

A Publication of the Immortalist Society

LONG LIFE

Longevity Through Technology

Volume 48 - Number 02

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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 initiation 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



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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 than 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.



LONG LIFE

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Exciting things have been happening for CI on the public relations front. I have been interviewed by a number of different media outlets over the past several weeks, discussing cryonics, CI and our mission.

All this is great news. As more people hear our message, and hopefully join CI, the stronger our organization and the cryonics movement as a whole becomes. This momentum is critical to all of us moving forward, especially by helping to attract new people to join cryonics.

Speaking of attracting new members, I also have some encouraging news regarding youth recruitment efforts.

On April 19th, CI had the pleasure of hosting DSL high school biology class for a special tour and presentation at our Michigan facility. We had over 70 bright young students visit and participate in a spirited question and answer session about cryonics. I was very encouraged by the thought-provoking questions asked and the overall enthusiasm of the group. In some ways, and perhaps since they do not have the same bias of older generations, they asked much more meaningful questions than are typically asked by adults. One student even asked me how 3D stem cell printing might fit into revival before I had even broached the subject. Not too many people are aware of this technology, much less how it might fit into cryonics someday. Needless to say I was impressed.

This April I also had the opportunity to attend the Teens and Twenties Conference in Ontario, California.

This is a great event aimed specifically at one important thing we

need to do more of - attract young people to the cryonics movement. I applaud Bill Faloon and those who organized the event for trying to also reach out to a younger demographic. Their initiative, hard work, and generous financial support sponsoring and hosting this event every year helps to attract new blood into the cryonics movement. We need to successfully pass the torch of responsibility to hardworking, loyal, and ethical people when we are someday in the cryostats ourselves. I would certainly like to see more of these types of events and initiatives in the future, and welcome suggestions and volunteers who may be interested in organizing and hosting a similar event for CI. For now our youth outreach is mostly local and via school sponsored field trips.

The structured Teens and Twenties event was filled with interesting speakers and exercises designed to get attendees to network and provided the opportunity to recruit new talent potentially into positions of responsibility. I was very impressed with the group and especially enjoyed the tours of both Suspended Animation and 21st Century Medicine. Many CI members have signed up for the SA option while others consider SA innovations & technology for their own local standby programs.

I enjoyed being a guest speaker representing CI and our tiered approach to basic or local standby. Still, I would like to see a greater number of young people attending these events. As the old saying goes, the youth are the future, and in the case of cryonics, this is even more important since these are the people who will be responsible for maintaining CI and our patients (including ourselves!) in the future. With that said, I'd like to encourage everyone to help introduce young people to cryonics. One way is to help promote the Teens and Twenties events, which often offers free scholarship opportunities. The CI Newsletter posts these announcements for each event, so if you know of a young person who might be interested, please forward them the information when it is published and help boost the attendance numbers. Another idea is for designated CI speakers to visit local high schools or colleges to explain cryonics to interested parties.

One special benefit unique to CI that promotes family unity and youth involvement is to sign up any of your own minor children as members. CI offers a FREE lifetime membership to minor children of any current lifetime members, as well as special rates for spouses. Our goal is to help people keep their families together in the future, and this is one way we help our members do that. For more information about these programs, please CONTACT US or review the mem-



bership section of our website.

In our increasingly technological world, social media is another huge opportunity for outreach, especially among the younger generation. If you haven't already done so, I would respectfully ask that all of you with social media accounts, and especially younger people in our readership, to please subscribe to our social media channels and share them with others who may be interested in cryonics. Some suggestions would include any science fiction, futurism or technology-related blogs, Twitter feeds or other online communities you're currently involved in. Many of the people in these groups are interested in futuristic topics like cryonics, but may not realize that cryonic preservation is an actual, real-world option available today.

I realize that not everyone is comfortable evangelizing for cryonics, but there are plenty of easy "low profile" ways to contribute. By simply becoming followers and adding likes to our current social media channels you can help positively impact our public image. Inviting others to join is even better.

Another simple and effective way to help the movement is to share news stories related to cryonics and futurism with your own followers, including a link to the CI web page. This is a great way to get people thinking about the possibilities futurism and cryonics have to offer.

For some ideas on popular or interesting topics and stories to share, you can subscribe to Google Alerts for cryonics. Google will automatically send current news stories to your inbox at whatever frequency you specify - daily, weekly, monthly, or whatever you prefer.

Another source of discussion points is the CI Yahoo Forum.

Regarding online discussions, I notice that some activist members respectfully and professionally defend cryonics in the comments sections of news blogs. That's commendable, but it's important not to get sucked into the neverending flame wars that rude people start. Let's remember to stay positive - usually a few good comments can set the pace and help people to see what we are doing as moral and potentially life-saving.

For the more outgoing members of our community, please consider starting a local or online cryonics support group. MeetUp is one great online tool for creating real-world communities, and I encourage you to check it out. You can start your own cryonics or futurism group, or simply join an existing group of like-minded, forward-thinking individuals.

However, one caveat I would like to add is to please ask members not to start any online accounts as an "official" Cryonics Institute account. All online groups or content branded with the official CI name and logo need to be managed through CI Headquarters. However, "Cryonics," "Cryonics Institute Members," "CI Discussions" or similar name would be fine. We certainly don't want to discourage anyone, but we do need to be sure we are on top of the Cryonics Institute's official public image.

There are so many opportunities and possibilities for outreach online, that we can't possibly list them all. So if you have other ideas for outreach programs or initiatives, don't hesitate to contact us to share your ideas. As I said, there is always more to be done with outreach so we welcome your help and suggestions for getting the word out. With the active support, ideas and participation of our members, I'm confident CI can continue to successfully expand our membership numbers and save more lives.



2016 Teens and Twenties Conference





Joe Kowalsky's Talk to Church of Perpetual Life (Part Two)

(With Afterword By Noted Life Extensionist Bill Faloon)

Moderated by:

Neal VanDeRree

What follows is the "Question and Answer" portion of the presentation Joe gave to the Church of Perpetual Life after his general presentation to them. The bulk of the general talk/presentation was covered in the last issue of this magazine and may be read by going to www.immortalistsociety.com/LongLifeV48-01.pdf or may be viewed and listened to by going to <https://www.youtube.com/watch?v=OXUfKYHF220> for those with Internet connections. The presentation is in the 1st Quarter issue of the magazine and begins on page 7. Please note that as in the article on the general talk given in the last issue, this question and answer session has also been somewhat edited for clarity here.

Questioner: Does the Cryonics Institute have the largest number of patients right now?

Joe's Reply: That's actually a very good question. We have 136 patients and over 1250 members around the world. Alcor has a similar number, I'm not sure of the exact number. I know that we're...the two organizations are close but I'm not sure which one actually has more patients. I'm just very grateful that we both have patients and that we're growing at such a nice rate and, hopefully, will continue to do so...If you have any more knowledge about that, I'm happy to...

Questioner: I assumed Cryonics Institute had more...

Joe's Reply: That's what we have...and we will, we will have more. Ask

me again next year.

Moderator: And what Joe just said was not Al Gore but Alcor.

Joe's Reply : Right...not the creator of the Internet ...the other guy.

Moderator: And he's speaking of the two sort of rather large cryonics organizations and there are others as well.

Joe: There are. There's an organization in Oregon that started recently. There's Kriorus in Russia. There's an organization in Australia that's starting up that will begin freezing patients at some point. So we're hoping to have organizations in different places because as I said, you can't control everything. There are natural disasters, there are government issues, there are all sorts of things that could happen. The more different places that we have people stored, the better off we'll be.

Moderator: And I have a Bob in the back of the room that has a question.

Joe: Yes sir...

Questioner: Yes, hi, what about the process from when you die to getting preserved. Are you working on any research in that area, in other words, you got to cool the body down and you've got to get the body to the place.

Joe: Yes...Yes...there are a number of different ways of doing that. You know the Cryonics Institute has always been sort of an ala carte organization. It was.. the idea being that you take some responsibility for your own life and your own future life. For example, Bob Ettinger



contracted with a funeral director and paid him a thousand dollars a year and trained him to be prepared for exactly what would happen at the end of his life. And he was, in fact, after he died, he was pronounced dead by hospice. They immediately put him into an ice-bath, and started cooling him down, and started doing other things at that time. So he had prepared for that in advance.

There is also Suspended Animation Incorporated which is used in conjunction with the Cryonics Institute and Alcor and I believe at Alcor it is standard that Suspended Animation is on hand. They take certain of these responsibilities on themselves and so they appear on the scene and they are very well trained. They have an immense amount of equipment that they can use and knowledge and skilled people to help to prepare people.

And you have to talk with hospitals, hospice, it's very important to take responsibility, even if Suspended Animation is involved. You want to speak with these people in advance, you know, hospitals are very willing to help out if you talk to them and you tell them what it is you want. Funeral homes are very willing to help out. They want to do what the person wants. It's not necessarily that they believe that this will work or that they agree with it, but most of these places want to do what the patient wants. We just have to tell them and we have to help them out in advance to do that.

And there is... to answer your other question, I think it was a two part question, there is research that is going on into methods of both cooling, freezing, and what happens during freezing, what happens if we don't freeze people quickly, we've actually had a very interesting piece of research done not long ago where the result of not cooling immediately was much less damaging than we had expected; we thought it would be quite damaging and it was less damaging than expected, so that was an exciting moment because there are times where we can't get a body immediately; if a government entity has the body, if there is a question of, you know, someone died in the bathtub once, I was involved with that case when I was still a practicing attorney, and they had to determine whether it was a homicide, and so we had to really work with them.

And, again, getting to know your government officials and working with them, really helps in that regard and being respectful of them and being prepared and knowing what to talk about. But, yes, there is a lot of research going on both in-house and on a contractual basis with other organizations. We did have one of the top cryobiological researchers from the Soviet Union, Dr. Yuri Pichugin, who was on staff at the Cryonic Institute for several years. We were so fortunate to have him. When the Soviet Union broke up, he was looking for a place to do his research and basically we said, you know, do whatever you want. We'd like it to be sort of within these parameters but just do basic research on freezing and he did and he came up with

VM-I which is the cryoprotectant that we use today, the vitrification solution that we use today.

Questioner: Ever resuscitated anyone to this point and, number two, have you looked into some sort of insurance for insuring the installation of someone into the cryogenics?

Joe: Reviving people, no. We have not yet revived anyone, There has been, I believe, a dog was revived once. (Editor's note: Joe meant to add "from very low but above freezing temperatures" as there have been no mammals that have been placed at cryogenic temperatures and revived). There were these animals that I talked about earlier that have been revived. We haven't revived people and the truth is, we don't know 100 percent sure that we will be able to. We don't know 100 percent sure that I'm going to walk off this stage in ten minutes. There is nothing that's absolute.

We think it extremely likely that down the road we will be able to and probably those patients who are frozen more recently will be revived first because the freezing process is getting better and better, there is less and less damage to the patient as we develop better techniques and so, probably, that's the way it is going to be. But we haven't yet and we won't until we are very confident that it will work. Similar to heart transplants. You know, they did a lot of heart transplants on animals before they did them on human beings. You don't just start saying "Hey, let's give it a shot!" We're not going to do that.

Your second question was insurance for funding cryonics suspension?

Yes, yes that is done...that is done fairly commonly. It used to be very easy to put the Cryonics Institute or Alcor down or some other organization down as the beneficiary on your insurance policy. Today insurance companies have made that a little bit more difficult, however, you can always change the beneficiary on a policy. So, even if initially you have to make the beneficiary a relative or your estate or what have you, two minutes later you're allowed to change it to anything. There are no requirements at all. And so, yes, we have many people that fund via insurance. It's especially good for young people. It's very inexpensive. I have an insurance policy myself. I pay, I think it's a hundred dollars a year for my insurance policy that I started many years ago. And that provides far more than the twenty-eight thousand dollars that CI asks for. I want to give them more than what they ask for. Those of us that can try to and those of that can't, you know, don't. But yes, I work in that field and I actually just signed contracts for two people the other day in my day job and helped them to get insurance for that very purpose. And there's another gentleman who does that as well. Rudi Hoffman has been doing this also. He and I have both been doing this for years. Specifically designed for cryonics.

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2016 AGM



3 P.M. Sunday, September 11th, 2016

Make plans now for the 2016 Annual General Meetings of the Cryonics Institute and Immortalist Society. The Annual General Meeting (AGM) of the Cryonics Institute will be held at 3PM on Sunday, September 11th, 2016 at the CI facility, 24355 Sorrentino Court, Clinton Township, Michigan 48035 (USA). The Immortalist Society's annual meeting will be held after CI's meeting. The two meetings generally last most of the afternoon.

The CI facility will be open to guests and visitors one hour before the meeting begins. Meetings offer an excellent opportunity to see the facility, meet other members, get a sense of the status of the Cryonics Institute & Immortalist Society and to see Officers, Directors & Staff. For those who come a day early, an informal dinner will be held on Saturday evening at a local restaurant.

Agenda items for the CI AGM will include the President's Report, Treasurer's Report and Investment report as well as business issues that arise. The winners of the 2016 CI Board of Director election will also be announced. Tours of the CI Facility will also be available for interested

guests. A buffet dinner & social follow both meetings. There is no charge for the buffet dinner, but we need to know how much food to order, so please be sure to RSVP. The Annual Meeting is open to the general public. We request that we be informed if you wish to attend. For driving directions, more meeting information and to confirm attendance, send e-mail to CIHQ@aol.com, phone (586) 791-5961 or visit [Wherevent.com](http://www.wherevent.com) (<http://www.wherevent.com/detail/Cryonics-Institute-The-Annual-General-Meeting-AGM-2016-of-the-Cryonics-Institute>.)

Night-Before Dinner

CI members & the public are welcome to join us the night before the official CI AGM at Ike's Restaurant for a casual dinner and drinks (all foods include Vegan options.) We will meet Saturday, September 10, 2016 at 6pm at Ike's Restaurant, 38550 Van Dyke Avenue, Sterling Heights (MI) 48312, near the Cryonics Institute. For a complete menu and directions, please visit [Ike's Restaurant](http://www.ikesrestaurant.com/location.php). (<http://www.ikesrestaurant.com/location.php>)



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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 Thimphu & 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 rolandmissionnier@yahoo.fr

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

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.





Robo-Trusts: Computer Managed Cryonics Revival Trusts

By Jim Yount, Governor, American Cryonics Society, Inc.

On Saturday, May 21 of this year, Attorneys Peggy Hoyt and Michelle Adams gave a Powerpoint presentation entitled "Robo-Trusts: Computer Managed Perpetual Trusts." Hoyt and Adams explained that they were approached by a young cryonicist who wanted their law firm, which specializes in estate planning, to prepare a cryonics trust for him that would use "robo-managers" to control both the asset management side of the trust as well as make decisions on various cryonics related aspects of the trust itself.

The presentation was part of a three-day conference event in Las Vegas, Nevada. This author attended this function, along with former CI President Ben Best and about twenty other cryonicists. This annual meeting is known as The Asset Preservation Conference, in short speak, or the Options for Safe, Secure and Legal Asset Presentation for Post-Resuscitation Access (OSSLAP) in long-speak.

This is the tenth year of this conference that

seeks to bring together people interested in finding ways to take their assets with them when they de-animate. It is the hope of attendees to "wake-up" from cryonic suspension to find their money waiting all ready to be invested or spent!

Presenters Hoyt and Adams were quick to point out that, as far as they knew, there are not currently any robo-trusts for cryonics purposes and perhaps not even robo-trusts for any purpose. However, given the progress in the development of artificial intelligence (AI) application, cryonicists should not be surprised by the prospect of a robot in the future of cryonics trust management and, for that matter, many other aspects of cryonics such as cryonics facility operations.

The robot may not have much resemblance to the Robot B-9 of the TV series of the 1960s *Lost in Space*. "Danger! Danger! Alien approaching!" nor even much similarity to Hal, the computer from *2001: A Space Odyssey* (gosh, I hope not!). Rather "robo", as it is

now being used to describe fund managing programs, are sophisticated computer programs that are able to analyze happenings based upon available information and then choose between various possible action paths to obtain a favorable outcome. Future programs should be able to learn from mistakes, both its own and those of people or even other AIs.

Such a robot might be able to both maximize return on investment and to decide when a likely favorable reanimation might be attempted for the client cryonicist, aka "the frozen guy."

There are already robo-investors of a sort. Proponents of this form of asset management point out that the robot is less likely to make the mistake of being sucked in by popular but dubious trends; that the robot-program never sleeps, and is unlikely to embezzle the investors money and "run-Venz-wa-la" (as happened in the Harry Belafonte song).

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USBank May Manage Cryonics Personal Revival Trusts

By Jim Yount

Also at the recent (cryonics) Asset Preservation meeting in Las Vegas on May 21, Ms. Sara Dorosti, JD, Vice President of USBank, gave a talk entitled "The Role of the Professional Trustee." The presentation was a general one and could have been just as at home in a meeting of the Young Investors of American (if there is such an organization) as at a gathering of cryonicists.

Ms. Dorosti mentioned a number of advantages of having USBank as trustee, or co-trustee, of a cryonics trust. Apparently USBank, who Dorosti said is now the 5th largest United States bank, may take on such tasks as cryonics facility inspection as part of its management of a cryonics trusts. If so, this is good news. Banks, especially large banks, which allow their trust departments to engage in that level of cryonics trust activity, have been difficult to find.

As readers of *Long Life* are aware, the American Cryonics Society does an annual inspection of the CI facility that it publishes in the magazine. Also, starting this year, Hillary McCauley at CI has performed an inspection

of the CI facility, and published the results and intends to continue to do so in years to come. Thus there is not much advantage to someone who intends to spend cold-time at the CI facility in allocating such a task to a bank trustee.

There are a number of tasks that a cryonics trust could conceivably require of trustees where bank trustees would not likely do well. For example bank trustees are apt to have very sparse knowledge of when and how to attempt a revival of a patient in cryonics storage. The bank could, of course, hire experts for such a task. However, even properly evaluating the level of knowledge of these so-called experts would not be an easy task.

A preferred role of bank trustees in a cryonics revival trust (or other cryonics trust) might well be as a co-trustee with a panel of cryonics experts or companies like the American Cryonics Society that have the responsibility for most of the non-investment decisions. That said, many people who are considering establishing a cryonics trust may feel much more confident in having a large bank as a trustee.

The bad news is that USBank requires at least \$1,000,000 in "investable assets" before it will consider signing-on as a trustee. Investable assets are stock and bonds and other holdings that a stock broker might sell.

It was mentioned that USBank has a real estate management department that would take care of the real estate portion of trust assets. That is also good news. Many cryonicists have real estate that they don't want to have liquidated upon their deanimation. In fact, some cryonicists want to have the family home rented out during the time they are on ice so they can come back and kick the renters out and move back in, if and when they are reanimated.

The million of investable assets required by USBank might not be as much of a deal-killer as it first appears. Assets from several contributing cryonicists might be bundled into one trust for management purposes.

Those wishing to contact Sara Doroshti may do so by e-mail at:

sara.dorosti@USBank.com.

Planet Cryonics: Can We Freeze Everyone On Earth?

By Jim Yount

One of the "gotcha" questions frequently posed by reporters interviewing cryonics advocates is: Where are you going to put all the frozen people? After all, explains the reporter, there is just so much space on the planet and if significant numbers of people opt for cryonics we will soon run out of room and resources for the non-frozen folks.

Some of us answer that cryonauts could be kept any place: deserts or Antarctica; places on Earth that are not good environments for living people. Even O'Neil L5 type worlds; frosty planets like Uranus. They can also be kept underground, with houses and bean fields atop. We also point out that the space now taken up by cemeteries is considerable and that having some deanimated people in cryostats may be a good trade-off.

Those generalities aside, just how much room would it take to freeze and store significant numbers of folks?



How Many Cryonauts Would Fill a One Mile Square Facility?

Let's start with the room we are now using at the CI facility and then scale up. The building is 7,000 square feet with inside ceiling height of 14 feet per facility manager Andy Zawacki. Since we are going to discuss multi-story cryonics storage buildings, let's use 20 feet between stories, outside diameter, to allow for structural bracing between stories.

For convenience, let's assume an average patient load for a building of this size as 200 patients. This is a bit less than the maximum internal patients load that Andy estimates. In an email answer to my questions on capacity of the facility, Andy explained that the CI facility will hold another 60 to 100 patients, but some remodeling would be needed for the larger number. As of the date this article is being written, the CI website shows 137 human patients and 120 pets in cold storage.

Since we are going to be dealing with pretty large numbers, let's scale the present facility up to one square mile. With 27,878,400 square feet in a square mile, there would be 3,982.63 facilities the size of the present CI building in a square mile holding 796,526 patients (I did some rounding off for convenience).

There is no reason why we could not use multi-storied buildings to hold our patients. Since liquid nitrogen dewars with patients and liquid nitrogen inside are pretty heavy, we would need to make the building quite sturdy, but our calculations have allowed for that with three feet of reinforcement between floors.

With our make-believe facility let's use every 10th story for roadways, parking, bulk LN2, or administration.

So an 11 story building of one square mile could hold 7,965,260 preserved patients and a 110 story building could house 79,652,600 frozen guys.

Freezing and Storing Everyone Who Deanimates Each Year

American demographer Carl Haub did a study in 1975 to disprove the dubious claim that "75 percent of the people who had ever been born were alive in 1975." Haub has since updated his calculations for 2011 population numbers. Haub uses 57 million as the number of people, worldwide, who die each year.

Our previous calculations show that a one square mile, 110 story facility would hold 79 million cold customers. So just one square mile of facility would hold everyone who dies in a year, with room over

for some dogs and cats. Our 11 story facility would need to be just over seven square miles to hold everyone in the world who dies in a single year.

Freezing and Storing Everyone Alive Today

Using our present world population of 7.4 billion we would need a 93 square mile facility of 110 stories to house everyone today after we have cryopreserved them. That works out to a facility of less than 10 miles on each side. If our facility was just 11 stories we would need 930 square miles which is a building 30 miles on each side.



Freezing and Storing Everyone Who Ever Lived

According to Haub there have been about 108 billion people who have lived on earth through the entire existence of mankind. It is not clear from my reading if this includes the 7.4 billion now alive. Using the 108 billion figure we would need about 1,356 square miles or a square building 37 miles on each side (assuming 110 stories). That works out to about the same size as the state of Rhode Island.

So... bring us your tired, your poor, your huddled masses yearning to be frozen. We have the room!

Reference:

1. Zuckerman, Catherine. "Living It Up." National Geographic June 2011: 33. Print.



Are Assemblers Already Waiting for Us?

by York Porter

The dream of utilizing “super-microscopic” robotic devices has been one that has intrigued members of the cryonics community since Dr. K. Eric Drexler wrote his extremely important and ground-breaking publication *Engines of Creation* back in the mid-1980’s. This outstanding work outlined the numerous possibilities of human-designed and human controlled mechanical servants that would be able to work at the nanometer level scale. The ability of mankind to manipulate matter at its most basic level promised (and promises) to give humans such control over their environment as to usher in an age of unparalleled abundance and optimism. Physical, economic, and medical problems that have long defied total solutions, in spite of their severe deleterious effects to humans, began to be viewed as “problems that can be solved” with this new and exciting development in human thinking. This viewpoint is based not on speculative “science fiction” types of solutions but on solutions originating from hard scientific and engineering concepts and facts. Numerous researchers, including among them some who are dedicated cryonicists, now work daily to turn Drexler’s proposals into concrete and usable realities for themselves and their fellow human beings.

In its initial stages, much of nanotechnology work was viewed to be ultimately accomplished by the use of engineering and scientific knowledge combined with the ultimate goal of building “micro machines” to do the actual work. That is, the devices to be developed were envisioned as basically ultra-miniature versions of known mechanical devices and principles. They were (and are) envisioned to have gears, pulleys, levers, and other parts that are normally associated with machines of various types that humans have developed down through history. The particular design parameters might be (and

are) very complex in their nature, involving the need to have computerized control of operational parts and the development of the particular materials that would be able to be utilized in the sometimes delicate and always immunologically sensitive environment of the human body. Research continues along these lines.

While this research has been going on, that originator of working nanotechnology and the “architect” of life itself, Mother Nature, has continued to churn out nanotechnology-based mechanisms by the billions. Organisms arise, live their lives, age, and ultimately die only to be, by and large, replaced by youthful versions that are nanotechnology-derived through natural processes that result in mechanisms similar, though not identical in most cases, to the organisms that preceded them. Both the original organisms and their successors are built by activities at the molecular scale that result in the impressive, albeit imperfect structures that have intrigued and interested people since the dawn of time. Those structures have arisen, including the people themselves, by the workings of nanotechnological devices that nature developed. They’ve also been constructed, including the magnificent architecture of the human brain, molecule by molecule in a similar way that modern nanotechnological thinking has as its goal.

It is only logical that the question would be asked at some point of “Is it possible to take the naturally-occurring nanoassemblers utilized in biological systems and put them to use in a human orchestrated fashion?” In the realm of cryonics, Mike Darwin, a well-known cryonics activist, first proposed a “natural/man-made hybrid” cell known as the anabolocyte decades ago. In the anabolocyte, it was envisioned that naturally occurring white blood cells could be altered by

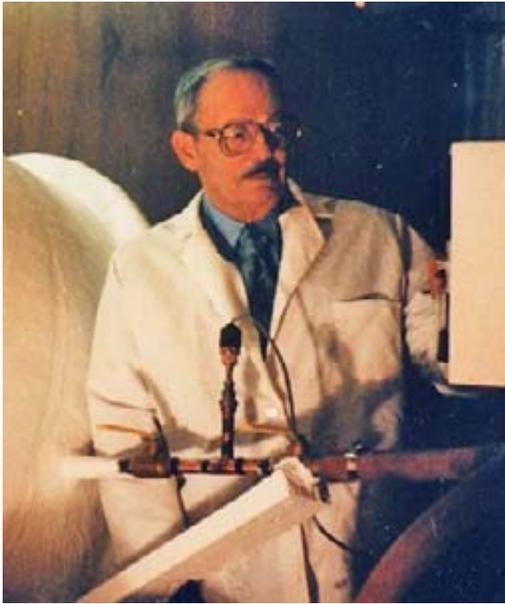
the addition of, for instance, a microcomputer which could act as the “control center” to direct the anabolocyte in carrying out nanotechnological manipulations and work. Other features were proposed as well. It was, and remains, an example of excellent thinking in trying to solve the problem of the repair, revival, and rejuvenation of cryonics patients. The anabolocyte remains only a theoretical concept but its basic thrust was to combine the best of what nature has to offer with some human input to greatly improve the final result.

This has already been accomplished, in a broad sense, by the work that has been done down through the years in utilizing mankind’s knowledge of bacteria and our ability to manipulate them and modify them. This has resulted in using bacteria to do everything from cleaning up oil spills, producing methane, to producing electricity in so-called “microbial fuel cells” (MCF’s). In the case of the MCF’s, we are taking a naturally occurring set of pre-assembled “nanoparts” (the microbes) and utilizing them in such a way that electricity is produced. There is even one project where bacteria have been used to make hacker-proof data storage in a process called “biocryptography”.

These bacterial projects are, of course, quite a ways from the original vision of Drexler. In one that is more closely related, work at Dartmouth College has resulted in the ability of an artificial protein to organize multiple copies of an organic molecule called “fullerine” (known in slang terms as the “buckyball molecule”) into a lattice type structure. “Buckyballs” have been known to have useful and interesting properties but have been difficult to get to form into useful structures. This interesting development takes molecules of fullerine (which are composed of 60 atoms of carbon), and through the use of the arti-

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Robert Ettinger: *The Legacy Continues*

When Scientists Aren't: Robert Ettinger on "Expertise"

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

As I've written before, Robert Ettinger was one of the most decent and intelligent persons I've ever been around. He was also very meticulous in his approach to cryonics, making sure that any claim he made or viewpoint he had was backed up by solid evidence and sound thinking.

Regrettably, this isn't always the case in the world, even in the case of perceived and well accepted "high-tech" endeavors. In my work in health care, it certainly is true that medical workers try to use the "latest and greatest" information in their work. Unfortunately, down through the years, the accumulation of new scientific and medical data and concepts, while a deep blessing to humans in general, proceeds so quickly that even the most determined to "stay up to date" individual is trying to "drink a tidal wave" of information, so to speak. No one is able to keep up with the great volume of information that is available. (This is an area of interest, according to my understanding, in the area of "artificial intelligence/expert systems".)

On top of that, healthcare workers as well as "scientists, lawyers, doctors, Indian chiefs etc.", are at bottom fallible human beings. This makes them subject to "all the sins that flesh is heir to". This includes, sadly, the tendency to be on occasion excessively defensive and to hold onto opinions whenever they think it is in their personal interests to do so or just out of habit. Sometimes this occurs when they feel like someone is "challenging their authority". At other times, the need to keep a job or a position intervenes as well. (The most extreme example in medical history would be individuals who knew better but still participated in the horrendous "medical experiments"—if one can call them that—as part of the inhumane activities of the Third Reich in the early part of the twentieth century).

Whatever the rationale or reason, one needs to keep in mind that folks, no matter how many initials they have after their names, are just human and need to be viewed that way. Expertise should be respected but never "revered". In this column from August of 1987, Robert Ettinger

addresses that topic and how it should be dealt with in evaluating opponents of cryonics.

Riposte: When Scientists Aren't by: Robert C.W. Ettinger

On July 12 the *Detroit Free Press*, one of the two major dailies, published an article on cryonics as the cover story in its Sunday magazine, *Detroit*. The story was unfavorable and leaned heavily on wretchedly wrong statements of "expert" commentators; it also included many errors of fact that showed the writer (one Mike Smith, a free-lancer) had not read or had misread the material we sent him.

This is more or less par for the course, but we have to do something about it—and just refusing to talk to writers probably isn't the answer, even though we don't subscribe to the notion that any publicity is better than none.

The editor of *Detroit* has promised to publish a response we have sent; this is scheduled for Aug. 16. The exposure has also resulted in several new television and radio and print features, so it wasn't all bad. But undoubtedly large numbers of people got a negative impression, and will tend to retain that when they are next approached, or reminded. Hence we are resurrecting a version of our riposte, to be judiciously used in our P.R. material. A draft follows.

When Experts Disagree

Press reports on cryostasis routinely include derogatory statements by "experts" who call our expectations far-fetched at best. It is crucially important for the layman to recognize the fallacies in their remarks, and to gain a perspective on the whole question of "expert" opinion.



Let's look first at the broad question, then at particulars of the "expert" fallacy.

First, there are experts on both sides of any important controversy. In the early decades of any radical innovation, most of the experts are skeptical or anatonagonistic; that is true of immortalism and cryonics. Scientists and physicians are much more than proportionately represented in the immortalist movement--but that still leaves them in a small minority.

But scientific questions are not decided by majority vote--and you should certainly not allow any opinion poll to tell you to go quietly like the other sheep to the slaughter.

Yet how can the non-expert judge for himself the merits of a scientific dispute? The answer is--fairly easily.

You just follow the example of top civilians in government, who make the crucial decisions on national defense, even though they lack military expertise. You follow the example of the non-technical boards of directors of giant industrial corporations, who make the broad outlines of engineering decisions even though they are not engineers.

In other words, you demand that the evidence be marshaled and presented in a semitechnical way that will not misrepresent the facts and yet will be understandable to an intelligent layman who is willing to do a little homework.

The buck stops with YOU. No one can relieve you of the need to determine FOR YOURSELF what the odds really are. We think we can convince you the odds are favorable. In this section, however, we merely focus on the errors of the opposition and the question of "authoritative" opinion.

Let's look first at some of the most common blunders of the naysayers:

1. "We can even freeze adult mamalian organs and revive them reliably in most cases; a whole body is much more difficult. It's unscientific to claim it can be done when it has never been done."

This totally ignores the main features of our argument. We do not have to demonstrate complete past success, because we are relying to some extent on FUTURE technology of repair and rejuvenation. We need merely preserve essential features to a degree that makes future repair a reasonable likelihood. Freezing is by far the best known way of preserving structure and information, as proven by the many successes and partial successes in freezing and reviving mammalian tissue--including nervous tissue and

whole embryos.

2. "They are not relying on science, but faith in the future. They might as well preserve by embalming, and hope that also will prove curable."

Our reliance on future progress is not "faith" but a reasonable degree of confidence based on past experience and demonstrated trends in research. As noted, freezing, even by crude methods--does MUCH less damage than embalming and other methods of chemical fixation.

3. "You can't have unlimited faith in the future. You might as well hope to reconstitute a cow from hamburger"

No animal of visible size has ever been revived after grinding. Many animals (insects, for example) and some mammalian organs, as well as human embryos, have been revived after freezing.

4. "No one should be frozen until it has been proven successful."

Since the patient is already dead before being frozen, this is his only chance. If we are wrong, he will merely remain dead. If we are right, he will have an open-ended future, an indefinitely extended life of potential glories never before known.

5. "Freezing damage is too severe and too extensive; it will never be curable. They are expecting too much of future progress."

We think otherwise and have detailed evidence to support. But the detractors are not willing to put ANY burden on the future. The litmus test is this: just ask them what degree and what kinds of damage they think will prove reparable in the INDEFINITE future, and what kinds and degree of damage they think will prove FOREVER incurable. Their answer, if any, will be gobbledygook.

6. "The probability of revival is vanishing small."

This is just an attempt to make their pessimism and hostility sound scientific. Not one of these people, in fact, has ever claimed to make an actual calculation of probability, let alone displayed one. But we will provide you with detailed analysis in support of our optimism, and a careful explanation of the correct application of probability theory.

Next, let's just look a little at the history of opposition and some personalities.



The focus of “scientific” opposition is in the Society for Cryobiology, which for many years has been dominated by a coterie headed by Harold Meryman.. Dr. Meryman admits to being philosophically or religiously OPPOSED to indefinite extension of human life, which makes his “scientific” opposition suspect a priori. Even Dr. Meryman, however, has admitted to me in writing that he gives cryonics some chance of success.

Another ideological antagonist, recently quoted, is Alan Panuska, a former editor of Cryobiology. A Jesuit (Scranton Univeristy), he is quoted as thinking that freezing dead patients is “unspiritual” and “selfish” (although many other Roman Catholics approve); and his “scientific” assessment is likewise suspect.

A former president of the Society for Cryobiology is Arthur W. Rowe, who has been quoted recently in vehement opposition in cryonics. Let me quote from two letters he wrote to me in 1968:

“After careful and serious consideration of your proposals I find that it would be inopportune at this time for me to join and participate actively in the Cryonics Society. As Treasurer-Elect of the Society for Cryobiology, I must admit that my decision was strongly influenced by Dr. Arthur P. Rinfret (another Meryman crony*), President-Elect of the Cryobiology Society, who has advised against joining and participating in the Cryonics Society.”

“Please believe that I have the greatest respect and admiration for you and your efforts in organizing the Society. I should appreciate very much being put on your mailing list and receiving correspondence, pertaining to developments of the Scientific Advisory Council and the Society.”

In the second letter: “Thank you for your recent letter and for two issues of Cryonics Reports (At this point, Mr. Ettinger added to the article that this newsletter was of the now defunct Cryonics Society of New York). I have already entered a subscription to the Reports and also have copies of your book, ‘The Prospect of Immortality,’ and Dr. Nelson’s book, ‘We Froze the First Man.’

“May you have continued success in your endeavors.”

At the time of those letters Dr. Rowe had had several years to observe the cryonics scene--and had read a great deal about it. His abstention from participation then---and his hostility later, were obviously motivated by politics and not science.

Several respected cryobiologists did join the Scientific Advisory Council of the Cryonics Societies of American. One was Dr. Richard Lillehei, who before his death was a celebrated Minnesota surgeon. In a personal meeting Dr. Lillehei was extremely friendly, but later resigned, again the result of pressure from the Meryman clique.

The Scientific Advisory Council was later abandoned because the growth in cryonics was not rapid enough to allow us to provide as much financial support for research as we had hoped. A cynic might suspect that some of those who joined did so not out of enthusiasm for cryonics but in hope of financial support for their research. This may be true in some cases--but it is all the more reason for laymen to realize that scientists are not paragons of virtue; sometimes they lie and cheat and pander and lick boots, and outside the pages of technical journals are FREQUENTLY very careless and irresponsible in their statements.

Nevertheless, growth in immortalism and cryonics includes more than proportionate numbers of scientists and physicians--even in the Society for Cryobiology, although some of these remain “in the closet” out of fear of the Meryman clique. One more or less in the open is Dr. Pierre Boutron, a member or former member of the editorial board of Cryobiology, journal of the Society for Cryobiology. He is the author of the 1975 book *Le virus de jouvence* (La Pensee Universelle, Paris), an immortalist work.

Some opinion in cryonics holds that we should not raise these questions, should not counter-attack or even defend ourselves against these politically motivated attacks. The rationale is that we do not want to appear too defensive, and that many people would not even be aware of the attacks if we didn’t mention them. I think, however, that virtually everyone who is exposed to cryonics is also exposed, usually sooner rather than later, to these canards, and cannot properly evaluate them without some background and assistance.

The bottom line, once more, is that--regardless whether the “experts” are honest or not--YOU are responsible for your survival and that of your family, and YOU must examine the evidence in detail and make your judgment.

Postscript:

I hesitate to remind readers of the ignominious past pratfalls of the can’t-be-done experts, because a great many things are truly impossible (to the best of our current knowledge), and the expert majority in the near term are more often right than wrong.

But we are not dealing with the near term. Nor are we dealing with feats (repair of freezing damage, reversal of aging) that are believed impossible in principle; they are merely considered (by most experts) as so exceedingly difficult as not to warrant present consideration. And sometimes the “experts”--not just individually but en masse!--make staggering blunders even in the near term.

In 1839 the eminent Dr. Alfred Velpeau said, “the abolishment of pain in surgery is a chimera. It is absurd to go on seeking it today.” Yet Sir Humphrey Davy had noted the anesthetic effect of nitrous oxide in

* added by Robert Ettinger



1799, and carbon dioxide anesthesia was used on animals in 1824. Ether anesthesia was used successfully in 1842 and nitrous oxide in 1844; finally in 1846 (five years after Dr. Velpeau's pronouncement) the world was awakened by the "discovery of anaesthesia by Morton and Warren. (This example is from *Engines of Creation*, K. Eric Drexler's 1986 book that suggests specific steps on the road to repair of damage to frozen patients).

Around the middle of the last century an eminent French scientist said there were some things mankind could obviously never know--such as the chemical composition of the stars. Just a few years later Kirchhoff & Bunsen invented the spectroscope, which told us more about the chemical composition of some stars than we knew about

the chemical composition of the earth!"

The brilliant and productive Vannevar Bush thought intercontinental rockets were not on the horizon--but the Russians had them just a few years later...There are countless other examples.

Even professional visionaries may be too timid in their evaluations of the "possible". H.G. Wells wrote that submarines and aircraft would never be important in warfare or commerce!

It will be bad enough if you are cheated out of life by quirks of fate beyond your control. If you allow yourself to be talked out of it by can't-be-done experts.... Think about it.

Robo-Trusts *continued from page 14*

A quick Google search shows that there are now plenty of companies who will set you up with a "robo advisor" for managing your personal stock portfolio. These companies will be glad to take your money (some have a buy-in as low as \$10,000). Other robo programs don't require that you transfer stock or funds to their accounts: "Instead, the advisor manages the asset allocation, rebalancing and dividend reinvestment from within an existing account. These services also offer asset allocation advice for those who prefer to manage their own accounts." (7 Robo Advisors That Make Investing Effortless; www.forbes.com)

As mentioned earlier, people with cryonics trusts or who are considering establishing a cryonics revival trust or other long-term cryonics trust may not now hire a robot for the task. The programs are not that sophisticated as yet. But can a cryonics trust contain provisions that

allow or perhaps even require that the management of the trust be turned over to an intelligent automated program in the future? While the technology may soon give us AI programs that can beat the socks off of humans in terms of efficiency, reliability, and even honesty, the long arm of the law may prevent an all A.I. investment and cryonics reanimation team from taking over the task. At least one human will need to be involved so Uncle Sam will have someone to put in jail, maybe to share a cell with Bernie Madoff.

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Michelle Adams may be phoned at (407) 977-8080, or e-mailed at michelle@hoybryan.com.

Assemblers *continued from page 17*

ficial protein those fullerene molecules are allowed to be manipulated into a particular pattern. From this work, it is hoped that more universal ways of manipulating molecules through this same general mechanism might be derived and utilized. The chief author of the paper about the Dartmouth work, Gevorg Grigorian, believes that the use of artificial man-made proteins may ultimately result in materials helpful in medicine, energy, and electronics. The paper may be read in the publication *Nature Communications*.

And the Dartmouth College work isn't all that is going on in the field that is now known as "synthetic biology". DNA, for instance, has been manipulated to form various shapes

which may turn out to have great clinical potential. These involve structures that will aid in the delivery of drugs to specific individual cells. This would be a change from much pharmaceutical therapy today where molecules of a drug are still frequently just ingested/injected into a patient's body only to run into the right receptors by chance molecular interactions.

On top of that, the very diversity and complexity of life demonstrates the marvelous nature of the body's own "nanomachinery" in that from a relatively modest beginning, a single cell can develop into the most complex of organisms. The human brain, for instance, in all its marvelous complexity, is the

ultimate result of sperm and egg joining. After that, basically nothing more is added except nutrition and it is all achieved through biological nanoassemblers that have been around in the same fundamental way for eons.

While the work of folks in what might be thought of as more traditional approaches to nanotechnology is, frankly, breathtaking to this author, the work described in general here is magnificent in its own right. To realize that the assemblers humans are so urgently seeking may be already here among us and just need to be modified properly to do much of the work we want...well, that type of information also calls for a "pause in res-



piration" itself as well. The race between those using more traditional approaches and those looking to the world of biology for pre-existing tools is the type of race we can all be interested in and that we all stand to gain a great, great deal from.

(Some of the information in this article was derived from How Scientists Are Hacking Biology to Build at the Molecular Scale. This excellent article, written by Jason Dorrier, can be viewed in its entirety at <http://singularityhub.com/2016/05/10/how-scientists-are-hacking-biology-to-build-at-the-molecular-scale/> For information about DNA Origami, Wikipedia is an excellent place to start.)



Photo: Simon Carr on Flickr

Joe Kowasky *continued from page 9*

Moderator: Joe, we have a film clip we're going to show in just a moment. And before I do I just want to let you know that you're sharing the stage with Martine Rothblatt (who) was here just a little over a year ago and she was famously quoted as saying the cost of cryonics is about the same as the cost of a cup of coffee a day and, of course, it depends on whether you start when you're young with your insurance or if you jump into it when you're older.

Joe: Very true.

Moderator:

But it is...and Douglas, I think you'd like to key that up here. This will help. We have a number of people here tonight that are new and are new to the concept of cryonics so we'd like to show this video. I believe it's the Larry King video that we showed a year or so ago. Go ahead Douglas.

BEGIN Larry King VIDEO CLIP:

LK Video Clip Moderator: What's with the freezing? You want to chop your head off and put it in a freezer? What's that all about?

Larry King: Oh yeah, Oh OK...

LK Video Clip Moderator: What's this business?

Larry King: Cryonics

LK Video Clip Moderator: We share the same desire for life longer than we are...

Larry King: Immortality is what we want..

LK Video Clip Moderator: Yes, yes, OK, right...

Larry King: Now you can either believe there's something up there...

LK Video Clip Moderator: Right

Larry King: ...or believe there's nothing

LK Video Clip Moderator: Um-hm

Larry King: or hope for something or...

LK Video Clip Moderator: Yeah

Larry King: be frozen.

LK Video Clip Moderator: Yeah

Larry King: How about if we get frozen together...

LK Video Clip Moderator: Let's do it, let's do it...

Larry King: We wake up...

LK Video Clip Moderator: Does it have to be at the same time? (Laughter)

END OF Video CLIP

Joe: Was that Donnie Osmond?

Moderator: Oh, Seth McFarland. Yeah. And also wanted to point out that, in March, we have Katherine Baldwin from Suspended Animation. She'll be here at Perpetual Life. There's another question here.

Questioner: What is the total cost for everything?

Joe: The total cost for cryonic suspension? It depends on the organization that you use. Each organization is different. I can only speak for the Cryonics Institute. Twenty eight thousand dollars in total cost has not changed since we opened in 1976. There are people who can give more do, but twenty eight thousand dollars is the cost. That does not include Suspended Animation if you want to hire them to, you know, work on you before you die or to be prepared before you die, or you can prepare in some other way, but as far as the suspension itself, that's what it is, twenty eight thousand dollars

Inaudible Question Apparently Asked:

Joe's Reply: No, Suspended Animation is an organization that can help people prior and at death, actually, help prepare them for going into the cryonic suspension.



Moderator: To elucidate, Suspended Animation has a machine, a vehicle that's similar to an ambulance that would come to you upon your legal death to start the cryonic process. And just want to say that the Church of Perpetual Life does not endorse any particular company or brand but I certainly appreciate my good friend Joe for being here. Have a question over here.

Joe: And we actually say that too. Cryonics Institute does not endorse or tend to be negative about, for that matter, Suspended Animation. We have many members that use them and many members that don't. It's up to the members.

Questioner: Does the Church of Perpetual Life believe that we are our body and that when we go we're still there? So that we kind of go to sleep and then sometime they bring you out, because my belief, and all of the research and everything I've done, is that this is just a vessel and I'm really not in here, I'm all around here.

Moderator: Joe can't really speak to the Church of Perpetual Life. He's a guest speaker this evening. But that would be a very good question for me to answer for you and I'd be happy to do that downstairs as our evening progresses. So that's something we'd be happy to do, sure.... And we have time for two more questions and...OK.

Questioner: What's the average age of the people who get...who are your patients?.

Joe's Reply: That's a really good question. I should know that answer. Thank you, you keep me on my toes. I don't know the answer. I can tell you that the oldest patient that I know of was, I believe, 96 years old and the youngest that I know of, I believe was 22. But I don't know what the average is, I'm sorry. I would imagine it's closer to the 60's and 70's range than to the twenties range.

Moderator: One more question over here.

Questioner: Can you tell us at all about any research that's being done to prepare the body to come back into society, emotionally and mentally.

Joe's Reply: That is also a really good question. A lot of really good questions tonight. I like that. You know, one of the things that Neal and I spoke about was the idea of this Church being a family and I find that very interesting and that's exactly how we think of the Cryonics Institute as well. That it is a family and that our job is to reintegrate people into society. We don't know how that's going to be done because we don't know what year it's going to be. We don't know what society is going to be like. But what we



know is that we are all dedicated to preparing people in that fashion and we have an endowment set aside to pay the appropriate people, be they sociologists or psychologists or whatever we might need to help to reintegrate people into society. And actually there's a... one of the things that I'm going to say in my closing sort of addresses that so...

Did you say that was the last question or just one more or...?

Moderator: What we can do...you will be able to speak with Joe personally downstairs and ask him. Thank you.

Joe's Closing Remarks: So, I just wanted to mention a couple of questions that I've been asked and maybe some of you have

been asked as well and some of these are somewhat related to the things that you said. So here's one of the questions and this is kind of related to what you were just asking me. Would someone want to come back to a world in which they know no one, the technology is like magic, the language is different? I get that question all the time. I have a one word answer for it....Baby!! That's what a baby comes into, they don't know the language, they don't know the technology, they don't know anybody, they don't know anything!

All right, so you say, yeah, but babies really don't know anything so that you can start from scratch with them. You know, adults

it's a little more difficult. So I have another answer to that: my grandmother. My grandmother was sent to the United States when she was fourteen years old. She had one half-brother here in the United States. Was the only person she knew. She didn't know the language. She came from a little place in Europe, a little town in Europe where they had no indoor plumbing, no electricity, no telephones, the technology here was like magic, and the rest of her family and friends were killed in the Holocaust. She led a happy and productive life, a healthy life. Would anyone think of saying to her "Wouldn't you rather have died with everyone else you knew?". But that's what people say to cryonicists.



Of course we're devastated when we lose those that we love, and I don't want to make little of that and I hope and pray that as cryonics becomes more prevalent, and more accepted, more people will be around that we know when we are revived so we might not need as much integration as we were talking about.

Another question, "There will be too many people!" People have been saying this for as long as there are people, I think. Long before cryonics. There is still more room on Earth. There's still a lot of people having babies without much thought to that. There are other planets. There are Dyson spheres. There are a lot of ways that we can deal with this.

"There won't be any new ideas! People will become staid and stagnant!" Well, you know, wisdom comes with age. And so we also might have a lot more wise people if they lived much longer. But, at the same time, if we keep our bodies young, maybe we'll be more vibrant in our minds and our ideas, in our excitement about life, in our thoughts, in our development. Hard to say. Plus there still probably will be children. No one is saying don't have children. So the two are not antithetical.

"What if God doesn't want us to succeed?" Well, then we won't. But I think, that if there is a God, he gave us these brains and curiosity and tools for a reason. And it would be blasphemous and heretical not to use them. He also gave us ethics and morals, most of us, and we must be diligent in that area too. And I can't emphasize that enough.

"Have you had any exciting cases?" Yes! I was a lawyer, as mentioned now a recovering lawyer, and I once stopped a cremation within twenty minutes of when it was about to occur. and that person is now cryopreserved at the Cryonics institute.

For those who haven't fallen asleep yet, I apologize; I'm going to repeat myself,

briefly. We are ignorant. We do not know when someone is truly dead. When someone's heart stops, when disease damages the body beyond what we can now repair, when illness overtakes our medical skills, and a person lies silently on the bed, that person may be screaming in silence, "I'm not dead yet!"

And freezing organs to make organ transplants safer, less costly, and more available?. Everyone is in favor of that today. We need to encourage further development of this that that is already happening. There is an urgent need for organ transplants. In fact, we can forget about cryonics entirely and just work on organ transplants. Society is in favor of it and it's a laudable venture. And, truly, I don't think that we will have successful cryonic suspension until we have mastered the freezing and revival of individual organs.

About a year and a half ago, I had the honor of a private meeting with Leonard Nimoy, "Mr. Spock" from Star Trek. He was a special man, a truly special man, who, at the end of the meeting, not only donated to the Cryoprize but also said that I could tell people that he had donated. So I guess it's appropriate that I end this talk by quoting from Star Trek. In the episode "Mirror, Mirror" several members of the Enterprise crew find themselves in an alternate and barbaric universe. As they are about to return to their own universe, Captain Kirk tries to convince the Mr. Spock of the alternate universe that he can and should work to change that society. Alternate Mr. Spock says, "One man cannot summon the future." To which, Captain Kirk responds, "But one man can change the present!" And I say to you, "Be that person!" Thank you!

Thanks Neal!

Moderator: Excellent, passionate, great talk Joe. Thanks for coming and departing your wisdom with us here this evening.



Afterword by Noted Life Extensionist and Long Time Cryonics Advocate Bill Faloon

Bill Faloon is well known throughout the cryonics community as being a long time advocate of life extension in general and of cryonics in particular. His support is deeply appreciated by all of those who have benefited by his (and co-founder of the Church of Perpetual Life, Saul Kent's) support and generosity down through the years. In this Afterword to Joe Kowalsky's presentation, Bill makes several interesting points which should be of interest to readers:

Moderator: I'd like to now bring up a gentleman who is the founder of this Church of Perpetual Life. Please give a warm welcome to Mr. Bill Faloon.

Bill Faloon: I just wanted to put a perspective on what Joe talked about that maybe he wouldn't be able to talk as much as I'm able to. I've been an advocate, a passionate advocate of cryopreservation since 1977. I set up a small cryopreservation facility in Pompano Beach back then, got on all the local radio shows, got on some national TV shows, so when people needed to have the cryopreservation process implemented they'd often reach out to me and ask me "Where do I call?"

And this is like prior to the Internet and I'd give them a list of options, a list of prices, and often they couldn't afford to pay a lot of money, so that the twenty eight thousand dollars that the Cryonics Institute is able to



provide the service for was incredible. It enabled them to have their loved one cryopreserved. And so many of them would call me up afterwards and thank me, and express the gratitude for being able to find an affordable cryonics service provider and also the fact that they had a sense of comfort that the person that they cared so much for, they didn't fear that they were permanently dead, that there was some chance of revival in the future. And I've gotten enough of those calls to say that it is worth repeating about it tonight at this service, that people really do appreciate it beyond just the idea of that person being cryopreserved, it's the family members who have a little bit of peace of mind, in some cases a lot of peace of mind, that their loved one, some day, may be restored to life.

And what I'm going to talk about tonight, just briefly, is what I saw on the news last week. Maybe a few just saw it but it really jumped out at me. For the first time in the history of commercialization, and when you see ads for automobiles, they're always uplifting, they make it appear like you're going to drive that car right into the future life and be happy forever but Volvo, the automobile company, they ran an advertising campaign, or a PR campaign of sorts, and the media picked up on it. and they used a term that I've never heard before as it relates to commercialization.

By the year 2020, Volvo is committing to build a death-proof automobile. That's unprecedented. The idea that you would take something like death and put it in the context of an automobile. cause when you're trying to sell a car, that's the last thing you want people to think about. But yet, the way people are thinking now days, they are looking at car safety, car safety ratings are factors as to why people buy them.

And to put this into context, in the 1960's, about 57,000 Americans died every single year in automobile crashes---57,000. There

are three times more cars on the road today compared to the 1960's and the death rate is around thirty thousand a year. Now if you take that three-time figure based on the 1960's data, you'd be looking at maybe 170,000 people dying every year in this country from auto wrecks. What's happened is that cars have gotten a lot safer.

The co-founder of this Church of Perpetual Life, Mr. Saul Kent, was involved in a very significant auto accident four years ago. The car was totaled---one hundred percent totaled---it was a brand new car too, by the way, it wasn't such an old car that they totaled it, but he walked out of that car unscratched, the air bags deployed, the crumple zones worked. He had no problems whatsoever---the car, totally destroyed. So he's alive right now because of that technology.

And we're seeing it every day but not always appreciating the fact that technology is saving lives, in the medical arena and it's saving lives as it relates to automobiles. So again that word "death proof", first time ever that I've seen it used in commercial history, and I think it's going to become more and more popular as businesses realize people don't want to die. They'll pay more; they'll use their brand if it's perceived as being safer.

So that's what I want to talk about tonight, succinctly, and I will be downstairs to talk to everyone as long as people want to stay. But what we're going to do, though, after this---and you are welcome to go downstairs and have a nice dinner and interact---but we're going to tape a TV show that's going to be broadcast nationwide and also be broadcast on the ABC affiliate in Palm Beach County on noon on Sunday. I don't know exactly which Sunday it will be broadcast on. But what we're going to talk about is religion and cryonics. And Joe is going to talk about the idea of being an Orthodox Jew and how you then can transition that into cryonics without really violating any religious principle. I'm going to talk a little bit about

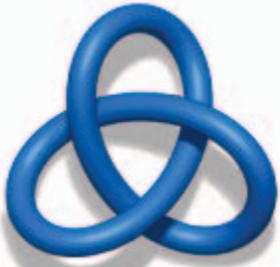
the fact that if my mother adhered to her religious principles, I would have never survived more than a couple of weeks. I needed a blood transfusion when I was born. And her particular religion, they were against it. They said, "Let the baby die, you're violating your religion if you allow that blood transfusion!" Fortunately, my mother said, "Well, I'll change religions." You know, you just go from one faith to another. I got the blood transfusion and I'm still here. So sometimes you just have to be a little creative to accomplish your religious objectives and still remain alive.

So, I want to thank everyone for showing up. Again, you're welcome to watch the taping or go downstairs. We're going to be here late tonight, as always, so you're welcome to do whichever you like. Thank you!

Moderator Neal VanDeRees: Excellent... And before we depart, I'd just like to let you know there is the Revolution Against Aging and Death festival, the "RAAD" festival. And there's a few days left to sign up for that so that you can take advantage of the lower price. If you're interested in signing up for the RAAD festival or finding out more about it, it's in San Diego, August 4th through the 7th. And we have some minicomputers or I-pads downstairs where we can help you to get signed in to that festival. I'm going and I know Bill's going, I know a number of other people are going to be there. Richard will probably be there, I guess, I don't know if you're going Joe but it's something I'll tell you all about. I don't know if we've talked much about this.

Editor's note: There were a couple of announcements of local events at the Church of Perpetual Life and then this portion of the meeting recessed. For more information about the Church of Perpetual Life, one can go to www.churchofperpetuallife.org. For information about the RAAD Festival, one can go to <http://radfest.com>.





Final Thoughts

York W. Porter - Executive Editor

Transfusing Blood

Back in my younger days, I worked for several years in a hospital laboratory. Now I spend my time at my job doing technical work in the field of medical radiography. In both cases I began training “on the job” (not allowed these days) and worked my way up (though sometimes I think it’s down) from there. As I gained more experience and more knowledge in the hospital laboratory setting, I finally reached the point where I was allowed to do one of the procedures that I didn’t get near when I first began. That procedure was the “typing and cross-matching” of blood. This is the process done in the medical laboratory in preparing/checking blood for its suitability to be given to patients.

In many, if not most laboratory procedures, the doctors who are in the ultimate care of the patients only worry about a few basic things as far as lab results are concerned. In the case of blood glucose (“blood sugar”), for example, they simply want to know if the result is normal or abnormal. If normal, they look for other explanations of the patient’s condition. If an abnormal result is obtained, they mainly want to know if the result is mildly abnormal, moderately abnormal or markedly abnormal. They then want to know what the “trend” is; that is to say, they want to know if the result is getting more abnormal, if it is staying about the same, or whether it is heading back towards being normal. This is why labs frequently take multiple blood samples over a period of time from patients. The numbers that are generated are helpful and, of course, quite useful to the clinician but it isn’t as precise an endeavor as one might think at first glance, at least in many situations.

In the case of blood transfusions, the doctor is very dependent on the skills of the medical laboratory personnel to make sure everything goes OK. There is no easy way, other than doing the testing themselves, for the medical staff to know how things are going, as they can in the case of a blood sugar by simply comparing the results the lab is getting with the patient’s condition and/or also comparing any single result with the results obtained previously or at a later time. In the case of blood transfusion, the doctor can determine its need by looking at other tests in which a number is involved (such as the hemoglobin, hematocrit, and red blood cell count), but once they’ve made the decision to go ahead with the transfusion, then they pretty much have to leave things in the hands of the laboratory

personnel to make sure that the “quality”, so to speak, of the blood is such that it is safe to give to the patient (and in the hands of the nursing staff to make sure administration of that blood is done properly and safely as well).



That safety of the blood transfusion is, of course, a very big deal. Even if concerns about infectious disease being transmitted in the blood can be discounted, there is the stark reality that the wrong type of blood given to the wrong patient can result in disaster, with the possibility of a patient going into renal failure and winding up on dialysis and/or dying from kidney failure. (There are other bad things that can happen as well, even in the best of circumstances, but we won’t list them all here).

While, by and large, transfusion practice is very safe, with numerous “checks and double checks” built into the system, it still, back in the day that I worked, was a very human endeavor. It was entirely up to me, for instance, to make sure I drew blood from the right patient. Since my experience was in rural hospitals in small towns where we pretty much knew the patients personally, this wasn’t a big concern to me. It was then up to me to make sure that the type and cross-match went OK. That was a big concern to me and I can still basically remember the first unit of blood I did this type of work on. Even though I had been meticulous in checking and double checking (and, in some cases, due to my anxiety over making an error, triple checking) my work, I made several trips to the nurses station while the blood was being administered just to make sure the patient was OK. Thankfully, nothing bad at all happened, either then or later. I went home after the end of my shift as a very relieved and happy fellow.

The history of blood transfusions is informative in and of and by itself. Like many events in medical science, at times it was “one step forward, two steps back” and thankfully, most of the time, the converse. While it is easy to look back and to denigrate and/or make fun of the efforts of early practitioners in the field, it also comes into my



head from time to time, that future medical science may look back on present day and so-called “high tech” endeavors with the same sort of incredulity that we look back on our ancestors. The promise of nanomedicine is such that I can easily see someone in the future being astonished that “those people used to take really sharp knives and cut folks open to work on them....can you believe it?!”

The first known experiments in actual blood transfusions involved “man’s best friend”, the dog. Being a big animal lover, it’s painful for me to even read the account, realizing that at the time it was carried out, anesthesia and sedation in the modern sense were not available. To my knowledge, sadly, modern standards of animal treatment during experimentation, or any standards for that matter, were not applicable or used. I would hazard a guess that the saying from the Bible, that “man shall have dominion” over the earth and the creatures thereon was what applied.

Nevertheless, it was the start, with an English physician by the name of Richard Lower being involved. Using the primitive equipment available at the time, blood was taken from the neck of one dog and given to another dog via the same general route. While dogs have blood types, just as in humans, around 45 percent of them have the same type so, apparently, the recipient was lucky enough to belong to the same group as the donor. The recipient apparently survived without incident but the donor is reported to have died from the withdrawal of blood. A crude experiment, of course, and a sad result for the poor donor but as stated above, it was a start.

The experiment as described in a publication of the time, caught the interest of Robert Boyle, who was a “natural philosopher” (scientist) of the time. Boyle was, of course, an extremely intelligent person, and is considered one of the founding fathers of modern chemistry. Boyle is best known for the so-called “Boyle’s Law”, which describes the relationship of a gas and its volume as related to pressure in a closed system if the temperature is kept constant. His book “The Skeptical Chemist” is considered a founding work in modern chemical practice. As if his work in science wasn’t enough to occupy him, he was also a very religious man and wrote on theology as well.

Boyle was full of questions about the experiment from the standpoint of its effect on the recipient animal. They seem to us, of course, to be somewhat “silly” but it has to be kept in mind that these questions were from an individual with one of the pre-eminent scientific minds in history. It just shows that when anyone is faced with a new situation in the world, it isn’t an easy thing to stay as “level headed” as in areas in which one has already established competency and where there are established procedures to guide you. In the case of medical doctors, for instance, a friend of mine who writes computer software for use in small medical practices said it amazed him that although doctors are, generally speaking, very intelligent and well trained in their area of work, he found that when it came right down

to it, many of them are “babes in the woods” who basically don’t know very much about the business aspects of medicine at all. Having concentrated their education on the job of being a doctor, that isn’t surprising. The same thing could be said, for instance, of lawyers when it comes to the practice of medicine. I’ve been called upon on a few occasions by a friend or two in the legal community who needed some more insight into the world of medical work, or at least information on who they should talk to about a medically-related issue that came up in the lawyer’s practice.

Boyle’s concerns, as mentioned, seem pretty mundane to us now. He was curious about whether a fierce dog would be made cowardly by receiving the blood of a cowardly dog. (If the converse were also true, I suppose the cowardly lion in the Wizard of Oz could have solved his problem by seeking a transfusion instead of turning to the Wizard for advice!) Boyle further wondered if a dog that was just fed could be made hungry again by receiving a blood transfusion from a dog that was already hungry. He further wondered whether a learned behavior could be transmitted via a blood transfusion.

The concerns seem pretty childish to us but remember that an individual with a towering intellect asked about them. It just points out that anything new, no matter what its merits, can bring up objections from folks that, in hindsight, will appear to be silly and foolish to those in future years when things are better developed, no matter how smart the objectors are that stated their concerns.

Cryonics is no different. Brought forth in the 1960’s when which scientific and technological achievement was quite towering, cryonics looked to be (and is) just another development in the utilization of technological innovation to improve the lot of mankind. It is basically nothing more and nothing less, in spite of its tremendous importance. That doesn’t mean that there wasn’t some early and quite speculative concern about whether it would work or not or was a wise thing to do. This is, as I have gradually matured to learn, just another part of the “human drama”. Even in the case of the Apollo moon program, a dear family friend did not believe, to her dying day, that any moon-landings had occurred. She always maintained it was shot on a movie set like in Hollywood films. Another family friend equally maintained it had happened as during Cold-War days, “the Russians said we did it, therefore we did it!”. Folks have all kinds of reasons for believing in things, I’ve found out.

The reality is that cryonics is here to stay and the evidence for it, as outlined in this magazine and elsewhere, continues to grow stronger and stronger with each passing year. We need you in this endeavor to help to strengthen it and to further help us with whatever talents you have as we continue to push this wonderful concept forward. Please join us in this important endeavor today and help hasten the time when cryonics is as common as the now routine transfusion of blood!



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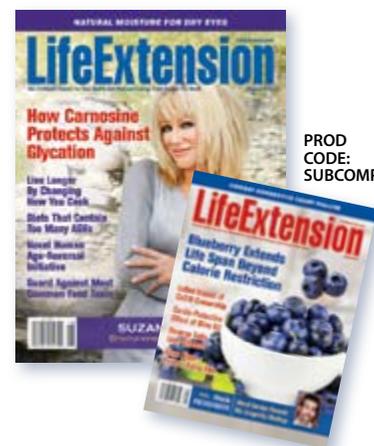


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