryoprize Donations 2,775

Other..... 139

Total Receipts 7,100

III Disbursements

Long Life Magazine
Production and Postage 8,606

Bank and Transfer Fees 398

Cryoprize expenses..... 4,500

Miscellaneous expenses 33

Total disbursements..... 13,537

Ending Balance.....23,393

(Category I plus Category II minus Category III)

Cryonics Institute Financial Reports

(Presented at Annual 2015 Meeting)

Cryonics Institute Statement of Assets, Liabilities, and Fund Balance resulting from cash transactions
December 31, 2014

ASSETS	General Operations	Contract Prepayments	Patient Care	COMBINED TOTAL
Current Assets				
Checking accounts	140,237.65		0.00	140,237.65
Savings/Paypal accounts	1,743.96	0.00	0.00	1,743.96
Total Current Assets	141,981.61	0.00	0.00	141,981.61
Property, Equipment, And Other Assets				
Land	62,500.00			62,500.00
Building	236,596.36			236,596.36
Building improvements	175,430.54			175,430.54
Cryostats	463,036.49			463,036.49
Laboratory and office equipment	83,362.87			83,362.87

Furniture	1,299.00			1,299.00
Subtotal	1,022,225.26	0.00	0.00	1,022,225.26
Less: allowance for depreciation	(757,240.67)			(757,240.67)
Total Property, Equipment and Other Assets	264,984.59	0.00	0.00	264,984.59
Investments				
Cash balances in investment accounts		82,242.65	534,927.76	617,170.41
Investments, at current market value		603,208.84	2,150,685.31	2,753,894.15
CDs, at current market value		917,154.01	0.00	917,154.01
Total Investments	0.00	1,602,605.50	2,685,613.07	4,288,218.57

Note: Prepaid cryopreservation fees received before March 31, 2004 were recorded as income. After March 31, 2004 prepaid fees were recorded as a liability. All are refundable, pre-mortem. As of December 31, 2014, the remaining total of prepaid fees received before March 31, 2004 was $373,049.27. This amount is in addition to the Refundable Prepaid Contracts liability below.

TOTAL ASSETS	406,966.20	1,602,605.50	2,685,613.07	4,695,184.77
LIABILITIES AND FUND BALANCE				
Liabilities				
Withheld and payroll taxes	2,660.25			2,660.25
Payments received on behalf of IS	0.00			0.00
Refundable Prepaid Contracts	0.00	1,235,293.83		1,235,293.83
Total Liabilities	2,660.25	1,235,293.83	0.00	1,237,954.08
Fund Balance				
Contributed capital	2,619,153.64	464,982.04	884,164.12	3,968,299.80
Accumulated balance (deficit) 12/31/13	(1,930,177.06)	198,447.33	1,262,343.09	(469,386.64)
Net revs (exps) 6 months ended 6/30/2014	404.51	(69,018.52)	26,931.54	(41,682.47)
Transfers	(285,075.14)	(227,099.18)	512,174.32	0.00
Total Fund Balance	404,305.95	367,311.67	2,685,613.07	3,457,230.69
TOTAL LIABILITIES AND FUND BALANCE	406,966.20	1,602,605.50	2,685,613.07	4,695,184.77

Cryonics Institute Statement of Revenues and Expenses resulting from cash transactions for the year ended December 31, 2014

	General Operations	Contract Prepayments	Patient Care	COMBINED TOTAL
REVENUES				
Cryonics services	311,089.78			311,089.78
Research grants	655.00			655.00
Dividends	0.00	24,967.52	59,659.88	84,627.40
Interest	0.00	11,343.46	0.25	11,343.71
Long term capital gains			13.71	13.71
Loss on disposition of asset	0.00		0.00	0.00
Net gain/(loss) on investments	0.00	(105,329.50)	(32,742.30)	(138,071.80)
Total Revenues	311,744.78	(69,018.52)	26,931.54	269,657.80
EXPENSES				
Advertising	21,504.60			21,504.60
Bank charges	6,419.34	0.00	0.00	6,419.34
Cryogens	37,136.73			37,136.73
Cryonics services and supplies	20,650.92			20,650.92
Depreciation	44,815.69			44,815.69
Facility supplies and services	4,204.99			4,204.99
Insurance	17,957.90			17,957.90
Interest	0.00			0.00
Legal and professional services	1,558.77			1,558.77
Maintenance and repair	2,848.75			2,848.75
Office supplies and services	10,951.82			10,951.82
Penalty	0.00			0.00
Pension	9,681.00			9,681.00
Research and development	3,804.20			3,804.20
Salaries and wages	87,172.00			87,172.00
Taxes	15,327.86			15,327.86
Telephone	9,961.86			9,961.86

Travel	5,209.49			5,209.49
Utilities	11,634.99			11,634.99
Federal Corporate Income Tax	499.36			499.36
Total Expenses	311,340.27	0.00	0.00	311,340.27
Operating revenues over (under) expenses	404.51	(69,018.52)	26,931.54	(41,682.47)

Cryonics Institute Statement of Cash Flows resulting from cash transactions for the year ended December 31, 2014

	General Operations	Contract Prepayments	Patient Care	COMBINED TOTAL
Cash Flow From Operations				
Net revenues (expenses)	404.51	(69,018.52)	26,931.54	(41,682.47)
Add back non-cash expenses and revenues:				
Loss on disposition of asset	0.00			0.00
Depreciation and amortization	44,815.69			44,815.69
Total Cash Flow From Operations	45,220.20	(69,018.52)	26,931.54	3,133.22
Cash Flow From Other Sources				
New memberships	115,447.54			115,447.54
Bequests received	189,860.83			189,860.83
Fixed asset purchases	(53,843.86)			(53,843.86)
Increase in amounts owed to IS	0.00			0.00
Decrease in withheld and payroll taxes	(1,067.77)		0.00	(1,067.77)
Increase in contract prepayments-net	0.00	230,381.68		230,381.68
(Increase)/Decrease in CDs		(179,087.30)	0.00	(179,087.30)
Other transfers	(285,075.14)	(227,099.18)	512,174.32	0.00
Decrease/(Increase) in investments		318,216.87	(244,072.99)	74,143.88
Total Cash Flow From Other Sources	(34,678.40)	142,412.07	268,101.33	375,835.00
TOTAL INCREASE (DECREASE) IN CASH	10,541.80	73,393.55	295,032.87	378,968.22
Changes In Cash Accounts				
Checking accounts	9,240.11	0.00	0.00	9,240.11
Savings/PayPal accounts	1,301.69	0.00	0.00	1,301.69
Cash in brokerage accounts		73,393.55	295,032.87	368,426.42
TOTAL INCREASE (DECREASE) IN CASH	10,541.80	73,393.55	295,032.87	378,968.22

Cryonics Institute Statement of Assets, Liabilities, and Fund Balance resulting from cash transactions June 30, 2015

ASSETS	General Operations	Contract Prepayments	Patient Care	COMBINED TOTAL
Current Assets				
Checking accounts	139,040.46		0.00	139,040.46
Savings/Paypal accounts	265.71	0.00	0.00	265.71
Total Current Assets	139,306.17	0.00	0.00	139,306.17
Property, Equipment, And Other Assets				
Land	62,500.00			62,500.00
Building	236,596.36			236,596.36
Building improvements	176,814.54			176,814.54
Cryostats	487,485.66			487,485.66
Laboratory and office equipment	84,895.87			84,895.87

Furniture	1,299.00			1,299.00
Subtotal	1,049,591.43	0.00	0.00	1,049,591.43
Less: allowance for depreciation	(777,721.67)			(777,721.67)
Total Property, Equipment and Other Assets	271,869.76			271,869.76
Investments				
Cash balances in investment accounts		6,078.20	246,974.75	253,052.95
Investments, at current market value		573,854.72	2,482,293.81	3,056,148.53
CDs, at current market value		1,174,824.39	0.00	1,174,824.39
Total Investments	0.00	1,754,757.31	2,729,268.56	4,484,025.87

Note: Prepaid cryopreservation fees received before March 31, 2004 were recorded as income. After March 31, 2004 prepaid fees were recorded as a liability. All are refundable, pre-mortem. As of June 30, 2015, the remaining total of prepaid fees received before March 31, 2004 was $373,077.26. This amount is in addition to the Refundable Prepaid Contracts liability below.

TOTAL ASSETS	411,175.93	1,754,757.31	2,729,268.56	4,895,201.80
LIABILITIES AND FUND BALANCE				
Liabilities				
Withheld and payroll taxes	2,787.41			2,787.41
Payments received on behalf of IS	70.00			70.00
Refundable Prepaid Contracts	0.00	1,270,283.83		1,270,283.83
Total Liabilities	2,857.41	1,270,283.83	0.00	1,273,141.24
Fund Balance				
Contributed capital	2,402,989.35	237,882.86	1,396,338.44	4,037,210.65
Accumulated balance (deficit) 12/31/2014	(1,929,772.55)	129,428.81	1,289,274.63	(511,069.11)
Net revs (exps) 6 months ended 6/30/2015	90,129.71	14,846.68	(9,057.37)	95,919.02
Transfers	(155,027.99)	102,315.13	52,712.86	0.00
Total Fund Balance	408,318.52	484,473.48	2,729,268.56	3,622,060.56
TOTAL LIABILITIES AND FUND BALANCE	411,175.93	1,754,757.31	2,729,268.56	4,895,201.80

Cryonics Institute Statement of Revenues and Expenses resulting from cash transactions for the six months ended June 30, 2015

	General Operations	Contract Prepayments	Patient Care	COMBINED TOTAL
REVENUES				
Cryonics services	248,782.76			248,782.76
Research grants	205.50			205.50
Dividends	0.00	9,627.37	13,472.28	23,099.65
Interest	0.00	5,605.17	0.66	5,605.83
Long term capital gains			0.00	0.00
Loss on disposition of asset	0.00		0.00	0.00
Net gain/(loss) on investments	0.00	(385.86)	(22,530.31)	(22,916.17)
Total Revenues	248,988.26	14,846.68	(9,057.37)	254,777.57
EXPENSES				
Advertising	402.58			402.58
Bank charges	3,297.79	0.00	0.00	3,297.79
Cryogens	19,625.14			19,625.14
Cryonics services and supplies	26,341.62			26,341.62
Depreciation	20,481.00			20,481.00
Facility supplies and services	363.02			363.02
Insurance	8,549.52			8,549.52
Interest	0.00			0.00
Legal and professional services	163.82			163.82
Maintenance and repair	5,541.05			5,541.05
Office supplies and services	4,020.41			4,020.41

Penalty	0.00			0.00
Pension	5,292.00			5,292.00
Research and development	796.40			796.40
Salaries and wages	49,208.00			49,208.00
Taxes	3,940.96			3,940.96
Telephone	3,365.20			3,365.20
Travel	1,571.81			1,571.81
Utilities	5,898.23			5,898.23
Federal Corporate Income Tax	0.00			0.00
Total Expenses	158,858.55	0.00	0.00	158,858.55
Operating revenues over (under) expenses	90,129.71	14,846.68	(9,057.37)	95,919.02

Cryonics Institute Statement of Cash Flows resulting from cash transactions for the six months ended June 30, 2015

	General Operations	Contract Prepayments	Patient Care	COMBINED TOTAL
Cash Flow From Operations				
Net revenues (expenses)	90,129.71	14,846.68	(9,057.37)	95,919.02
Add back non-cash expenses and revenues:				
Loss on disposition of asset	0.00			0.00
Depreciation and amortization	20,481.00			20,481.00
Total Cash Flow From Operations	110,610.71	14,846.68	(9,057.37)	116,400.02
Cash Flow From Other Sources				
New memberships	58,909.69			58,909.69
Bequests received	10,001.16			10,001.16
Fixed asset purchases	(27,366.17)			(27,366.17)
Increase in amounts owed to IS	70.00			70.00
Increase in withheld and payroll taxes	127.16			127.16
Increase in contract prepayments-net	0.00	34,990.00		34,990.00
(Increase)/Decrease in CDs	0.00	(257,670.38)	0.00	(257,670.38)
Other transfers	(155,027.99)	102,315.13	52,712.86	0.00
Decrease/(Increase) in investments		29,354.12	(331,608.50)	(302,254.38)
Total Cash Flow From Other Sources	(113,286.15)	(91,011.13)	(278,895.64)	(483,192.92)
TOTAL INCREASE (DECREASE) IN CASH	(2,675.44)	(76,164.45)	(287,953.01)	(366,792.90)
Changes In Cash Accounts				
Checking accounts	(1,197.19)	0.00	0.00	(1,197.19)
Savings/PayPal accounts	(1,478.25)	0.00	0.00	(1,478.25)
Cash in brokerage accounts		(76,164.45)	(287,953.01)	(364,117.46)
TOTAL INCREASE (DECREASE) IN CASH	(2,675.44)	(76,164.45)	(287,953.01)	(366,792.90)

Cryonics Institute Membership Statistics:

As of November 2015, the Cryonics Institute has 1,239 members, up 51 from our last report. Of the 1,239 Members, 187 have arrangements for Suspended Animation Standby and Transport.

There are 136 human patients and 115 pet patients in cryopreservation at CI's Michigan facility.

CI continues to be an industry leader in terms of both membership and practical affordability for all.

CI MEMBERSHIP

Increase in Membership since last issue

New Country

Members 1,239
SA 187

Patients 136
Pets 115

TOTAL
1,375

Worldwide Cryonics Groups

If you know of, or are considering starting a support, standby or other cryonics-related group in your area, please send details to immsoc@aol.com. We'll be using Long Life to list existing groups of interest as well as help spread the word and encourage new organizations. (New additions to the list are denoted with an asterisk).

AUSTRALIA: The Cryonics Association of Australasia offers support for Australians, or residents of other nearby countries seeking information about cryonics. 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

QUEBEC: Contact: Stephan Beauregard, C.I. Volunteer & Official Administrator of the Cryonics Institute Facebook Page.

For more information about Cryonics in French & English: stephanbeauregard@yahoo.ca

DENMARK: A Danish support group is online. Contact them at: david.stodolsky@socialinformatics.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 Roland Missionnier would like to hear from cryonicists in Switzerland, Luxembourg and Monte Carlo, CELL: (0033) 6 64 90 98 41, FAX: (0033) 477 46 9612 or rolandmissonnier@yahoo.fr

Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr and authority in Toulouse Area. Contact : Gregory Gossellin de Bénicourt / Email : cryonics@benicourt.com Phone : 09.52.05.40.15

GERMANY: There are a number of cryonicists in Germany. Their homepage is: www.biostase.de (English version in preparation.) if there are further questions, contact Prof. Klaus Sames: sames@uke.uni-hamburg.de.

GREECE: Greek Cryonics Support Group. Sotiris Dedeloudis is the Administrator. Find them at: http://www.cryonics.gr/

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/ index.html

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.

NETHERLANDS: The Dutch Cryonics Organization (http:// www.cryonisme.nl) is the local standby group and welcomes new enthusiasts. Contact Secretary Japie Hoekstra at +31(0)653213893 or email: jb@hoekstramedia.nl

* Can help Cryonics Institute Members who need help, funeral home, transport & hospital explication about the cryonics procedure to the Dr and authority at Amsterdam with branches in other cities. Contact : Koos Van Daalen / Phone (24 Hours) +31-20-646-0606 or +31-70-345-4810

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

PORTUGAL: Nuno & Diogo Martins with Rui Freitas have formed a group to aid Alcor members in Portugal. Contact: nmartins@nmartins.com or visit www.cryonics.com.pt/

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: Giulio Prisco is Secretary of the Spanish Cryonics Society. Website is http://www.crionica.org.sec. He lives in Madrid and he's a life member of CI and is willing to serve as a contact point for Europeans. He can be contacted at: cell phone (34)610 536144 or giulio@gmail.com

*** SWITZERLAND (new entry):**
www.CryonicsSwitzerland.com or www.ria.edu/cs

UNITED KINGDOM: Cryonics UK is a nonprofit UK based standby group. http://www.cryonicsuk.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. Website is 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.

2015 Cryonics Institute Annual General Meeting

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

The Seventh Annual *Young Cryonicists* Gathering

Teens & Twenties 7 2016: Getting to Know You - You Getting to Know Each Other

Fri-Sun; April 8-10, '16 Ontario CA Host: *Life Extension Foundation* SCHOLARSHIPS AVAILABLE

★★★

Greetings to *Young Cryonicists*,

You are receiving this invitation because you are among the future leaders in 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 cryonics organizations in their late teens through age thirty *(18-30) as of April 10, 2016* - may apply to attend.

Younger Cryonicists With Parent(s):

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

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:

Life Extension Foundation, through a generous education grant, is offering *40 scholarships* that pay for ALL of the following:

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

A full packet of information with all details and application forms may be found on the Immortalist Society website. Go to www.immortalistsociety.org and look for a navigation button near the top of the home page.

Forever,

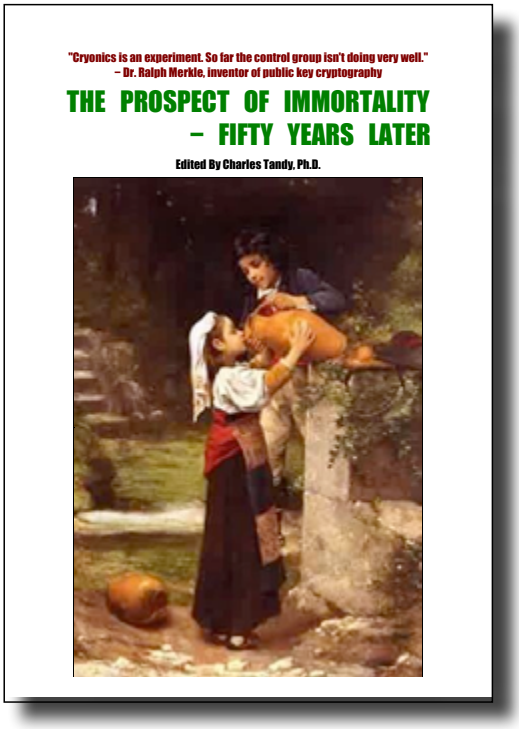
Cairn Erfreuliche Idun
Founder/Director: T2

PS! Come Early. Stay Late.

Some attendees to T2 enjoy spending *extra time in California* - 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.



The Prospect of Immortality: Fifty Years Later

Charles Tandy, Ph.D. (Editor)

The Prospect of Immortality – Fifty Years Later is "the definitive anthology in cryonics, full stop." (Dr. Steve Fuller, Professor of Sociology, University of Warwick, UK). "Cryonics is an experiment. So far the control group isn't doing very well." (Dr. Ralph Merkle, inventor of public key cryptography). *The Prospect of Immortality – Fifty Years Later* is edited by Charles Tandy, Ph.D. (ISBN 978-1-934297-21-6 is the Hardback edition and ISBN 978-1-934297-22-3 is the Paperback edition.)

This 534-paged anthology is a fifty year celebration and update of Robert Ettinger's 1964 cryonics classic, *The Prospect of Immortality*. *The Prospect of Immortality* was published by Doubleday in 1964 after being vetted as scientifically plausible by none other than the famous pseudoscience debunker, Isaac Asimov. Its author, Robert Ettinger, became known rather quickly as the father of cryonics. Ettinger himself has now been in cryonic hibernation since 2011. The first cryonaut, James Bedford, has been in cryonic hibernation since 1967. Hopefully at some point in time, it will become feasible to place (future) cryonauts in (perfected long-term) suspended animation instead of in cryonic hibernation.

Healthspan extension and enhancement (immortality as prolongevity) is the goal of cryonics. Cryonics is a biomedical experiment in long-term suspended animation or practical time travel. It is based on our present state of knowledge of existing technology and on our present state of knowledge of future technology. Accordingly, "unbelievable" (i.e., amazing) experimental results (prolongevity) should not prove surprising. Biomedically, this is a case where the experimental group has much to recommend it over the control (burial/cremation) group.

The present update, after fifty years, includes seven parts (topics) totalling 18 chapters:

THE EDITOR

Charles Tandy, Ph.D.

Dr. Charles Tandy received his Ph.D. in Philosophy of Education from the University of Missouri at Columbia (USA) before becoming a Visiting Scholar in the Philosophy Department at Stanford University (USA). Dr. Tandy is author or editor of numerous publications. He is author of *21st Century Clues: Essays in Ethics, Ontology, and Time Travel* (released in 2010). Philosophy anthologies edited by Dr. Tandy include the *Death And Anti-Death* series: Twelve annual volumes so far, 2003-2014. As Senior Fellow at the Center for Interdisciplinary Philosophic Studies (Ann Arbor, MI), Dr. Tandy is presently focused on reformulating the philosophy of Immanuel Kant; the monograph is tentatively entitled *Kant Can: Multigenerational Possibilities for the Twenty-First Century and Beyond*. The CV of Dr. Charles Tandy is located at <www.DoctorTandy.com>.

THE CONTRIBUTORS

Benjamin P. Best is Director of Research Oversight at the Life Extension Foundation (Fort Lauderdale, FL); he is also former President of several major cryonics organizations.

F. A. B. Cortese is a research scholar with the ELPIs Foundation for Indefinite Lifespans (Larnaca, Cyprus), an ambassador with the Seasteading Institute (San Francisco, CA), and an affiliate scholar with the Institute for Ethics and Emerging Technologies (Willington, CT).

Robert A. Freitas Jr.
Robert A. Freitas Jr. is Senior Research Fellow at the Institute for Molecular Manufacturing (Palo Alto, CA); and, Faculty Member (Nanotechnology) at Singularity University (Moffett Field, CA).

Patrick A. Heller is a certified public accountant, and owner of Liberty Coin Service (Lansing, MI); he is also Treasurer (since 1980) of the Cryonics Institute (Clinton Township, MI).

Rudi Hoffman is a certified financial planner and accountant living in Florida; he is also an insurance agent licensed in 23 states.

Rebecca Lively is an attorney who practices criminal law in Texas.

D. J. MacLennan is Managing Director of Axobox Ltd. (Isle of Skye), which specializes in web services and internet retail.

John Warwick Montgomery is Emeritus Professor of Law and Humanities, University of Bedfordshire, England; Distinguished Research Professor of Apologetics and Christian Thought, Patrick Henry College, Virginia, USA; and, Director, International Academy of Apologetics, Evangelism & Human Rights, Strasbourg, France.

Max More is President of the Alcor Life Extension Foundation (Scottsdale, Arizona); he is also co-founder of the Extropy Institute and today's transhumanist movement.

David Pascal is a marketing consultant living in upstate New York; former Member Relations and Public Relations Coordinator at the Cryonics Institute (Clinton Township, MI); and, currently, Secretary of the Cryonics Society (Rochester, NY), an independent non-profit organization dedicated to the better promotion of cryonics.

R. Michael Perry is Care Services Manager (since 1989) at the Alcor Life Extension Foundation (Scottsdale, Arizona); he is also a (Ph.D. credentialed) computer programmer.

York W. Porter is President of the Immortalist Society (Clinton Township, MI), and Executive Editor of their *Long Life* magazine (devoted to educating the public about cryonics).

Melanie Swan is a science and technology innovator and philosopher at the Institute for Blockchain Studies (Palo Alto, CA); she is also an affiliate scholar with the Institute for Ethics and Emerging Technologies (Willington, CT), and a contributor to the Edge's Annual Essay Question.

Charles Tandy is Senior Fellow at the Center for Interdisciplinary Philosophic Studies (Ann Arbor, MI); he is presently focused on reformulating the philosophy of Immanuel Kant – the monograph is tentatively entitled *Kant Can: Multigenerational Possibilities for the Twenty-First Century and Beyond*.

James R. Yount is Chief Operating Officer of the American Cryonics Society (Cupertino, CA), has been on its board of governors for over 20 years, and served as its President in 1994-96; he is also founder of the Long Life Insurance Agency and helped pioneer the use of insurance to fund cryonic hibernation.

The promise of cryonics is clearly shown in the words of Ben Best, former President of the Cryonics Institute and long time cryonics activist in the biomedical technical paper, *Scientific Justification of Cryonics Practice* which appeared in Rejuvenation Reseaarch [11(2):493-503.DOI: 10.1089/rej.2008.0061]:

> *The proposition that aging is a disease that can be treated and perhaps eventually be reversed (rejuvenation), is based on the general understanding that aging consists of a multitude of specific pathologies on cellular and molecular levels that can be studied, understood, and reversed with foreseeable tools. Pathologies caused by global cerebral ischemia (clinical death), by cryopreservation, and by other presently incurable diseases are similarly amenable to analysis and possible future repair. If aging damage can be repaired at some future time, it is not unreasonable to think that damage due to cryonics procedures can also be repaired. And if aging damage can be repaired at some future time, cryonics may be the only way for many people living today to obtain future medical procedures that can cure presently incurable diseases and thereby rejuvenate.*

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Ron Howard, Brian Grazer search for a 'Breakthrough' in anti-aging therapies in NatGeo science series

by Scott Collins • Los Angeles Times

Reprinted From the LA TIMES:

http://touch.latimes.com/#section/4/article/p2p-84869529/

Ron Howard and Brian Grazer at Tribeca Talks After the Movie: A Beautiful Mind, Presented by Tribeca Film Institute and the Alfred P. Sloan Foundation.

Photo: Wikimedia Commons: David Shankbone

For his latest film, Ron Howard reached far into the past — all the way back to Opie Taylor.

Howard, the 61-year-old director who won an Oscar for "A Beautiful Mind," is, along with his longtime producing partner, Brian Grazer, the guiding force behind "Breakthrough," a new six-part science series that premiered recently on National Geographic Channel.

Howard directed "The Age of Aging," the film on medical research into anti-aging therapies. To illustrate the effect that aging has over a lifetime, he includes a slide show of himself growing older over the years. There's a shot of Howard in character as small-town Opie, whom he played as a child star on "The Andy Griffith Show" in the early 1960s. There he is playing the clean-cut teenager Richie Cunningham on "Happy Days." And there are recent photos, where the middle-aged director has laugh lines and thinning hair. Think of it as a baby boomer highlight reel.

"We're all aging," Howard said with Grazer in his Beverly Hills office, explaining what attracted him to the topic. In fictional terms, he explored the subject in "Cocoon," his 1985 hit comic fantasy about seniors who magically throw off the pains and limits of advanced years after an encounter with aliens.

Howard narrates the NatGeo film, so the reference to his real self also prevents people from thinking "it's another episode of 'Arrested Development,'" he joked, alluding to the Fox sitcom that he narrated and helped produce.

More seriously, Howard believes that his new TV film can illuminate the scientific advances, particularly in genetic research, that some doctors think will slow down aging and greatly extend human lifespan in coming years. But the tale is not without the kind of drama that can lure a director of scripted narratives.

"Aging is very controversial, and the medical community and the research community don't even quite know what to do with it," Howard said.

The topic was so vast that he and his team decided to focus on scientists engaged in cutting-edge research, such as Laura Deming, a science prodigy who enrolled at MIT at age 14 and now studies aging. Interspersed are vignettes of real-life patients struggling with the natural declines of age.

"We began to say, 'Let's acknowledge the more extreme possibilities, but let's take a very serious look at the most responsible scientists that we can find, who actually believe they can make a difference, and let's follow them,' and in following them we actually uncovered some actual suspense, conflict and drama," Howard said.

"Breakthrough" might seem like an odd choice for the Grazer-Howard team, who became famous for high-quality movie crowdpleasers, such as "Apollo 13," "Parenthood" and "The Da Vinci Code."

But as anyone who has followed his work knows, Grazer has a restless mind, one that can lead him and his colleagues into unexpected destinations. For 30 years, the veteran TV and film producer has informally interviewed thought leaders in various disciplines, asking them wide-ranging questions about their work and lives (his approach to these conversations is discussed in his book, "A Curious Mind: The Secret to a Bigger

Life," published this year).

One expert Grazer consulted was Beth Comstock, a longtime top executive for GE and formerly NBC and Turner Broadcasting. Soon the pair were brainstorming possible TV ventures.

"First we discussed for a moment, 'Maybe Ron and I could do 30-second spots or something for GE,'" Grazer, 64, said. "But then we just abandoned that very quickly. I said, 'I have a very romantic idea of what GE was when it was created.'"

That idea included Thomas Edison, the inventor and founder of the Edison General Electric Co. in 1889. "He was curious himself and fascinated with problems on the planet, and he solved one of biggest problems on the planet by bringing electricity to the world," Grazer said. Comstock loved that idea, Grazer said, and soon they had roped in Howard as well as GE Chairman Jeffrey Immelt for talks about a documentary series focused on scientific innovation.

But Grazer emphasized that the series isn't an infomercial for Comstock's employer.

"GE is not a protagonist in any of the stories," he said. "They're a producing partner."

Howard added, "They care about innovation and they have, obviously, tremendous resources. … I think it benefits them on a corporate level to celebrate the kind of strides that are being made" in various disciplines.

Reached through a representative, Comstock, now the vice chair of GE, said in a statement that "what sets the series apart is its focus on the intersection of science and the human experience and the often unsung heroes who dedicate the better part of their lives to achieving amazing outcomes that could ultimately impact all of us."

Grazer has a longtime TV deal with Fox — he's an executive producer of the network's hip-hop soap "Empire" — and that led to NatGeo, part of Fox's stable of networks.

Grazer and Howard both admire "30 for 30," ESPN's sports documentary series that began in 2009, and they began collaborating with Asylum Entertainment — a nonfiction production company that worked with the sports network on that series — to develop "Breakthrough."

Hollywood VIPs with close ties to Grazer and Howard were brought aboard as directors for the other five films in the series. Director Brett Ratner takes on brain science; actress Angela Bassett looks at water and drought. Actor Paul Giamatti plunges into cyborg technology.

Publicity photo of Andy Griffith and Ron Howard from the television program The Andy Griffith Show.

Photo: Wikimedia Commons: Public Domain

Akiva Goldsman, who wrote "A Beautiful Mind," investigates energy. And director Peter Berg oversees the film on pandemics.

As for Howard, he's still a newbie to the documentary genre.

"This is only my second documentary effort," he said. "My first one was [2013's] 'Made in America,' about this Jay Z music festival in Philadelphia, and I did that as a lark.

"What I was shocked by is that my narrative, my instincts, from years of shooting and then editing the movies that I direct served me very, very well, and I was able to find storylines, find threads that I related to as a storyteller within the documentary footage." He said he applied the same lesson to his work on "Breakthrough."

That doesn't mean Howard is about to become a full-time documentarian. His new film "In the Heart of the Sea" — based on the sinking of an American whaling ship in 1820 — opens in December. He also just finished shooting "Inferno," starring Tom Hanks, the latest adaptation of a Dan Brown thriller.

But Howard does want "Breakthrough" to help discover the stars of tomorrow — the scientific stars, if you will.

"My hope is that, 10 years from now, 20 years from now, you'll look back and you'll say, "Oh, look who is in that documentary,'" he said. "Somebody who was a breakthrough genius and [had] the wisdom, the good fortune, that you find that person in motion."

Cryonics, February 2014

THE CASE FOR WHOLE BODY CRYOPRESERVATION

Michael B. O'Neal, Ph.D. and Aschwin de Wolf

[This is an expanded revision of an article that originally appeared in Cryonics, July 1990; this web edition was also slightly revised June 2014. Thanks to the editor of Cryonics magazine, Aschwin de Wolf, for permission to reprint this article here]

Introduction

This article presents a number of reasons for preferring whole body cryopreservations over neuro cryopreservations. For those of you who may be new to cryonics, a whole body cryopreservation, as the name implies, involves the cryopreservation and long-term care of the entire patient. Neuro cryopreservations are similar to whole body, with the exception that only the patient's brain (encased within the cranium, that is to say, normally the whole head) is placed in long term care.

The intent of this article is not to dispute the validity of neuro cryopreservations. The authors believe that a neuro cryopreservation is certainly immensely preferable to no cryopreservation at all and we fully support Alcor's policy of conversion of whole body patients to neuro cryopreservation in emergency situations.

We are disturbed, however, by the ease with which many Alcor members seem to reach the conclusion that full body cryopreservation is simply a waste of liquid nitrogen and money. Of Alcor's nearly 1,000 members approximately one half are whole bodies and one half are "neuros" [1]. Even allowing for the economics of the situation, we find it surprising that such a large percentage of Alcor members choose the neuro option [2]. Each of us must decide for ourselves whether the additional cost of a full body cryopreservation is justified by the perceived benefits. Any informed decision can only be made after careful consideration of the benefits and costs of each option. The Alcor publication: "Neuropreservation: Advantages and Disadvantages" [2] attempted to do just this. The authors of that article, however, seem to be biased in favor of the neuro option. As evidence of this conclusion we would point out that of the 17 paragraphs in the document only 4 seem to present advantages of the whole body approach (paragraphs: 1, 9, 14, 17). To be fair, articles have appeared in this and other publications [3] which favor the whole body approach. Even Mike Darwin's excellent pro neuro cryopreservation article, "But What Will the Neighbors Think?!" [4], devotes substantial space to a balanced treatment of the questions surrounding neuro cryopreservation.

Merkle's Wager Revised

Before discussing specific technical and social arguments, there is one abstract argument that can be made in favor of whole body cryopreservation that follows the same logic as Ralph Merkle's restatement of Pascal's wager in approaching cryonics. But instead of applying his argument to the rationality of choosing cryonics, we will apply it to the forms of cryopreservation being offered.

This exercise requires us to make a number of assumptions. We need to assume that cryopreservation is conducted under optimal conditions for both cryopreservation options and that there are no other obstacles (e.g., logistical or legal) to resuscitation. The focus here is on how much information preservation is required for complete survival of the person. As can be seen in the table below, whole body cryopreservation will lead to complete survival for the simple reason that it is the most comprehensive cryopreservation option available—at least as it pertains to the person as a physiological being. In the case of neuropreservation, only the brain (usually contained in the head) is preserved. Regardless of how much information we need to preserve, the person who has made whole body arrangements will do fine. In the case of neuropreservation, the reductionist argument about the brain sufficiently encoding identity must be correct to achieve the same outcome as whole body cryopreservation.

	Neuro-preservation Is Sufficient	Neuropreservation Is Insufficient
Neuropreservation	*Complete Survival*	*Incomplete Survival*
Whole Body Cryopreservation	*Complete Survival*	*Complete Survival*

Now, what if we would relax our assumptions a little and allow for some degree of ischemia or brain damage during cryopreservation? It strikes us that this further strengthens the case for whole body cryopreservation because the rest of the body could be used to infer information about the non-damaged state of the brain, an option not available to neuropatients.

Whole Body Cryopreservation and Identity

First, it is by no means clear that the body does not contain information critical to the revival of the person. We do not mean by this statement that we reject the fact that the human brain holds a per-

son's mind and personality. What we do mean is that reconstruction of the person as they were immediately prior to cryopreservation may be very difficult, or impossible, without the body.

Most everyone agrees that DNA does not completely specify a person. The argument of those who have selected neuro cryopreservation seems to be that DNA plus the information contained in the brain does specify all of the important aspects the person. But can we really be completely sure of this?

Let us consider the case of identical twins—naturally occurring clones. Since they developed from the same original cell, their DNA sequences are identical. However, twins are not exactly the same. For example, they are not always the same height and they do not have the same fingerprints. Some of these differences, such as height, may be directly attributed to environmental factors such as nutrition and health care. Other characteristics, such as fingerprints, seem less related to environmental factors and suggest that DNA programming may only specify general patterns, with the specifics arrived at in some other fashion. In fact, in recent years the study of epigenetics, which looks at how genes are switched off and on by environmental and other factors and can explain at least some of the differences in the way twins develop, has become a major research focus. Regardless of how these differences arise, it should be clear that a person's physical characteristics are not fully determined from DNA alone.

"So, what is the point?" you might ask. "Surely all of my memories plus an almost identical body would still be me." Perhaps. But what if the details of the central nervous system are not fully specified in the DNA programming?

The typical scenario for reviving a person cryopreserved using today's primitive technology involves reconstructing the person using cell by cell (or molecule by molecule) repair techniques. If whole body procedures were used, the person's entire central nervous system would be preserved. This preservation would not be perfect. There would be damage, perhaps even fractures to the spinal cord. It has been suggested [2, page 3] that because of the likelihood of these fractures there is little reason to prefer a whole body cryopreservation. This argument ignores the fact that repair of a damaged system, even a spinal cord, is likely to be much less complex, and more accurate to the original, than an unguided reconstruction based on DNA alone.

This leads us to conclude that without the original body to serve as a guide, it may not be possible to smoothly "interface" the neuropatient to a (re-grown) body. As mentioned above, the fact that "identical" twins (naturally occurring clones who share the same DNA) are not, in fact, identical proves that DNA does not fully specify our physical form. Thus it is at least plausible to postulate that the differences between our original bodies and cloned bodies may complicate the process of integrating a neuropatient's existing brain and head to a newly cloned body. Even if an approximation of the original connections can be designed, the new body may not "feel" right due to the subtle differences that are sure to exist between the original body and a re-grown one.

Of course we are not claiming that a revived neuropatient wouldn't be the same person if he or she were integrated with a cloned body. After all individuals, such as Christopher Reeves, can survive as the same person for many years after injuries that deprive them of use of their bodies—but no one would claim that these individuals' lives aren't dramatically changed by such incidents. Similarly, skills may have to be relearned by neuro patients after resuscitation. For individuals such as athletes and musicians, where exceptional physical abilities comprise a significant portion of their self-identities, relearning these skills could be tremendously frustrating. Even those of us who are far less physically talented may find relearning how to type, fly fish, ride a bike, or even walk, quite annoying.

Our second point is that the existence of the body may help reduce personality and memory loss caused by a less than perfect cryopreservation.

The physical characteristics of our bodies strongly influence who we are. Our actions also strongly influence the condition of our bodies. We can think of our bodies as a crude physical backup of lifestyle choices, and hence personality. Careful examination of our bodies can reveal the answers to many questions, such as: Did we lead a sedentary life or were we physically active? What kind of diet did we consume? What kind of physical accidents and ailments did we suffer from? What led to clinical death and how old were we when clinical death occurred?

Modern anthropologists can infer much about the lives of our ancestors, and answer many such questions, working only from the clues available from our ancestors' skeletons. How much more information could be gleaned by future experts working with advanced technology and well preserved bodies?

Many people in the cryonics movement have pointed out the need to keep records and memorabilia to back up crucial memories. While this is certainly a good idea, it should be pointed out that information of this type cannot entirely replace the information stored in our bodies, since there is always the chance that our bodies contain important information that we are unaware of. For example, a person may suffer from an undiagnosed medical condition that greatly impacts his or her life. Complete molecular preservation of the body by definition gives us the most complete information about the his-

tory of our body and its interaction with the brain, regardless of our current level of understanding.

Recently, research has been conducted to understand the "microbiome" and the alleged interaction between gut bacteria and the brain. One does not need to believe that the microbiome is part of the (peripheral) nervous system to recognize that its preservation (and gut bacteria in particular) may provide clues about the brain, (past) mental states, and could be useful to resolve ambiguous brain repair challenges.

One could argue that in the vast majority of cases most information available from an examination of the body would be known to the person and therefore be available in the patient's brain. Even if some memories are apparently destroyed by a poor cryopreservation, many traces of them may remain. Surely, during patient reconstruction, these partial memories will be discovered and enhanced, making whatever personality/lifestyle information that may be contained in the body redundant.

This argument overlooks the very real possibility that technologies to repair a patient's brain may be developed that do not require or provide an understanding of the personality and memory information contained in that patient's brain. This is a very important point. Reconstruction and repair of a brain does not necessarily imply access to the memories it contains.

Perhaps the best way to understand why this is true is to look at "neural net" computers. The connectionist machine or neural network is composed of a large number of simple processing elements that are highly interconnected. These elements are modeled after biological neurons, the basic components of the human brain. Information in such systems is not stored in discrete locations, as is the case in conventional computers, but instead is stored as weighted connections between large numbers of processing elements (i.e., nodes). Machines of this type are often trained to recognize and classify particular patterns.

We can imagine a neural net where the connections between nodes are represented as electrical currents that flow through wires. Our particular machine has been in storage for a long time. When it was being placed into storage some of the wires came loose from their connections. We may repair the machine by reconnecting the wires to their proper connections (assuming we can tell where the loose wires belong). After completing these repairs we should have a fully functioning machine. Of course, we have no idea what patterns it has been trained to recognize. It would, in fact, be very difficult to try to determine what the machine knows without turning it on, since its knowledge exists only as connections between nodes.

The parallels with repair of a human brain after cryopreservation are clear. Just because we can repair a brain does not mean we will understand the person contained in that brain. The point of all of this is that it is unreasonable to expect that during repair memory traces from a damaged brain will be automatically detected and enhanced. Instead, the availability of the original body may prove invaluable in helping the person to reconstruct his or her life by providing a familiar physical environment to ease the transition into resuscitation and by providing physical reminders of memories which may have been partially lost.

Subjectivism and Identity

Alcor members who have made neuropreservation arrangements are often perplexed by the choice to make whole body arrangements. "Surely, a technology that is powerful enough to repair the damage associated with the cryopreservation process should be able to grow a new rejuvenated body." In turn, the advocate of whole body cryopreservation rejects such reductionism of identity to the brain and points out that the body is also part of one's identity and that it should be possible to rejuvenate and enhance one's existing body. Who's right? The problem with this question is that it assumes that questions about identity have objective answers and that ultimately this argument will be settled in favor of neuro or whole body cryopreservation.

We believe that this whole framework of looking at the issue may rest on the mistake that identity is an objective property of a person and excludes subjective preferences. To illustrate this point, let's compare an ascetic philosopher whose life completely revolves around abstract ideas and a professional body builder whose living and passion depends on the exact shape of his body. The philosopher may even abhor his body and would not be interested in its continued existence if technology permits. The body builder, on the other hand, is quite keen on preserving his body exactly in the state it is and hopes to resume some advanced form of bodybuilding after resuscitation. In this example identity, self-image, and preferences are closely linked and no objective theory of identity is going to render a clear verdict on who is thinking "correctly" about identity.

It is easy to see how issues concerning identity, self-image, preference, and survival can confuse matters. For example, people who have lost their limbs or lower part of the body, and still lead meaningful lives, are often used as "proof" that preserving the brain is sufficient for identity. But such an example is more testament to our instinct for survival and the resolve to live life at its fullest despite trauma or disease. It does not mean that such people do not regret having lost these faculties and would not want them back if possible. Identity can be lost, restored, and created. In a sense, identity involves decisions we make and is not fixed.

It is also important here to note that some contemporary thinkers are moving away from the idea that identity (or the mind) is confined to the skin and skull. Increasingly, we store vast amounts of personal information that is important, or even essential, to our functioning as a person outside ourselves. This position is called "the extended mind." It is not some vague spiritual notion about the mind but recognizes the role of external objects in the functioning of our mind and identity. Looking at the issue of identity preservation from this perspective makes even the whole body option look limited because it does not take into account all the external objects and information outside of us that have become part of our person and self-image. For example, a Facebook account can be considered part of one's identity and it is not realistic to remember everything that one posted, liked, and shared. So it is not part of one's brain or body but it can be considered a part of one's identity and life history. We should not be surprised, then, that an increasing number of Alcor members are paying more attention to saving information and objects in addition to their own brain or body.

Of course, in case that the brain is so severely damaged that the body might contain some kind of clues of its original state, this kind of subjectivism does not apply. Preservation of the whole body would simply provide more information about the brain.

Quality of Preservation

One of the most persuasive arguments in favor of neuropreservation is that this option will produce a better cryopreservation. The reasoning here is that when the cryonics organization can exclusively focus on the brain (or just the head) a better outcome will result. Perfusion times are shorter, (abdominal) edema does not present a challenge, and, in the case of isolated head perfusion, better venous return of the cryoprotectant is possible.

A rejoinder to this argument is that one does not need to choose neuropreservation to receive these advantages. One could preferentially cryopreserve the isolated head and after this procedure cryopreserve the rest of the body. In fact, as of this writing, the default procedure at the Cryonics Institute is to perform cryoprotective perfusion with a vitrification agent for the upper body and give the rest of the body a straight freeze. At Alcor it is possible to execute a contract that provides for separate cryopreservation of the head and the body. So it is not accurate to say that one needs to exclude the cryopreservation of the body to get a superior cryopreservation.

Although it is indisputable that isolated head perfusion reduces cryoprotectant exposure time and accelerates cooling, it should be kept in mind that the (alleged) superiority of neuropreservation only holds when cryoprotection procedures remain sub-optimal. If ischemia is minimized and a cryoprotectant was developed that was non-toxic, issues such as exposure time would be less relevant. When you make cryopreservation arrangements you do not just need to assess the technology available at the present time but also consider technological advantages in the future. It should also be stressed that as more people choose whole body cryopreservation cryonics organizations have a greater incentive to perfect this procedure.

We should also mention that it is possible to get the (alleged) technical advantages of neuropreservation without the bad PR (see below) associated with this procedure if one would just preserve the brain. Whereas many people are repulsed by images of isolated heads, the sight of an isolated brain is relatively common in the media and popular science. Brain preservation reduces long-term costs even more than neuropreservation. We suspect that many people would feel more comfortable with a cryonics organization offering brain preservation than with a cryonics organization offering neuropreservation.

Public Perception of Neuropreservation

Cryonics is a radical concept. As a group we would do well to consider the fact that no individual or organization can survive in isolation. We need the cooperation of others—doctors, lawyers, pharmaceutical companies, liquid nitrogen suppliers... the list is almost endless. Without these people, we are already dead. The concept of neuro cryopreservation is even more radical than the idea of whole body cryopreservation. Decapitation has historically been associated with death, not life, and thus can elicit a very strong emotional reaction. This seems to characterize one of the author's [O'Neal's] family's views of cryonics. Most of his family does not object to the idea of his being cryopreserved at death. In fact, his sister has agreed to be the executor of his estate. The family's biggest concern was that he would choose the whole body option. Most of O'Neal's family members, like the vast majority of "reasonable" people, believe that it will never be possible to restore a person from a "frozen head," and find the notion extremely repulsive. Note use of the word "believe" in the previous sentence. The scenarios generally envisioned for the restoration of neuropatients have been described to O'Neal's family members in some detail, including the apparent necessity of nanotechnology to restore both whole body and neuropatients cryopreserved under today's imperfect conditions. They seem to intellectually understand the arguments, but at some deep emotional level they still don't "believe" it will ever be possible to restore a patient from neuro cryopreservation. At some point it seems that the energy devoted to trying to convince individuals that neuro cryopreservation is reasonable would be better spent first securing buy-in from a larger segment of the population that the underlying concept of cryopreservation itself is reasonable.

The importance of having the support, or at least acceptance, of family and friends concerning our desire for cryopreservation should not be underestimated. There are situations in which hostility towards cryonics by family members has led to substantial delays in the application of stabilization and cryopreservation protocols, and some members have even failed to enter cryopreservation at all due to the objection of family members. Members may be wise to consider whether choosing the whole body option could help ameliorate any resistance that may exist within their own families, as this could have a direct impact on their own cryopreservation.

It is also important to carefully consider the negative PR that can result from cryopreservations involving removal of the patient's head, regardless of whether the body is stored or discarded. A relatively recent example of such negative PR is the controversy surrounding the cryopreservation of baseball player Ted Williams that followed from the publication of Larry Johnson's book *Frozen*. It is, of course, difficult to precisely quantify what damage, if any, Alcor experienced as a result of this episode. The authors do note that membership growth at Alcor has slowed dramatically in recent years. One could argue that the negative PR surrounding unfounded allegations about "disrespectful" treatment of William's remains—specifically his head—may be a contributing factor to reduced membership growth.

The authors' personal beliefs are that Alcor, and the entire cryonics movement, would be better served if future members were more strongly encouraged to consider the advantages of full body cryopreservations. Given the obviously deep rooted resistance to neuropreservation, why should we throw another psychological roadblock in our path? Cryonics is a hard sell as it is and expecting people to embrace the conceptual argument in favor of cryonics and also not have a visceral response to the idea of neuropreservation (and Alcor's isolated head perfusion procedure in particular) makes things unnecessarily difficult. In fact, if a person's first exposure to cryonics is through a sensationalist account of a neuropreservation case a substantial number of them will no longer be in the right mindset for a dispassionate examination of the cryonics argument.

One logistical/safety argument in favor of neuropreservation is that the much smaller volume and storage container will make transfer of the patient easier in an emergency situation (such as a natural disaster). It is undeniable that it is easier to move a neuropatient (let alone an isolated brain) but this is a double-edged sword because this also means that it easier to remove or steal a patient. Past experience is not a good indicator which scenario is more likely to occur in the future.

The issue of paramount concern for each of us as individuals is to be cryopreserved at clinical death, and for cryonicists as a group is to increase public acceptance of cryonics—ultimately leading to the establishment of the right to choose cryopreservation as an elective medical procedure for critically ill patients. Once the public and the law acknowledge our right to cryopreservation, then recognition of neuro cryopreservations as a valid option will be much easier. Neuro cryopreservations could be presented as an intelligent fallback position, to be used under circumstances that preclude whole body cryopreservations, rather than as a primary option.

Whole Body Cryopreservation, Suspended Animation, and Medicine

Ultimately, the aim of a credible cryonics organization should be to perfect the cryopreservation process. If we can offer true human suspended animation, all arguments about the cryopreservation process itself causing damage will no longer be relevant in assessing the feasibility of cryonics. If we can place critically ill patients in suspended animation, the "only" challenge is to develop a cure for their disease (and, in most cases, rejuvenate them).

It is our belief that as cryopreservation techniques approach the level of true human suspended animation (no ice formation, no cryoprotectant toxicity, no fracturing, etc.), the decision to retain only the head and to discard the rest of the body will appear increasingly strange. It is unlikely that mainstream medicine will choose to adopt neuropreservation once reversible whole body cryopreservation has been achieved—at least not until ALL of the issues related to revival of neuro patients (e.g., growing a new body and integrating the patient with that body) have been fully and reliably solved. Until that level of advanced technology is achieved, the concept of "do no harm" will almost certainly yield a decision to practice cryonics in its whole body form. Even given that technology for reviving neuro patients, neuropreservation may continue to be eschewed by mainstream medicine based on the concept of avoiding any unnecessary risk to the patient or the view that neuropreservation does not constitute a "respectful' treatment of the patient.

This brings up another argument in favor of choosing whole body cryopreservation. The more popular whole body cryopreservation becomes, the more Alcor can claim to not just serve its own members but to be involved in developing human suspended animation, which may have many other applications such as long-distance space travel, military medicine, and perhaps even as an alternative for the death penalty.

Neuropatients Have No Fallback Option

Another point we'd like to make in this section is that whole body patients have a fallback position that neuro patients do not. One of the primary reasons that whole body cryopreservation is more expensive than neuro cryopreservation is that substantially more money is set aside for long term care of whole body patients than for neuro patients [3]. The rationale for this is straightforward: whole body patients require more physical space inside the storage dewars and more liquid nitrogen for cooling than do neuro patients—they simply cost more to maintain.

While Alcor is very conservative in the financial assumptions used to calculate the amount of money set aside for long term patient care—assuming only an annual 2% real return on investments (return after accounting for inflation), it is always possible that these assumptions may prove to be too optimistic. For neuro patients there are few options for lower cost storage. Whole body patients, on the other hand, could always be converted to the less costly to maintain neuro state, should long term patient care funding prove inadequate to meet the actual costs incurred. In fact, Alcor cryopreservation contracts have always included a conversion to neuro provision for members selecting the whole body option.

Most Alcor officials agree that, in light of the possibility that one might want to switch from neuro to whole body arrangements in the future, it is wiser to get coverage sufficient for whole body cryopreservation. A welcome consequence of this is that if long-term cryopreservation and resuscitation turn out more expensive than anticipated, the member would not immediately drop below the amount required for long-term care and resuscitation.

Practical Considerations

As mentioned in the previous section, whole body cryopreservation is substantially more expensive than neuro preservation. Currently (January 2014) Alcor charges a minimum of $80,000 for a neuro cryopreservation and $200,000 for a whole body cryopreservation. And these minimums are likely to increase in the future.*

While most members fund their cryonics arrangement via life insurance, the cost of a whole body cryopreservation— equivalent to the cost of a middle / upper middle class home in many parts of the country—is substantial. As time passes and members age, the minimum cost of (whole body) cryopreservation generally increases, while the insurability of members tends to decrease—making cryopreservation expensive for the sick and elderly, and whole body cryopreservation unaffordable for many. One of the authors, O'Neal, has encouraged Alcor to consider a number of changes to increase the affordability of whole body cryopreservations. These include: (1) allowing greater flexibility in funding options beyond life insurance and irrevocable trusts, such as bequests; and (2) adopting less conservative assumptions on the rate of return for whole body long term patient care funds compared to long term patient funds for neuro patients.

An advantage of including cryopreservation funding in a will is that, after clinical death, a member no longer has need of a house, car, or other assets. Some older members who may have substantial real assets but live on limited incomes and are no longer insurable would probably welcome the option of paying for part of their cryopreservation minimums via a bequest.

The problem with wills, of course, is that they can be easily changed by a member—often up to the moment of clinical death. Even after a member is declared legally dead, his or her will can be contested. The end result is that the money for the member's cryopreservation is not "guaranteed" in the sense that life insurance proceeds are. Since cryopreservation is an expensive undertaking and the existing organizations are relatively small they simply cannot bear the risk associated with performing cryopreservation procedures in which payment is questionable.

However, there is a middle ground that dramatically reduces risk for the cryonics provider while enabling members to cover (part of) their cryopreservation minimums via a bequest. Essentially, the upfront costs of patient stabilization, transport, cryoprotective perfusion, and cool down could be paid via a guaranteed mechanism—insurance policy, prepayment, irrevocable trust, etc.—while the long term patient care funding (over one half the cost of a whole body cryopreservation) could be provided via a bequest. Thus, a whole body patient could be cryopreserved with little or no financial risk to the cryonics organization as long as funds sufficient for neuro cryopreservation (including long term care), plus a small additional amount to cover possible conversion from whole body to neuro, were provided by insurance, trust, or some other guaranteed means. If the additional funding required for long term whole body patient care, funded via a will or other means, were to fail to appear in a reasonable period of time the patient could simply be converted to a fully funded neuro patient.

Another potential approach for making whole body cryopreservation more affordable would be to adopt less conservative investment return projections. Instead of assuming a very low risk 2% rate of return, projecting a 4% or 5% return while adopting somewhat more aggressive investment strategies might be a reasonable strategy given the fact that whole body patients can always be converted to neuro patients should the projected rates of return fail to materialize.

** Long Life Editor's Note: Readers should be aware that prices and services vary among cryonics organizations.*

Given that neuro patients do not have the luxury of a fallback position, it is critical that investments for neuros meet or exceed expectations. Because whole body patients do have the conversion to neuro option, failure to meet projected returns on investments would have far less dramatic consequences. If whole body patients' investments underperform, once a certain minimum level of funds is reached, they could be converted to fully funded neuro patients—no worse off than the other neuro patients and no financial burden on the system. Since every whole body member has already agreed to neuro conversion, no change to the existing (or past) cryopreservation agreements would be needed to implement such a policy.

Conclusions

The authors have presented an "abstract" Merkle's Wager style argument and two technical arguments for preferring whole body cryopreservations to neuro cryopreservations. The first argument described a theory that information contained in the brain and DNA is necessarily incomplete and that the information loss incurred from disposal of the majority of the body may be critical. The second argument postulated that in cases of memory loss, the existence of the body might act as a crude type of memory backup and trigger recall of partial memories that might otherwise be lost.

Five additional non-technical/social arguments were presented. First, in some cases, selection of the whole body option may increase the level of acceptance of cryonics by friends and family members—which could have a direct effect on the likelihood that a member will receive a smooth and rapid cryopreservation—and decrease the chances that his or her wishes concerning cryopreservation will be contested by antagonistic family members. Second, whole body cryopreservations appear less likely to generate the kinds of sensational news coverage which can lead to potentially damaging PR as was the case with Ted Williams (and much earlier Dora Kent [6]). Third, whole body patients have a backup plan that neuro patients do not, in that whole body patients can always be converted to neuros if the funds to support long term patient storage ever prove insufficient. Fourth, as Alcor's cryopreservation procedures begin to approach the level of reversible human suspended animation, whole body cryopreservation will most likely become the procedure of choice in mainstream medicine. Fifth, the issue of identity has a subjective component and what may be important to one person (preserving one's body) may not be important to others.

The cost differential between whole body cryopreservation and neuro preservation was discussed and a number of approaches that Alcor might adopt to help make cryopreservation, especially whole body cryopreservation, more affordable were presented.

In the final analysis each of us must weigh the costs and benefits of both approaches. For the authors, the potential benefits of a whole body cryopreservation far outweigh the additional costs. We find whole body cryopreservations to be the most conservative form of cryopreservation. The procedure is conservative in a technical sense since it retains the maximum amount of information concerning the patient by storing the patient's body. The whole body procedure is also conservative in the social sense as it avoids the negative perceptions associated with decapitation and seems far more "reasonable" to the general public than neuro preservation. Whole body cryopreservations are also more conservative than neuro preservations in that whole body patients always have conversion to neuro as a fall back option in times of financial or other difficulties.

Endnotes

1. As of December 2013, there were 971 Alcor members. Of these 482 were whole body members (49.6%), 449 were neuro cryopreservation members (46.2%), 26 were "neuro with whole body" (2.7%), and 14 were "open option" (1.4%) — Alcor Membership Report, December 2013.

2. It should be noted that during the 24 years that have elapsed between the original version of this paper and its revision the percentage of Alcor whole body members has actually increased. In 1990 two thirds of Alcor members were neuro cryopreservation members. Today the numbers of Alcor whole body and neuro members are roughly equal.

3. As of January 2014, $25,000 is set aside for neuro patient long term care versus $115,000 for whole body patient long term care [5].

References

[1] "The Alcor Survey 1988-9 (Part I)" by Max O'Connor and Mike Perry, in Cryonics, Vol 10(9), September 1989, page 42.

[2] "Neuropreservation: Advantages and Disadvantages," Alcor publication NEUROPRE 9-88.

[3] "The Neuropreservation Controversy" by Paul Segall, in The American Cryonics Society Journal Vol 5(2), March 1988, pages 4-5.

[4] *"But What Will the Neighbors Think?!: A Discourse on the History and Rationale of Neurosuspension" by Mike Darwin, in Cryonics, Vol 9(10), October 1988, pages 40-55.*

[5] *"Alcor Cryopreservation Agreement – Schedule A: Required Costs and Cryopreservation Fund Minimums."*

[6] *"A Timeline on the Events Surrounding the Cryonic Suspension of Dora Kent" in Cryonics, 9(1), January 1988, pages 1-7.*

(Note: Clickable/nonclickable hyperlinks are as they appeared in the original article).

California's New Death with Dignity Law May Speed Cryopreservation

By Benjamin Medlen, Administrative Assistant, American Cryonics Society and Jim Yount, Chief Operating Officer, American Cryonics Society

On October 5, 2015, California Governor Jerry Brown signed into law the Golden State's version of "death with dignity" legislation. California becomes the 4th state to enact a right-to-die law. Other states with similar laws are Oregon, Washington, and Vermont, with Montana as a state where a judicial ruling indicates terminal patients have the right to die without a specific death with dignity law.

In his signing statement, Brown stated: "In the end, I was left to reflect on what I would want in the face of my own death. I do not know what I would do if I were dying in prolonged and excruciating pain. I am certain, however, that it would be a comfort to be able to consider the options afforded by this bill. And I wouldn't deny that right to others."

For cryonicists, the "prolonged and excruciating pain" of dying not only needlessly exacerbates present suffering, but also insures that when cryopreservation does occur, the deteriorated condition of the body may mean that ultimate revival is not possible. Presently, the Oregon Cryonics facility in Salem, Oregon is the only cryonics facility where a patient may choose a physician prescribed medication to exercise his legal right to die, thus enabling a cryopreservation team to initiate the cool-down procedure without needless delay.

California has often been a trendsetter in social policy such as the right for same-sex marriage, setting strict auto carbon emission laws, and the use of the initiative and referendum procedures, both statewide and locally, for direct citizen democracy. California has also been the most populous state since the 1970s. Are other states likely to follow with their own death with dignity laws?

The answer is a resounding "probably." Certainly the topic is getting much attention nationally after passage of the California law. The Death with Dignity National Center website (www.deathwithdignity.org) attempts to show the national trend by way of a map. A striking feature of this illustration is the fact that the states currently with such laws are all politically liberal, and are all western states with the exception of Vermont. The map shows that more than thirty states either are now considering death with dignity legislation or considered, but did not pass such bills, during this legislative session. The map also shows the Deep South as having no legislative actions regarding death with dignity.

Rather than following legislative trends, it may be that compassionate interest for individuals suffering from terminal illness provides impetus for such state laws. An example is Brittany Maynard, a California resident who moved to Oregon when she was found to be a terminal case, but her own state had no provision at that time for her to avoid the pain and distress of type-2 glioblastoma multiforme.

Brittany decided to end her life peacefully and on her own terms, surrounded by her friends and family. Maynard was one of the few who took up the options provided by the death with dignity law in Oregon. Maynard met the criteria. She had only a few months to live at most. Chemotherapy and surgery would have extended that to three months more, but also would have greatly increased the pain of the end, and probably would have reduced her mental state to the point she could no longer make decisions concerning her life and health. Rather than face an agonizing prolonged death involving blindness and hearing loss, Maynard, while she still had her faculties, made the decision. While Maynard wasn't the only person to make use of the law, her death got attention due to her YouTube celebrity which involved the videos that she made describing her decision and last thoughts.

Brittany Maynard has now become the unofficial face of the Death with Dignity Movement. Governor Brown claimed that she was the inspiration when he signed the bill into effect. In a surprising move, Brittany was mentioned by name in a landslide of similar legislation having to do with end-of-life options in twenty-four other states as well as the nation's capital.

Is there likely to be such compassionate interest for a terminal patient who is signed up for cryonics? Perhaps that depends on whether the public associates the alleviation of suffering or an attempt to go against nature to live again in the future with the person choosing death with dignity.

So far cryonics has not met with animosity, for example, from the Catholic Church. On one occasion a Catholic priest was called upon to bless a cryostat that contained a cryonics patient who was also a part of the Catholic faith. It may well be that the act of cryopreservation preserves the body very well, which religious people may see as desirable for resurrection through faith. However, "death with dignity" may be seen as flying in the face of official doctrine, which emphasizes maximum life.

An official statement by the United States Conference of Catholic Bishops called

Death with Dignity nothing less than assisted suicide, saying "To offer [terminally ill patients] lethal drugs is a victory not for freedom but for the worst form of neglect."

On the other hand, advocates of the movement would say that to leave the patients to die on their own would be the very definition of neglect.

Oregon Cryonics is operational now and is willing to use legal and proper means to perform prompt cryopreservations at their facilities in Salem, Oregon. How soon may we expect such prompt cryopreservations in the Golden State? We asked this question to Catherine Baldwin, Chief Operating Officer of Suspended Animation, Incorporated (SA). SA (www.suspendedanimationlabs.com) is a company formed in 2002 whose goal is to stabilize and transport human cryopreservation patients. Its primary facility and administrative office is located in Southern California. Here is her answer:

Regarding SA services and the new CA law:

- Suspended Animation (SA) is reviewing California's newly passed assisted suicide legislation. The benefits and drawbacks of the law are not yet clear and quite a few details need to be sorted out. Planning, paperwork and logistics will still govern our ability to deliver the best service possible.
- Since SA offers only standby, stabilization and transport services to members of the Alcor Life Extension Foundation (Alcor) and the Cryonics Institute (CI), the new law will not result in cryopreservation "on-demand" by SA in the near term.
- Members of Alcor and CI who qualify for assisted suicide under the conditions of the law should keep SA and their long-term care organizations appraised of their plans and be aware that life insurance payout conditions may prohibit assisted suicide.

Who Will be the First Person to Receive Cryopreservation on Demand?

By Jim Yount, Chief Operating Officer, American Cryonics Society

"My guess is the first Neil Armstrong in cryonics with relation to the Death with Dignity Act in Oregon will be a CI member. I'll place my dollar on it, but I'm actively working in favor of it being an Alcor member. The race is on." -- Mathew Sullivan, Oregon Cryonics

While I would not wish to take Mathew's bet, there is an outside chance that the "Neil Armstrong" of cryonics will be a member of the Cryonics Society of Canada, the American Cryonics Society or Trans Time. With Governor Jerry Brown's signature on October 5th of this year, California joined the fold of the handful of states with such laws on the books, so a Golden State based organization might become the first company to welcome "Neil Armstrong" as a patient.

When the great dog Flash was cryopreserved at an Australian University Veterinarian Clinic in 1994, Flash likely received a better "freezing" than any human patient had to date. That is because the owners of Flash were able to arrange for him to get *cryopreservation on demand*, not then available to human patients. Flash's human companions were able to choose the date, time and place for the procedure to begin on a chronically ill, but very alive, pet. Only recently has the opportunity for cryopreservation on demand been available to humans, and then only for terminally ill humans.

The gold standard for traveling to the future by way of the freezer is where a subject is frozen today, and reanimated tomorrow with no perceivable damage. That would be true suspended animation: the holy grail of cryonics. We ain't there yet. Were that possible there would be few who would argue against the practice. However, we are putting the cart before the horse, so to speak. We can cryopreserve, but we *can't* reanimate. Now comes the *Death with Dignity* law that presents the prospect for cryopreservation on demand.

Right now five states have some form of *Death with Dignity* laws on the books. Members may be asking: "What can this mean for cryonics? Will this hurt or help my chances of being successfully suspended on time?" The only places where a form of physician-assisted euthanasia is sanctioned are Belgium, Luxembourg, the Netherlands, Switzerland, and four American states (Oregon, Washington, Vermont, and Montana).

To date, all cryonic-suspension procedures take place after clinical death has occurred. The cause of death might be anything from an automobile accident to the quiet death brought on in one's sleep. In any case, the cause of death will do at least some degree of damage to the human body. The natural processes of decay will do the rest.

To be frozen at the instant of clinical death insures minimal damage, leaving the body as pristine as possible. Some members may desire to preserve their bodies in a more youthful state, while they still are mentally or physically capable of carrying out their decision. For younger people who have a terminal illness, the new *Death with Dignity* laws may allow them to do just that.

Objections may come about because:

- The prospect of future life through cryonics may induce people to get cryopreservation on demand when they are far from terminal, perhaps when they are young and healthy but depressed (though it should be noted that "there is no evidence for a higher frequency of euthanasia among the elderly, people with low educational status, the poor, the physically disabled or chronically ill, minors, people with psychiatric illnesses including depression, or racial or ethnic minorities, compared with background populations.") [1] All such a person needs is one doctor to sign a consent form.

- Life insurance rates and even the availability of life insurance may be negatively impacted. The actuarial tables will be meaningless. How can an insurance company make a profit if it must make payoffs to the beneficiary of persons who die *when they so choose*?

- We may find we are at odds with powerful religious or philosophical interests over euthanasia, which is already extremely controversial. Opponents claim that cryonics is now "helping patients along", forcing death upon the vulnerable so that they may be frozen faster. Efforts should be taken to insure that there is not even the appearance that our members are coerced into making a decision to terminate life prematurely.

- We may find that advocates of euthanasia oppose cryonicists making use of the laws that allow euthanasia. We may be uninvited guests to their party, so to speak.

But are these objections straw men? Wouldn't the prospect of getting a procedure promptly be sufficient to justify going ahead with cryopreservation in spite of the problems that may result from our taking this bold step, even if the objections are sound.

The reason that it is called physician-assisted suicide is that a medical doctor must certify that the patient is soon to die. Doctors will not easily agree to cryopreservation on demand unless they are satisfied beyond a reasonable doubt that the patient indeed is soon to die.

Although insurance rates could be negatively affected by people who take advantage of *Death with Dignity* laws, those who choose cryonics are apt to be a small minority.

The prospects for future reanimation by anyone frozen (or vitrified) by today's technology is questionable at best. Very few cryonicists will rush to be frozen when other means of life-extension are at hand.

It didn't happen quite the way we would have liked. Reanimation on demand is not possible yet. Cryopreservation on demand is available, but *only* for terminal patients. We have had quite a number of firsts in cryonics. The first person frozen, the first cat, dog, guinea pig. We had the first neuro (head only) and the first cryopreserved brain. Interestingly, the first person to receive cryopreservation on demand may be the first person of our generation to be reanimated. Why? Because cryopreservation on demand is apt to be a whole lot less destructive.

Who will be the first person to take advantage of the Death with Dignity law of Oregon or other states? The answer is whomever wants to. It would be nice if this person were not opposed to publicizing his plans. It would be great if this person were good at public speaking so that they readily explain his or her reasons to the press. Whoever it is, we applaud their pioneering spirit. The Eagle has landed!

[1] "Two Decades of Research from the Netherlands. What Have We Learned and What Questions Remain?", *The Journal of Biomedical Ethics* 6 (3). Judith A. C. Rietjens, Paul J. van der Maas, Bregje D. Onwuteaka-Philipsen, Johannes J. M. van Delden, and Agnes van der Heide. 2009.

Robert Ettinger: *The Legacy Continues*

Robert Ettinger's Views On Making Sure Your Cryonic Suspension Gets Paid For

Introduction by York W. Porter, President of the Immortalist Society

Robert Ettinger was certainly concerned about the technical and philosophical aspects and ramifications of cryonics. A prolific writer, he continued, even after his famous book, The Prospect of Immortality, came to prominence in the early to mid 1960's, to expound on the promise of his concept and the societal and personal changes that would arise if cryonics became widespread.

At the same time, however, he was also quite cognizant of the more mundane, but extremely important, "nuts and bolts" of things. In the following article, from the June 1992 issue of The Immortalist (the former name of Long Life magazine), he writes on a very practical, but unglamorous subject, and that is how each of us can help to make sure that funding for our cryonic suspension is there when the need arises. Not as interesting, perhaps, as the latest experimental work on developing better cryoprotectants or news from various organizations across the world but an extremely important topic nevertheless.

One should note that what follows is written from the perspective of the Cryonics Institute, which Mr. Ettinger was instrumental in helping to found, and one needs to check with their individual cryonics service provider to see what things would apply in your particular situation. Nevertheless, many of the points contained therein were valid at the time they were written and are still in need of consideration today.

ICING YOUR ASSETS

by Robert Ettinger

Once more we remind all cryonicists, and Cryonics Institute members especially, of possible serious dangers to your plans for cryonic suspension.

In a nutshell, relatives and taxes and other hazards could endanger your funds, at a time when you are helpless. Members should give very serious thought to paying their suspension fees in advance, or making some other arrangement that leaves them less vulnerable than the common funding methods.

In reading what follows, please remember that most of these contingencies are not just speculation: these situations have already occurred, sometimes with fatal consequences for the prospective patient.

Please remember also that, in suggesting prepayment of the suspension fee, we are not asking you to make an irrevocable decision. The Cryonics Institute contract allows the member to terminate the Agreement on 60 days notice; in that case the member would get a full refund of the Suspension Fee (without interest, and no refund of the Membership Fee). But CI would have to be convinced the member made this decision of his own free will, while mentally competent and not subject to undue influence; this would make it harder for someone else to contravene the member's wishes.

WHO WILL PROTECT YOU WHEN YOU'RE OLD AND ILL?

First, if you become old (as most of us will) or very ill (as most of us eventually do), then your affairs may be taken over, formally or informally, by others. In many cases, these others are not especially interested in your plans for cryonic suspension, and may even have opposed interests--may want the money for themselves. This can occur, for example with forgotten relatives; they will assuredly come crawling out of the woodwork.

Or, if you end up in a nursing home, as more and more people do, the

nursing home would try to latch onto any known assets.

Or if you happen to need Medicaid, again you may have to surrender essentially all available assets before being eligible for Medicaid. Or if your spouse needs Medicaid, again you may have to prove poverty first and liquidate almost all of any available assets.

The tax angle can also be important. Various estate and inheritance taxes may apply to life insurance policies and to revocable trusts, as well as to bequests. Tax questions can also tie up the estate and the money for extended periods. Prepayment avoids these issues and saves money--not only tax money but also legal fees. Probate courts and probate lawyers have no real interest in minimizing legal fees.

To repeat: Any revocable arrangement is dangerous, in that undue influence could be exerted when you are too old or ill to defend yourself. You could even be persuaded or coerced to change your life insurance beneficiary, or someone could forge your signature to a change of beneficiary.

Prepayment of the Suspension Fee is not an ironclad defense. The Agreement is still revocable. But it would be much more difficult for unfriendly parties to get the money back from CI than to interfere with its payment in the first place.

THE SAFEST ARRANGEMENT

The other safest arrangement, besides prepayment, is to establish an *irrevocable* trust, or an *irrevocable* beneficiary of a life insurance policy, the money going to CI upon your death. The disadvantage (if you consider it to be a disadvantage) is that you cannot change your mind about the money going to CI upon your death. The advantage is that it now becomes virtually impossible for anyone or any party to prevent payment to CI upon your death--hence it becomes less likely that anyone will try to interfere with your suspension.

And this highlights another point--that anyone who wants your money might also want to prevent your cryonic suspension. Their reasoning would be that, if you aren't suspended, CI would have no claim on the money. This is one reason why many members choose Option 2 of Rider 1: in event of non-suspension for any reason, CI keeps the money anyway, to be used for its corporate purposes (meaning to help other patients), or for the benefit of other members of the same family.

At this point, let's interject a word that ought not to be necessary for people familiar with CI. Some new reader might think that, if CI can collect without performing, that would be an incentive not to perform. But of course no one is going to join CI and execute a contract in the first place, and entrust us with his person, without being convinced of our integrity and responsibility. CI is nonprofit, officers and directors unpaid; we exist for the benefit of patients and future patients; we exist for the benefit of patients and future patients; we stand only to lose, not to gain, by failing to suspend a member. The confidence of members is our primary asset.

(Option 1 says that, if you are not suspended for whatever reason, CI refunds to your estate any funds collected but not actually used in the attempt to suspend you. This would be appropriate if, say, you have children who might need the money, and if you have great confidence in the cooperation of your next of kin or potential next of kin. note carefully, again: if some heir wants your suspension money, and it is provided, say, through life insurance, and if you choose option 1, then the heir can get the money just by preventing your cryonic suspension. CI would collect the insurance but would have to refund it to your estate.)

PREPAYMENT OVER TIME

Younger members may not be able to prepay in a lump sum, or set up an irrevocable trust with intially sufficient assets. In that case, it may make good sense to prepay gradually, with (say) a decreasing term life insurance policy to make up any deficiency until the full Suspension Fee has been paid.

There are many practical and psychological advantages to this. Practical advantages include saving money. Life insurance, generally speaking, makes money for the company and loses money for you. On average, if you save the money you would have spent on premius, or prepay and allow CI to save and invest it, you will wind up with considerably more.

THINK IT OVER!

We urge our Cryonics Institue members--*especially* those who are already old or ill and without very reliable close relatives--to review their situations carefully with these warnings and options in mind. (Even if you do have reliable relatives, remember the possible tax problems.) As always, if you want special help or attention, don't hesitate to call or write.

Next month could be too late. Don't trust to luck. The cosmos has no malice, but neither has it mercy.

Final Thoughts

York W. Porter - Executive Editor

It's a Miracle!

We have all become accustomed, down through the years, of the spectacle of aircraft flying through the skies on a daily basis. One of the interesting moments of my life was seeing the Concorde SST flying at a very low level in a trip that Queen Elizabeth II made to Lexington, Kentucky several years ago. Whether utilizing the SST, now sadly retired, or in using conventional jet service, or the earlier propeller driven alternatives, many humans down through the decades have routinely flown in these miraculous devices as a way to do commuting, whether for personal or business purposes or both. It seems really difficult, even almost impossible, to conceive of a time when these wonderful machines didn't exist but, of course, that was the case for the overwhelming majority of humankind's history. Only in roughly the last century have heavier-than-air powered flying machines become available and it still took quite a while for them to be used on a routine basis after their initial discovery and early development.

Before that, there were numerous persons experimenting with gliders but glider flight, especially in its early days, was quite limited in duration. Otto Lilienthal was a German aviation pioneer who was fascinated by the possibility of human flight. Like many have done, he and his brother, in their childhood days, fastened homemade wings onto themselves but, very understandably, failed in their efforts to fly. Never giving up on his dream, however, and after he achieved some measure of fame for his glider experiments, in 1889 Lilienthal published a book, *Birdflight as the Basis of Aviation*. Each of his glider flights was, though, limited in time by the lack of engines to sustain the flight. In terms of distance, they were limited as well. On the last day of glider flying of his life on which, regrettably, he sustained mortal injuries in a crash, he flew around 820 feet (250 meters) at a time.

And he wasn't the first human being to think of man powered flight. Birds had been around since before humans first arose and, before them and humans, pterosaurs had existed in the time of dinosaurs. No doubt creatures that weren't restricted to walking or running intrigued many a human but the question of how to have humans to successfully fly remained for thousands and thousands of years one of mystery. In trying to solve the mystery, Lilienthal wasn't the only person to ever think of mimicking bird flight as a way for humans to fly. But, as it turned out, it wasn't the only way.

Thousands of years ago, the Chinese developed what are called Kongming lanterns. These were hot air balloons made of paper with a lit, small fire inside. They were utilized for signaling purposes in the military of the time. There is one account of a French source claiming that a missionary wrote of an archive in Peking that supposedly showed that the nations of the East having done manned balloon flight well before the Europeans tried it. No concrete archaeological evidence or direct documentation exists, however, and the Kongming balloon wasn't introduced into Europe until the mid 1200's. There is no known record of any human attempting in those days to adapt them to using human passengers (though, having been a teenaged boy many decades ago, I wouldn't be surprised if a group of lads with too much testosterone and not enough neurons had tried it in some way, with evidence of their attempt yet to be discovered!). In 1709, however, a priest actually demonstrated a model hot air balloon before King John V and the Portuguese court. Again, though, no human passenger was involved.

Enter the Montgolfier brothers and the special year, in ballooning history, of 1783. Years of interest and sometimes failed and/or partially successful experiments resulted in the public demonstration of one of their balloons in June of 1783. While unmanned (and without any animal passengers), the balloon rose to a reported altitude of around three thousand feet and traveled a little over a mile. In September of the same year, a second balloon was constructed, bigger than the first, and which carried three animals. A sheep, a chicken, and a duck were chosen to be the first "aeronauts" in the history of human beings' attemps to fly via ballooning.

These animals weren't just chosen at random. The sheep was felt to reasonably represent human anatomy and physiology. The duck was chosen since it was known to fly at reasonably high altitudes and, therefore, shouldn't be affected by the height the balloon rose to. The chicken was chosen as a "non-flying" representative of birds.

Ascent of the Monsieur Bouclé's Montgolfier Balloon in the Gardens of Aranjuez Image: Wikimedia Commons

Although it seems somewhat silly to us, one has to remember that during that time period, no one actually knew what the effects of balloon flight would be on human beings. Lest we laugh too much, remember that in a more modern era, NASA utilized chimpanzees because of a similar concern that flight into space could bring up unforeseen problems not known or anticipated by the medical science of the day. As we like to say in the field of medical radiography, "One look is worth a thousand expert opinions" and the "look" that was utilized was to make sure human life wasn't unnecessarily endangered.

And, as it turned out, there wasn't anything to worry about. All three animals had survived just fine. The next step was to try this with humans on board. King Louis XVI at first wanted to use condemned criminals under, I suppose, the thesis that if you lost them, well, it would just save the guillotine some wear and tear. (Little did he know that around ten years later, he would be one of its victims as the only King of France to ever be executed). Instead, two men petitioned to be the first to go up in the Montgolfier brothers' invention. On the 21st of November of 1783, the newest hot-air balloon made in France by the Montgolfier duo, rose some 2700 feet (900 meters) and landed some six miles (10 kilometers) away. The flight had lasted some 25 minutes. It would be more than a century before the Wright brothers would initiate heavier than air flight but, even then, with a flight duration of only 12 seconds.

Although, just a few days later, on December 1st, 1783, two other men would ascend in a balloon filled with hydrogen which would, in the long run and at least thus far, prove to be a more practical approach to the problem than using heated air, the effort and determination of the Montgolfier brothers culminated in what can only be thought of as a "miracle", a miracle of science and technology. It was the first known and documented time that human beings had actually flown, albeit as just passengers and not as "pilots" in the sense of the word as we think of it today, through the atmosphere of the Earth. A dream stretching back thousands upon thousands upon thousands of years had finally been realized through the use of human intellect and technological advancement. Society had been changed from "the way things were" to "the way things are".

Decades later, another potential miracle of sorts came along, when a very intelligent, well educated, honest and determined man, trained in the scientific method and living in a time in which technology was quickly advancing, proposed that individuals that had formerly been written off as "beyond help" might not be so after all. Robert Ettinger's proposal of taking individuals who otherwise seemed to be mortally ill or injured and placing them at ultralow temperatures to act as an "ambulance to the future" first came to public attention in the early to mid part of the 1960's. Though not yet fully fulfilled, some fifty plus years later it is still here and gradually getting stronger every day. To help reach its ultimate and full-fledged potential, we need your help and assistance. Like with the miracle of human flight, we believe we can make the "way things are" into "the way things were". Please join us in this world-changing endeavor today!

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