Hello everyone,

The 2017 AGM and elections are behind us and now we look forward to plans for the new year.

First of all, congratulations to all of our Directors who were re-elected for another three-year term. I also want to thank our two contenders this year who weren’t elected. It takes dedication and courage to run for elected office, and it is encouraging to see our membership includes people willing to step up to the plate to make a significant commitment and contribution to the success of cryonics and the Cryonics Institute by serving as a Director.

I also want to thank everyone for voting for me, and to the Board for allowing me to continue my tenure as CI President. I am honored and humbled by the opportunity to serve an organization and a cause I feel so passionately about. I hope everyone is pleased with the positive direction we have been heading in and that you will be just as happy with what we are going to accomplish in 2018.

2017 is going to be hard to top, as we have seen great things at CI. Record membership numbers, significant improvements to the facility, operational efficiencies, and perhaps the most exciting news - the purchase of a new facility to accommodate our steady growth. Full details on that announcement follow this report.

One of my primary initiatives for 2018 is going to be creating video standby training materials for CI and the worldwide cryonics community. This will be an important part of our “Phase 3” Standby Initiative, which will also see improvements to our current standby kits, materials and networks.

Regarding standby, I am also encouraged by the efforts of our members and by cryonics groups around the world to create networks and resources both here in the United States and overseas. Equally exciting is the news (announced at the AGM) of “I.C.E.” - a new Standby service from Aaron Drake and Eric Vogt. Both have a long history with emergency medicine and cryonics, so I am looking forward to watching their progress. That said, I would be remiss if I didn’t mention our current professional standby provider, Suspended Animation...
The Cryonics Institute is growing fast and expanding our capabilities. It is with great pleasure that we announce the Cryonics Institute has purchased a new property and facility to serve as a 2nd location for long-term patient preparation and storage. Once fully outfitted, the new facility (Cryonics Institute West), will have more patient capacity than our current Michigan location.

In addition to greater patient storage capacity, the new location benefits from a low profile, with negligible vehicle or pedestrian traffic, as well as a strong law enforcement presence. The facility will have industrial capabilities on par with our current facility, as well as enhanced security features to keep our patients safe.

The location of the new facility is being kept confidential for security reasons, but we can assure our members that after thorough review and vetting, this location was deemed an excellent fit for our purposes, both in terms of operations and security. It was decided not to publicly disclose the new facility location in order to provide our patients with an extra layer of safety from any unwelcome threats.

Funding for the purchase of the facility was managed through careful planning and sensible operational savings. No money was used from our current investment funds or patient care funds. In fact, CI used recent operational savings to make the purchase. This is a testament to just how efficiently and wisely CI manages our members’ money.

When evaluating the prospective health and longevity of an organization it is always important to look not just at income, but also at how well a company manages its income and stays within a reasonable budget. We are the stewards of our members’ money and we have a fiduciary responsibility to manage that money wisely. This is one reason so many people have chosen CI as their cryonics provider.

Our current facility can accommodate eight additional cryostats, but by the time we reach that limit with our next wave of patients we expect the new facility to be fully operational. We can be proud to say that CI is now the largest provider and steward of whole body cryonics patients in the world. As we continue to grow, we will undoubtedly expand to many new locations and facilities. We hope to continue to keep costs down through economies of scale, hard work and prudent management.
CI Promotional Video Debuts at AGM

The Cryonics Institute’s new promotional / educational video premiered Sunday, Sept. 10 at the 2017 Annual General Meeting in Clinton Township, Michigan USA. The short video gives an overview of cryonics and of CI, explaining cryonics principles and procedures and giving viewers a look at the Cryonics Institute and its operations. It’s an excellent tool for members who want to share the cryonics story and the basic arguments in favor of suspension with family, friends or other prospective members. Plans are underway to develop more video content in 2018, including additional educational and promotional content, including standby training.

The video can be seen on CI’s website or YouTube. Check it out, and please give us a share or a like on YouTube.

Dec 14 Ceremony will Honor Cryonics Pioneers

CI Members in Florida are invited to attend a special “Remembrance of the Ressurectables” ceremony on Thursday, December 14 at the Church of Perpetual Life in Hollywood, FL. The program recognizes cryonics patients from CI and other organizations as groundbreaking pioneers in the cryonics movement. Members who would like to have relatives currently in suspension recognized in the program can contact dg@cryonics.org. In order for CI patients to be included in the presentation, we will need a statement of consent from an authorized family member, a photograph and short biographical details. For more information, please email dg@cryonics.org or visit http://www.churchofperpetuallife.org.
New Cryonics Group forming in Chile

José Luis Galdames, a medical technologist from Chile, would like to let prospective members know that he is willing to form a Chilean support group for cryonics. Mr. Galdames writes “Eventually, and depending on the number of people interested in the topic here in my country, I would like to conclude the formation of a primary stabilization and transport group for Chilean cryonicists with a cryopreservation agreement.

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

These support groups are vital links in the cryonics community, particularly as a support network and resource for local standby efforts. We encourage everyone involved in cryonics to find a local group to join, or to consider forming a group of their own. Even if you have standby arrangements in place with SA or another organization, this is a great backup plan to have in place for yourself. It’s also important to consider that, with such a small community of cryonicists worldwide, your participation can make a significant positive impact on fellow cryonicists in your local area. In order to help facilitate local standby efforts, CI does offer pre-built kits for purchase, which are ideal for local standby groups. Details can be found here, or by contacting cihq@aol.com.

Thanks to Mr. Galdames for helping to support cryonics and expanding our support network around the globe.

2018 Teens and Twenties Scholarships Available

Cairn Erfreuliche Idun, Bill Falloon and the Life Extension Foundation recently announced the 9th Annual Teens and Twenties conference, to be held May 4-6, 2018. The conference brings together young cryonicists aged 13-30 (attendees under 18 must be accompanied by their parents) to participate in a weekend of discussions, seminars and group activities to foster community, groom future leaders and further the cause of cryonics.

The Life Extension Foundation (www.lef.org) has generously provided a grant for Forty (40) scholarships to the event. Scholarships cover U.S. airfare (or up to $1000 for origin outside the U.S., $1350 for Australia), 2 nights lodging (4 nights - Thursday thru Sunday - for scholarship attendees who room together), registration and meals. These will be awarded on a first (fully completed application) come, first granted basis to 40 fully signed up and verified cryonicists (i.e., having a funded contract with a recognized cryonics provider), ages 18 through 30. Teens aged 13-17 may apply and attend when accompanied by a parent or guardian.

The deadline for applications is April 4, 2018. Application forms and a complete Teens and Twenties information packet can be found here.
CI NEWS
What’s happening at the Cryonics Institute

New Cryostats Arrive at Michigan facility

Cryostats number 23 and 24 have been delivered to CI’s Michigan facility. These units (in addition to space in existing units) will add capacity for an additional 21 patients. Our current facility will accommodate eight more units, with future units to be installed at our new facility.

Each cryostat is a little over ten feet high with an outside diameter of six feet. In order to achieve maximum efficiency, cryostats are ideally maintained with a vacuum of zero microns.

Prep to get these units online includes fireproofing and painting, which is estimated to be completed by 1st quarter 2018 or sooner. However, if needed, they are ready for immediate use.

CI Vendor Helps Promote Cryonics

In a related story, Dicalite Management Group recently added a special Cryonics page to their website promoting CI. Dicalite Management Group provides the specialized insulation we use for our cryostats.
Get the world’s premier publication on prolonging youth & longevity for one year absolutely FREE!

Packed with the latest medical findings, research results, and innovative treatment protocols, Life Extension Magazine® is the ultimate resource on staying healthy and living longer. Call now and get a one year subscription (12 issues) absolutely FREE ... that’s a whopping $59.88 off the newsstand price! And it’s brought to you by the global leader in the field of preventing age-related disease for over 35 years.

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CI Election Results 2017

Andy Zawacki (Incumbent) elected: 182 votes

Dennis Kowalski (Incumbent) elected: 117 votes

Steve L (Incumbent) elected 100: votes

Stephan Beauregard (Incumbent) elected: 80 votes

Challenger Dirk Nemitz was not elected 44: votes

Challenger Blake Delaney was not elected 57: votes

Congratulations to those who have been selected to lead CI and represent our membership. It is an important responsibility and I commend those who have made the commitment to volunteer their time and efforts to make CI and cryonics a success.

For those of you who were not elected, I commend you as well for having the bravery to step up to the plate and offer your services and time. Just because you were not selected does not mean you or anyone else who is not a director cannot still be of great help to the cause. There is always a lot of work to be done at CI, and we are always looking for volunteers to work on projects and pitch new ideas. Understand that if you have great ideas you may be selected to put in the time and effort to head up those projects. Cryonics is not just about new ideas, but also about who will put in the work or money to realize those ideas. It is a labor of love and many members are very proud of the direction we are heading. That direction didn’t just come from the Directors but, in many cases, from volunteer members who take pride in CI and the cryonics cause.

Congratulations again to all of our Directors, sincere thanks to our nominees and thanks especially to you, our members. Your input matters, and it is your vote that decides the direction CI takes today and into the future.  

Dennis Kowalski, President-Cryonics Institute
Tour of the Cryonics Institute

Attendees visit CI's Michigan facility prior to our Meeting at the ConCorde Inn. Tours were conducted by CI Directors and Facility Staff.
Meeting at the ConCorde Inn

CI President Dennis Kowalski kicks off the 2017 AGM at our new ConCorde Inn location. Countries represented this year included the United States, Germany, Canada, Russia, Argentina, the United Kingdom and Spain. Thanks to all of our members and guests for attending!
Professor Adam Higgins

Professor Adam Higgins discusses his CI-funded research "Development of Organ Perfusion Strategies to Reduce CPA Toxicity"
Professor Rudy Goya

Professor Rudy Goya presents new developments in longevity research and recaps the recent Cryopreservation Summit and related cryonics efforts underway in Spain.
Ryan Levesque - SA

Suspended Animation Inc.’s Client Services & Donor Recovery Manager Ryan Levesque discusses SA’s professional standby services and their longstanding relationship with CI and our members.
Aaron Drake and Eric Vogt - I.C.E.

Co-Founders Aaron Drake and Eric Vogt introduce their new standby company, International Cryomedicine Experts and discuss services, packages and plans available for cryonicists.
Silent Auction

CI's second annual Silent Auction, organized and conducted by CI Director Stephan Beauregard, earned over $500.
“Star Trek” Show features CI Member Émie Morissette

by Stephan Beauregard - CI-Director / Communications & Social Media

Canadian CI Member Émie Morissette is both a Star Trek fan and also a well-known artist-painter in Canada, the USA and soon Europe, as well as a professor teaching at the school of Beaux-Arts near the beautiful Quebec City.

Over the years, she has produced a series of portraits of legendary characters from the various Star Trek series including the Montrealer & Canadian, William Shatner (Captain James T. Kirk), Nichelle Nichols (Lt. Uhura) and the late Leonard Nimoy (Mr.Spock). http://www.emiemorissette.com/EmieMorissette/Collection_Star_Trek.html

Thanks to her immense talent and charisma, Émie has had the opportunity to exhibit at numerous international events and in early 2018, the 17-year-old cryonicist will be the star of a major exhibition taking place in Paris, France.

To Boldly Go...

In November 2016, in the heart of Georgia (USA), one of her longtime dreams came true.

Émie had the opportunity to play a role in the popular fan-produced “Star Trek” web series “Star Trek Continues.” STC is a series developed by the American actor Victor Mignogna who also plays Captain James T. Kirk in the series. It features the continuing adventures of the original characters in an
The series features impressive production values and effects and does a remarkable job of re-creating the look and feel of the original series. It’s received numerous awards and is hailed as “one of the most recognized, popular fan productions ever made.” It’s definitely worth watching if you’re a fan of the original series or science fiction in general.

The connection between Star Trek and cryonics has a long history, dating back to the original series in the 60’s with a number of episodes featuring characters waking from “cryo-sleep” in the past and into the hi-tech future of the show’s fictional present. Although it wasn’t the actual cryonics process we know and practice, those depictions still had a significant impact in introducing the basic idea to millions of viewers and likely helped inspire some of today’s cryonicists.

Passionate about technological advancement and Star Trek since her childhood, Émie was able to land a role in the legendary series thanks to favorable circumstances.

Émie already knew actor & singer Victor Joseph Mignogna, writer, director and executive producer on the show, thanks to previous events in which they had both participated.

The two met again in July 2016, at the Montreal Comic Con where the Star Trek Continues creator and our CI Member discussed the show and their mutual love for Star Trek. Mignogna subsequently offered her a role in his series without hesitation.

Emie’s dad, Jonathan, who is also a CI Member, was also cast for a role in the show.

In episodes 10 and 11 of STC, the last two of the Web Series, Émie plays an ensign on the bridge of the legendary USS Enterprise.

Episodes 10 and 11 of Star Trek Continues featuring CI Member Émie can be seen right now at www.startrekcontinues.com/.

In total, the teenager spent 10 wonderful days on the set, where she had an unforgettable experience.

*Photos Courtesy - Dgina & J.Morissette*
Greetings to All Young Cryonicists,
You are receiving this invitation because you are the future of cryonics,

Enjoy this exciting and fulfilling weekend!

Who is Eligible?
Fully-Signed Up young cryonicists from all cryonics organizations in their late teens through age thirty (18-30) as of May 8, 2018 - may apply to attend.

Younger Cryonicists With Parent(s):
Thirteen through seventeen year olds may attended when accompanied by their parent(s) or guardian(s).

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

Program
Some individuals are social butterflies. This is not for everyone. And we want everyone to meet everyone.

Therefore, I have designed a diverse range of “getting to know you” activities.

IF you would enjoy participating in these various getting acquainted activities, THEN this is for you!

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

• US Airfare to/from Fort Lauderdale, FL (up to $1,000 for origin outside the U.S.)
• HOTEL accommodations for Friday & Saturday nights - plus Thursday & Sunday nights (specifically) for scholarship attendees who room together.
• MEALS and beverages on Friday night, all day Saturday & Sunday breakfast & lunch.
• REGISTRATION fee - $350 - also covered

Please click HERE for a full packet with all details and application forms.

Forever,
Cairn Erfreuliche Idun
Founder/Director: T2

PS: Come Early. Stay Late.
Some attendees to T2 enjoy spending extra time in Florida - especially since their flight is already paid for via their scholarship.

This is at their own expense for additional lodging and food

I look forward to getting to know you!
Does CI Allow Visitors?

One question that we often receive is if we allow visitors to the facility. The answer is yes, but we have rules and restrictions in place to protect our patients, members, staff, and facility.

Family members of patients who are cryopreserved are welcome to visit their loved one. We have specific visitation hours set up for family members because we understand how important it is to have a special place to visit for remembering and honoring their loved one. Our visitation hours are Monday through Thursday from 2:00 pm to 4:00 pm. Visitors must keep in mind that these hours are subject to change without notification due to patient or pet emergencies. We also ask that we kindly receive at least one month advance notice of the plans to visit, so we can confirm there are no scheduling conflicts. We cannot guarantee that the facility will be accessible to visitors who have not scheduled their visit in advance.

For family visitations, we do allow tributes, such as flowers, cards, or balloons, to be brought into the facility. We ask that visitors be respectful of the space and remember that there are other patients sharing the cryostat, so no alteration to the cryostats is allowed. For example, placing stickers or taping cards or notes to the cryostats is not permitted. If you have questions or concerns about items allowed in the facility, please contact Andy or Hillary at CIHQ@aol.com.

We also have a special Memorial Room in the facility that offers a comfortable and quiet place for family members to reflect. The Memorial Room has equipment for playing tribute slideshows. We welcome families of our patients to send in a picture of their loved one to add to our public slideshow. You may also provide a brief biography of the patient, if desired. Please note, the public slideshow could be playing on the screen when there are other visitors or media personnel in the facility, so this is not suggested for patients who have requested confidentiality. If visitors wish to display their own private remembrance photos, our display screen can also display photos or video (properly formatted) from a standard USB thumb drive. Please contact CI staff with any questions or to submit a patient photo for the public slideshow.

We also offer tours for current members or prospective members by appointment. Tour appointments are usually available Monday through Thursday from 2:00 to 4:00, but hours may vary with staff availability. Tour appointments are also subject to change without notice due to patient or pet emergencies. Tours are limited to one hour. As a safety precaution, visitors must be accompanied by staff through the duration of the tour. It is important to contact Andy or Hillary to set up an appointment, or we cannot guarantee visitors will have access to the facility. Please send an email to CIHQ@aol.com or call 1-586-791-5961 for an appointment.

For those interested in visiting the facility for media purposes, please contact CI staff. Media requests must be discussed and approved in advance. CI reserves the right to deny media requests. Reporters who reach the facility without approval and appointment will not be allowed into the facility. This is to protect CI patients, staff, and facility. CI staff will call on the local authorities for assistance if so needed.

These restrictions have been established for the safety of our members, patients, staff, and facility. CI staff has ultimate authority in allowing or denying visits.

Questions or concerns can be directed to Andy or Hillary at the CI facility or to CI President, Dennis Kowalski.
Visiting Hours For Family Members of CI Patients

Monday  2:00 pm – 4:00 pm
Tuesday  2:00 pm – 4:00 pm
Wednesday 2:00 pm – 4:00 pm
Thursday  2:00 pm – 4:00 pm

We ask that visitors kindly give us at least one month advance notice to ensure there are no scheduling conflicts. We cannot guarantee that the facility will be accessible to visitors who have not scheduled their visit in advance.

** These visiting hours are subject to change without notice due to patient or pet emergencies. **

These requirements have been established for multiple reasons, but most importantly for protecting our patients, members, and facility.

Questions regarding visitation can be directed to Andy or Hillary at CIHQ@aol.com or 1-586-791-5961

Thank you!
Although Spain’s new Sociedad Crionica wasn’t officially founded until July of 2016, its predecessor, the website Crionica.org, produced by Javier Ruiz Alvarez and Cayetano Santana Gil, was generating interest and connecting cryonicists as far back as February 2005. Over the course of the next decade, interest in cryonics both in Spain and in Spanish-speaking countries exploded, eventually outgrowing the original website. Therefore, Ruiz and Santana felt it necessary to expand from simply providing a basic website to forming a more comprehensive organization catering specifically to the needs of the cryonics communities in Spain and Latin America.

Unfortunately, Javier Ruiz was neuropreserved on February 10, 2016, so the new project was launched by Lluis Estrada, Ivan Casal (Javier’s regular collaborators) and Cayetano Santana. On July 30, 2016, the three of them founded and constituted the Sociedad Crionica. The society is registered in Spain’s National Registry of Associations, in Section 1, with the National Number 611736.

Despite starting just over a year ago, the organization is rapidly growing throughout the country of Spain, currently listing 26 members to date and growing.

In addition to the membership, Sociedad Crionica is organized into a Consultative Council composed of eight spe-
cialists in different areas, four Working Groups and several external collaborators. The four working groups are Administration and Legal, Consultancy, Communications and Creation of Stabilization Centers.

The Consultative Council is made up of doctors, specialists in biochemistry and neurophysiology, computer engineers, researchers in the field of cryopreservation, and experts in the administration of non-profit organizations.

Billing itself as the “first non-profit in Spain that offers assistance to those who benefit from the experimental science available as an alternative to irreversible death,” the society currently provides its supporters and members with educational and consultative services, and plans to provide stabilization services in the near future. According to the Society’s website, they also provide financial advice on how to pay for one’s cryopreservation, as well as legal advice on how to manage the documents necessary to prepare the preservation.

SC’s Alba Ramón Cazorla explains,

“Currently, the Sociedad Crionica offers advisory and consulting services, as well as informing and training members and supporters. The Sociedad Crionica also works to solve the legal, economic, technical and scientific difficulties related to Human Cryopreservation. The main benefit offered by the Sociedad Crionica is to have a robust structure and a quality management system, to guarantee excellence in the provision of services and longevity for an indefinite period of time. The admissions depend on the assessment of the Board of Directors of the applications received, and in order to be associated, a fee must be paid.

The Sociedad Crionica does not yet provide standby and stabilization services, but we are designing our Viability Plan to create a network of stabilization centers strategically distributed throughout Spain, Argentina and Mexico. For the elaboration of the aforementioned Plan we are, among many other things, identifying and preselecting experts in the different specialties needed, such as perfusion. Among the members of the Sociedad Crionica there are experts in the Cryopreservation of Embryos and Organs, plus Doctors, Nurses and Engineers, all with the disposition to acquire the required training to perform necessary procedures.”
As stated, a critical element of SC’s Strategic Plan for the upcoming year will be to focus on identifying and recruiting qualified persons to provide these services in their member countries. The Society plans to ensure their network offers only the most up-to-date stabilization procedures by conducting a series of continuing training sessions for the specialists who will be performing standby operations.

Cryopreservation itself is currently not regulated in Spain and Ibero-American countries, nor are there any standardized administrative procedures to carry it out from a legal standpoint. Therefore, similar to the United States and other countries, the process is carried out under the auspices of each country’s version of the "Anatomical Gift" standard, where patients have legal agreements in place to donate their bodies for scientific research.

Sociedad Crionica held its first annual event on October 14 and 15, 2017, titled “Human Cryopreservation – Future Ambulance”. The program featured presentations by neurophysiologists and computer engineers, as well as panels featuring multiple speakers including attorneys specializing in aspects of the law pertaining to the legal considerations involved with cryonics. Encouraged by good attendance and positive feedback from their initial event, the organization is moving ahead with plans to conduct more events in the future, including further education and outreach efforts.

In order to help expand their presence in other Latin American countries, SC invites existing groups or other interested parties outside of Spain to contact them to discuss the possibility of joining SC as "Delegations" or satellite groups of the main organization. Certain stipulations apply, but cryonicists are encouraged to contact SC to discuss the details and work out arrangements. Individuals with medical experience, perfusion training or other applicable skills in these countries are also encouraged to contact Sociedad Crionica.

Membership is open to anyone from Spain or Latin America, and according to their website, the cost of membership is 20 euros a month payable annually. For more information or to join, visit sociedad-cryonica.org or email info@sociedad-crionica.org. They can be found on Facebook at https://www.facebook.com/crionica.org/.

We wish Sociedad Crionica great success and look forward to following their progress!

* Thanks to Alba Ramón Cazorla for her helpfulness and patience in putting up with the author’s multiple questions in the course of writing this article.
Worst mistakes in Cryonics

#3: Keeping your cryonics plans a secret

Although some people prefer to keep their cryonics arrangements private, being reclusive, and not telling any of your family or friends about your cryonics arrangements is not recommended. The last thing you want is to introduce an unneeded element of uncertainty into your cryosuspension plans. This could certainly be the case if you unintentionally surprise close relatives or loved ones who weren’t aware of your intention to be cryopreserved when you pass. Some people do not take kindly to this type of news, especially at an extremely emotional time and could become hostile to your suspension plans – even to the point of trying to cancel your cryopreservation. Obviously, this isn’t a good situation, but sadly one we have encountered on some occasions here at CI.

The good news is this is a potential problem situation that can easily be avoided.

You should not be afraid to tell those around you about your cryosuspension wishes, especially your spouse, children and next of kin. Even if they are not enthusiastic or supportive of your plans, it is far preferable to give them time to adjust to the concept and accept your ultimate plans rather than surprising them with the news at the worst possible time.

Wearing a cryonics bracelet, necklace or having identification or other items in view can speak to your wishes. These are important steps to take for when you can’t speak for yourself, but the best preparation is to make sure those around you are informed and aware.

In an emergency

Call 1-586-791-5961 Immediately!

For more information: http://www.cryonics.org/emergency-situations/
Who will be there for YOU?

Don’t wait to make your plans. Your life may depend on it.

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

Cryonics Institute members can contract with Suspended Animation for comprehensive standby, stabilization and transport services using life insurance or other payment options.

Speak to a nurse today about how to sign up.

Call 1-949-482-2150

or email tabitha@suspendedanimationinc.com
Worldwide Cryonics Groups

AUSTRALIA: The Cryonics Association of Australasia offers support and information for Australia & nearby countries. caalist@prix.pricom.com.au. Their Public Relations Officer is Philip Rhoades. phil@pricom.com.au GPO Box 3411, Sydney, NSW 2001 Australia. Phone: +61 2 8001 6204 (office) or +61 2 99226979 (home.)

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

BHUTAN: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Thimphou & Paro. Contacts : Jamyang Palden & Tenzin Rabgay / Emails : palden002@umn.edu or jamgarnett@hotmail.co Phones : Jamyang / 975-2-32-66-50 & Tenzin / 975-2-77-21-01-87

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

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

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

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

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

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

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 & Bioster Vignesh / Email : vicky23101994@gmail.com Phones : Bioster / 918148049058 & Br Sankeerth / 917795115939
ITALY: The Italian Cryonics Group (inside the Life Extension Research Group (LIFEXT Research Group)) www.lifext.org and relative forum: forum.lifext.org. The founder is Bruno Lenzi, contact him at brunolenzi88@gmail.com or Giovanni Ranzo: giovanni1410@gmail.com

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

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

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)653213983 or email: ib@hoekstramedia.nl

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

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

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

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

SWITZERLAND: www.CryonicsSwitzerland.com or www.ria.edu/cs CRYOSUISSE The Swiss Society for Cryonics. cryosuisse.ch To join, email info@cryosuisse.ch

UNITED KINGDOM: Cryonics UK is a nonprofit UK based standby group. www.cryonics-uk.org Cryonics UK can be contacted via the following people: Tim Gibson: phone: 07905 371495, email: tim.gibson@cryonics-uk.org. Victoria Stevens: phone: 01287 669201, email: victstevens@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


HELP US STAY UP-TO-DATE!

If you live in one of the countries listed, we’d appreciate of you would please take a moment to contact the groups listed in your country to confirm their details. Also, if you know of, or are considering starting a support, standby or other cryonics-related group in your area, please send details to cryonicsnews@gmail.com.

JOIN A CRYONICS GROUP!

The Cryonics Institute encourages members to join, or form, local cryonics standby, support and social groups. If you’re interested in joining or forming a group of your own, please check upcoming issues of the CI Newsletter to learn more about CI’s new Cryonics Groups program.
Digitalization and the American workforce

In recent decades, the diffusion of digital technology into nearly every business and workplace, also known as "digitalization," has been remaking the U.S. economy and the world of work. The "digitalization of everything" has at once increased the potential of individuals, firms, and society while also contributing to a series of troublesome impacts and inequalities, such as worker pay disparities across many demographics, and the divergence of metropolitan economic outcomes.

READ THE FULL STORY AT BROOKINGS.EDU

3D Inkjet Printing of Electronics Using UV Conversion

The production of electronic circuits and devices is limited by current manufacturing methods that limit both the form and potentially the performance of these systems. Additive manufacturing (AM) is a technology that has been shown to provide cross-sectoral manufacturing industries with significant geometrical freedom. A research domain known as multifunctional AM (MFAM) in its infancy looks to couple the positive attributes of AM with application in the electronics sector can have a significant impact on the development of new products; however, there are significant hurdles to overcome.

READ THE FULL STORY AT ONLINELIBRARY.WILEY.COM

Scientists Decipher Mechanisms Underlying the Biology of Aging

Understanding the factors that control aging has been one of humanity’s endless pursuits, from the mystical fountain of youth to practical healthful regimens to prolong life expectancy.

A team of scientists at the University of California San Diego has now helped decipher the dynamics that control how our cells age, and with it implications for extending human longevity. As described in a study published in Proceedings of the National Academy of Sciences, a group led by biologist Nan Hao employed a combination of technologies in engineering, computer science and biology to analyze molecular processes that influence aging.

READ THE FULL STORY AT TECHNOLOGY.ORG

Temporal correlation detection using computational phase-change memory

We present an experimental demonstration using one million phase change memory devices organized to perform a high-level computational primitive by exploiting the crystallization dynamics. Its result is imprinted in the conductance states of the memory devices. The results of using such a computational memory for processing real-world data sets show that this co-existence of computation and storage at the nanometer scale could enable ultra-dense, low-power, and massively-parallel computing systems.

READ THE FULL STORY AT NATURE.COM
Transplantation of young blood vessel cells boosts aging stem cells

Transplanting young blood vessel cells into older mice can make their aged stem cells take on the characteristics of young stem cells, leading to healthier blood systems and promoting better recovery from cancer treatment side effects, according to new research from Weill Cornell Medicine.

Blood stem cells, also known as hematopoietic stem cells (HSCs), are located within the bone marrow and give rise to all mature blood cells in the body throughout a person’s life. As people age, their HSCs age as well, leading to greater numbers of poorly functioning blood cells, a decline in the ability to fight infections and a predisposition to blood cancers like acute myeloid leukemia (AML), which is characterized by an excess of immature blood cells.

READ THE FULL STORY AT TECHNOLOGY.ORG

Multigenerational silencing dynamics control cell aging

Aging is an inevitable consequence of living, and with it comes increased morbidity and mortality. Novel approaches to mitigating age-related chronic diseases demand a better understanding of the biology of aging. Studies in model organisms have identified many conserved molecular factors that influence aging. The emerging challenge is to understand how these factors interact and change dynamically to drive aging. Using multidisciplinary technologies, we have revealed a sirtuin-dependent intermittent pattern of chromatin silencing during yeast aging that is crucial for longevity. Our findings highlight the important role of silencing dynamics in aging, which deserves careful consideration when designing schemes to delay or reverse aging by modulating sirtuins and silencing.

READ THE FULL STORY AT PNAS.ORG

Neural Encoding and Decoding with Deep Learning for Dynamic Natural Vision

Convolutional neural network (CNN) driven by image recognition has been shown to be able to explain cortical responses to static pictures at ventral-stream areas. Here, we further showed that such CNN could reliably predict and decode functional magnetic resonance imaging data from humans watching natural movies, despite its lack of any mechanism to account for temporal dynamics or feedback processing. Using separate data, encoding and decoding models were developed and evaluated for describing the bi-directional relationships between the CNN and the brain.

READ THE FULL STORY AT ACADEMIC.OUP.COM

Scientists are paving the way to squeeze artificial intelligence into your smartphone

Artificial intelligence is a hot topic for public debates. Some see it as a threat to the human existence itself, while others tend to focus on its positive characteristics. But if we really want to take advantage of artificial intelligence technology, firstly we must make it portable. Scientists from the University of Waterloo are paving way to fitting AI technology into smartphones and industrial robots.

READ THE FULL STORY AT TECHNOLOGY.ORG
MEMBERSHIP BENEFITS

Why join the Cryonics Institute?

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.

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 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 have access to both the Cryonics Institute Newsletter and Long Life Magazine online, as well as our Facebook page, an official members-only forum (coming soon) and more.

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 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
Member Readiness Checklist

You’ve signed up for cryonics - what are the next steps?

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 you 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.

☐ Keep up to date! Read CI Magazine and follow the simple “STANDBY WORKBOOK” exercise in each issue.
Letters Welcome
One of our goals for the CI Newsletter is to provide a forum for member outreach and opinion in addition to the existing online forums. If you have comments to share, feel free to write us at cryonicsnews@gmail.com. We may introduce a letters column if response is favorable, so if you do write, please indicate if your letter is approved for publication or not.

FREE Memberships?!!
Did you know the Cryonics Institute offers FREE LIFETIME Memberships for minor children of paid Lifetime Members? Any minor children (under the age of 18) of fully-paid Lifetime Members are eligible for a permanent Lifetime Membership of their own. If you’d like to give your children the priceless gift of a second chance of life with you in the future, please contact us at 1 (586) 791-5961 and ask about Lifetime Membership Benefits.

CI Standby Kits
CI offers pre-made Standby Kits complete with all required equipment and detailed instructions. These kits are perfect for an individual or a group planning local standby support. Basic and Intermediate kits are available for sale now. To purchase a kit, please contact us at:
cihq@aol.com

CRYONICS QUESTIONS?
Need some help with your membership?
Want to understand your suspension options?
Need to fill out important cryonics paperwork?
CONTACT US!
Our team is here to help.
1-(586) 791-5961
“Man into Superman” Part 11

After immortality......comes transhumanity.
And OUR generation can be part of it.

Robert C.W. Ettinger’s

Robert C.W. Ettinger’s

“Man into Superman” Part 11

CI Reading Room
Serializing essential works on cryonics
It should be amply clear by now that the immortal superman represents not just a goal, but a way of life, a world-view only partly compatible with today's dominant ideologies. We might call this fresh outlook the new meliorism, of which the cryonics or people-freezing program is an important current element.

The old meliorism, it will be recalled, flourished in the eighteenth and nineteenth centuries; it maintained the optimistic view that indefinitely sustained progress is possible by human effort, especially through science and technology; it is the traditional American outlook. However, it focused primarily on social rather than biological change and many of its goals proved elusive in the short run. In the twentieth century the bewildering zigzags in science and the piling up of calamities produced a psychological backlash and the rise of dark and gloomy philosophies such as existentialism.

Nevertheless, I believe the meliorists were essentially correct, and wrong only in their emphases and time scales.

The new meliorism will shift the emphasis away from the herd and social change, toward the individual and biological change, and it will entail more subtlety, wariness, and scope, while retaining the basic elements of optimism and scientific orientation.

My main task has been to show that optimism is not just an accident of body chemistry, but that it has rational foundations; that is what this book is about. I now conclude the effort by laying down the cornerstone of optimism, and then briefly reviewing the history and status of cryonics.

The First Theorem of Hope

Many people, before and after Gautama and Mary Baker Eddy, have thought themselves blessed with insights worth sharing, insights which illuminate or transform life. In most cases, the "insights" are defective or even delusory, as perhaps mine also will prove to be. Nevertheless, I also have a Message of Cheer, a Word of Comfort, which seems to me to have certain elements of freshness, but in any case is worth passing on to my family and friends. In particular, I hope my children will never forget it.

Like many other messages—the Lorentz transformation equations of special relativity, for instance—this one can be expressed in a few words or symbols, but not conveyed. In order really to understand and appreciate it, one must (1) follow the derivation or proof, and (2) attend or work out numerous specific examples; otherwise the import simply does not sink in. In these few pages I hope then, to state the theorem, prove it, and flesh it out a little.

The theorem itself can be stated in many equivalent ways, of which the following is perhaps as good as any: It is always too soon for despair.

This doesn't sound like much, but stick around. It is not merely a slogan, but a theorem, and is not merely asserted, but will now be proved; then its versatility will be displayed.

As preliminary to displaying the proof, a few words are in order concerning ambiguities of language and the character of mathematical and logical proofs. On the first score, we note that uncertainties of language, or even of logical relationships, do not necessarily vitiate a statement; for example, Newton's laws of motion were at first couched in slippery language, and there are still disputes as to whether the Second Law is a definition or a discovery, but there is no question that Sir Isaac said something very important.

On the second score, we remind the reader—
admit to him—that in the last analysis “proof” is subjective; one uses certain (permissible) tactics to persuade the reader, and if be isn’t persuaded, that isn’t necessarily because the proof was wrong, just as his agreement doesn’t necessarily validate the proof. Usually, in mathematics, all competent readers will agree, but occasionally there will be a protracted wrangle. (I bypass the question whether it is possible, in principle, always to frame a proof in terms which can be verified by a computer.) I think my theorem will pass the critical tests, but perhaps not easily.

Theorem: It is always too soon for despair.

Proof: We do not know our fates.

Admittedly, this theorem will (for many people) require interpretation, and the proof, explication. First I will elaborate on the proof, with examples.

Despair is founded on the assumption that one knows his fate, or at least knows that it will be tragic. Yet in fact, no one does have such certain knowledge. Even if the world is not more mysterious than it has appeared to be, there is always a chance that one has misjudged the situation. The cavalry may be riding to the rescue and may momentarily appear over the hill; a disease may show spontaneous remission; the pistol pointed at your head may misfire, or its wielder may have a heart attack; there may be a shakeup in the administration; your own personality may suddenly improve, through a variety of causes; etc., etc. In addition, there are countless possibilities of delusion or illusion in your state of mind and estimate of the situation; it is even possible that you are dreaming.

We tend to forget the simplest and most obvious lessons. This is especially true in a state verging on despair, since this is often more a matter of mood and psychology than fact and logic. (In fact, we are in the process of proving that it is always a matter of mood and psychology, rather than logical estimate.) Despair derives not just from situations, but from our reactions to them. As a crude example, the onset of nuclear war should be the cause of despair for many—but some would rejoice, seeing not the end of the world but the beginning of God’s kingdom. New insights and radically altered viewpoints have occurred suddenly, again and again, to men great and small, and if the individual, bordering on despair, can discipline his mind to marshal the lessons of experience, he must always come to the same conclusion: hang in there a little longer, because the picture may yet change.

From a slightly different viewpoint, we need only remember that history—both personal and community history, micro- and macrohistory—is characterized, in the first instance, by largely unpredictable change. Things get better, things get worse; things look better, things look worse. Like the stock market, fortunes wax and wane. We hope, on the whole, the trend is upward; in any case, it is not monotone, and anyone who is sure the future will be no better is a fool.

(My favorite optimist is the medieval con-man who was sentenced to hang by the local king for a swindle. He begged the king for a year’s stay of execution, promising to teach the king’s horse to fly. The king grudgingly agreed, but under stringent conditions that would make the year no easy one. When another servant asked why he made such a ridiculous promise, why it wouldn’t be easier to take his medicine and get it over with rather than live with hard work, fear, and tension for another year, be shrugged. “A lot can happen in a year. Perhaps I will die of natural causes, and avoid hanging. Perhaps the king will die or be overthrown, and the new regime will be more lenient. Or—who knows?—perhaps the damned horse will even learn to fly.” Some will say, of course, that the con-man only conned himself, but that is part of the art of life.)

The above reminders are banal and trite, although none the less true and relevant. But there are other references in the proof less obvious and more closely related to modern developments. We see one example in the narrow application of cryonics: contrary to very recently prevailing opinion, clinical death is not necessarily irreversible, nor is biological death, and if you are frozen after death you may some day be rescued, rejuvenated, and transformed into a superman. Although the problems of mind and identity are still obscure, Dandridge Cole, for one, thought it not beyond hope that even people dead, buried, and rotten might still be res-
rected by a variety of scientific techniques. (26) It has also been frequently speculated that only the pattern of the personality is decisive in determining identity; this would leave always open the chance that someday, by accident or design, you might be reincarnated.

(This is not my view; see reference 45.) The crucial question is: How likely is it that some saving grace will be found, that will turn seeming doom into life and hope? Precisely here is where most people are betrayed by their narrow experience and curdled imaginations. They suppose that hypotheses at variance with orthodoxy and everyday experience are remote ones, threads too slender to support one’s hopes. Their uneducated guesses make the palpable world the dominant one, and the alternatives highly improbable—even collectively.

How wrong they are! Any single hypothesis, alternative to the prevailing world-view, may have debatable probability; but the alternatives collectively far outweigh the apparent reality. This is obvious from a reading of history.

Until relatively recent times, our knowledge of man and the universe was only a fraction of what it is now. In physical nature, nearly all the currently-known laws of physics and chemistry were beyond the veil; the workings of man’s body were almost completely mysterious, even to so simple and fundamental a fact as the circulation of the blood, while the conscious and unconscious minds were scarcely admitted as possible subjects of investigation.

Think of the surprising jolts delivered to science in the memory of living men. Near the end of the nineteenth century nuclear radiation was discovered, with the overthrow of the supposedly sacrosanct laws of conservation of matter and energy (in the forms then accepted). Shortly after, Einstein’s special relativity turned common sense topsyturvy, for example, proving false the “self-evident” proposition that two events either are simultaneous or not. (They may be simultaneous in one frame of reference, while not in another.) Later, the quantum theory seemed to admit a random factor in the world, shaking Newtonian and Laplacian determinism. In the last decade we have seen serious consideration of the idea that signals can be transmitted faster than light. (12)

Reputable scientists are working on a theory (the Everett-Wheeler-Graham theory) of multiple worlds or parallel universes, with each quantum event producing a new splitting or branching so that realms of existence proliferate in stupendous numbers. Thus another old notion of science fiction is being tentatively reduced (or expanded) to mathematics, if not yet to hardware. (36) There is no sign whatever that we are near the end of the road; some scientists conjecture that reality may consist of an infinite number of layers, each more subtle than the previous one and conferring greater powers of manipulation, so that we will learn more and more, but will never know everything.

In view of the number of surprises we have already received, and the rapidity with which they keep coming, it is only prudent to suppose that the outer darkness is far vastert han our little circle of light. The ancients considered it only remotely possible that reality was other than it seemed; but we must conclude the reverse—it is extremely improbable that our present notions of the world will stand up.

What we now see is only a small facet of the world, and our interpretation even of that facet we must assume to be dim and clumsy. We can have confidence only in this: the world is not what it appears to be. Hence there is never ground for despair, which is the complete abandonment of hope.

But is this the proper definition of despair? As a matter of psychological—as opposed to logical—reality, an extremely slim hope may be equivalent to none. Furthermore, despair may in some sense be a benefit; some may embrace despair as a way out of their troubles—give up and avoid further responsibility. It is for just these reasons that I have been at pains to show that it is not merely possible, but nearly certain, that our present outlooks will be radically altered by new discoveries. Not only will we discover new things, but startling new interpretations of old things, and we shall surely find ways to take comfort from some of them without delusion.

It is a strange irony that despair requires a kind of
arrogant self-confidence, the assurance that one knows all the important factors, while hope can stem from humility (realism), the recognition that hidden factors may still operate to save us. How fortunate then is our generation, in this also, that we have so many recent lessons in humility, on which to build our structure of hope.

None of the foregoing is new, in its individual elements; but there is some degree of novelty in the overview, in making explicit and cohesive what has heretofore been implicit and fragmented. In particular, I am not aware that there has been any formal recognition of the implications of recent lessons in the unreliability of world-views, in terms of individual outlook and behavior. No one really seems to take seriously the lessons of history outlined above; our “philosophers” are dilettantes only, who talk a good game sometimes but never play it.

Those who learn the First Theorem, and some of its many corollaries, would be advised to adopt the cryonics motto, not just as it pertains to physical death, but for all situations where one is tempted to fundamental despair: Never say die.

**Emancipations and Revolutions**

Now some loose ends need to be tied together, not through a full-dress exposition of cryonics—which was the work of another book—but by a brief review of its origin and status, including recent developments.

As of 1971 at least fourteen “dead” people have been frozen in hope of eventual rescue—i.e., restoration to active life, health, and even physical youth. The human cold-storage concept first received wide attention in 1964, and the first human was frozen in 1966; now there exist physical facilities and organizations for this purpose in a score of states and foreign countries, and many leading experts in low-temperature biology have given at least tacit approval.

Two obvious questions come to mind. (1) How is it that so radical a notion, so outrageous a proposal, so shamelessly ambitious a project has had relatively so much success so soon, so little active opposition? (2) How is it that the greatest hope of all the ages has met so much passive resistance and so little enthusiasm, especially among scientists?

The following discussion provides at least preliminary answers to both.

Cryogenics is an old word referring to low-temperature technology; cryonics is a recently coined word pertaining to human cold-storage or "cryogenic interment"—and, in a larger sense, to all of the life extension sciences. The purpose of cryogenic interment is nothing less than our emancipation from the ultimate bondage of death. (How ironic, that writers often refer to people being “freed” by death!—when in fact death is the complete, the absolute absence of freedom, since both power and will are reduced to nil.)

The emancipation from death, seen as an historical process, in some way resembles an earlier and lesser emancipation, that of the slaves in America.

Every great controversy sees people of intelligence and high principle on both sides, even though later ages may view one side as entirely in the right. For example, when the abolition of Negro slavery was a political and social controversy, the abolitionists were considered radical; they were extremists. From our standpoint in history, we regard the abolitionists as having been altogether in the right, and those who wanted to preserve slavery as completely unjustified. But for a long time the weight of prestige and the influence of many great and good individuals was all on the side of preserving slavery, or of slowly modifying it.

Every revolution, every radically new program, encounters massive resistance at first, even if only the resistance of inertia and indifference. It is well known what Semmelweis went through with regard to the use of asepsis in surgery—how important that revolution was, how slow it was in making headway, and how great was the opposition of tradition. Laymen almost always feel compelled to accept the consensus of “expert” opinion; but when there is a sharp break with tradition, and when the issue is laden with heavy emotional freight, the appeal to authority is virtually useless. The individual, whether scientist, physician, clergyman,
or layman, has the onerous duty of evaluating the evidence as best he can and deciding for himself. In the military field, by way of partial analogy, we do not blindly accept the advice of the experts on all occasions; in fact, the Commander-in-Chief of our armed forces (the President) and the second in command (the Secretary of Defense) are both civilians. They accept the responsibility of passing military judgment, and sometimes overrule the experts. Despite their lack of training and detailed knowledge, they acquire enough information about specific large issues through study and argument to consider themselves--and to be--competent to pass judgment.

To gain perspective we must also remember that, in emotional issues, much seems to hinge on subtle nuances of psychology, on shades of meaning and turns of phrase. Those who bristle at the blasphemous notion of “resurrecting the dead” may be perfectly agreeable to “saving life.” Those who are repelled by the thought of “another time around,” or “imposing themselves on the future,” may be attracted by the idea of new opportunities for adventure, growth, and service. Only an imperceptible shift may be required to transform the pessimist who sees the door of opportunity as nearly closed, into the optimist who sees it beginning to open.

This shift is occurring. The climate of opinion, as I know from frequent public contacts, is steadily improving. But the change is still too slow; the same tired misconceptions and spurious objections are hanging on much too long, and repeated efforts are necessary to put the program and issues in focus. As a prelude, for the benefit of the latecomers and the partially oriented, I will very briefly outline the history of cryonics.

**Cryonics Precursors**

Faint and distorted intimations of our thesis have been around a very long time--perhaps almost as long as man himself. Certainly the ancient Egyptians attempted to preserve the bodies of the dead with the thought of resurrection, and the astonishing thing is that they may not have been far wrong. Mummies thousands of years old sometimes show much soft tissue partially preserved, including brains. (17) Recently, scientists have suggested that it may become possible to extract the genetic information from mummified animals, including humans, and grow organisms--“twins”--of the deceased from the cultured material. While this is very far from restoring the individual himself, still it would be most impressive.

About a century ago, C. A. Stephens tidied up the Egyptian notion and wrote, “Have your own body embalmed at your death in the hope that ere many decades death will be vanquished and the resurrection be brought within scientific possibilities. (60) Benjamin Franklin had similar ideas still earlier. Stephens was over-optimistic as to the pace of progress, but the basic idea has not been proven wrong.

In the 1930’s, Neil R. Jones wrote a science-fiction story about a Professor Jameson who arranged to have his body placed in an artificial satellite for perpetual frozen storage. (Jones apparently believed, mistakenly, that the “temperature of outer space,” even at the earth’s distance from the sun, is near absolute zero.) After millions of years, however, with humanity extinct, a wandering spaceship happens by, carrying aliens of such advanced accomplishments that they are able to revive his brain and endow it with indefinitely extended life, placing it in a mechanical body. Oddly enough, Jones (and his readers) never seemed to realize that what aliens might do, we might also--someday--and that this offers hope for everyone.

Meanwhile, stories about “suspended animation” had become common, going back at least as far as Edmond About in nineteenth-century France. These usually focussed on freezing as the means of biostasis, but they seldom linked suspended animation to extended life, and they always seemed to assume freezing before clinical death, by non-lethal methods.

**The Modern Beginning**

In 1946 Jean Rostand first reported the protective effect of glycerine in freezing animal tissue, and this might be said to open the modern era of cryobiology (low-temperature biology) and put ana-biosis on a footing of more than vague hope. (41) Rostand himself made part of our thesis explicit by
predicting that one day the incurably ill would be frozen to await the time when technology would be equal to their needs. (148)

Ideas about the relativity of death were also being deepened and broadened in the first half of this century, with thousands of people revived after clinical and legal death. (119) It was becoming clear that life is a set of complex processes, and that death—the cessation of life—is not necessarily sudden, or complete, or irreversible. Rather, it is usually gradual, incomplete for a protracted period, and dependent for reversibility on the state of medical art; absolute criteria of reversibility, if they exist, are still unknown. These remarks apply, it is important to note, both to the organism and to its individual cells. In short, death may be regarded as a disease, not necessarily fatal.

Equally important, although less generally recognized, was the gradual emergence of the idea that deterioration with age may not be an inevitable consequence of living, as Bernard Strehler noted. Senile debility itself may be regarded as a disease, since it is a “deficiency relative to a desired norm,” which is Joshua Lederberg’s criterion. This disease—the most insidious of all—may one day be preventable and even curable, allowing indefinitely extended life.

Despite the complex side issues in sociology, religion, economics, law and philosophy, the basic proposition remains simple. The patient (we do not regard him as a cadaver, even if his death certificate has been signed, and even after he is glass-hard we prefer not to call him a “stiff”) should be frozen or otherwise preserved, as soon as possible after legal death, by the best available methods, even if these are “lethal” by present criteria. He will suffer, in general, six kinds of damage, due to (1) the fatal disease or injury; (2) the early stages of the dying process; (3) the crude freezing techniques (in the near future); (4) old age (since most people die old); (5) the effects of long-term storage; and (6) the effects of thawing. But deterioration in liquid nitrogen, once cooling is complete, is thought to be negligible (9) and no one will be thawed until these techniques are fully perfected, as proven by animal experimentation. (If, nevertheless, an error is made, and revival is not fully successful, he could be popped back into the freezer until our resources improve sufficiently.)

[footnote]*In 1947 I began to rediscover, integrate, clarify, extend, and develop these ideas. First publication was in a fiction story in 1948. (50) In 1960 I selected a couple of hundred names from Who’s Who in America, and tried to interest them by letter, but the very small and weak response made it clear that a convincing presentation would have to be of book length. The preliminary version of The Prospect of Immortality was privately published in 1962, and the expanded Doubleday edition in 1964. (45)

Hence, if it turns out that the first four kinds of damage are reversible—no matter how far in the future this is accomplished—the patient may one day be restored to active life and physical youth.

These ideas were beginning to stir in several minds in the early sixties, and probably occurred to many people independently. Evan Cooper also published a book in 1962 and Lawrence N. Jensen was preparing to write one. (84)

Recent Events

It is not yet time, and this is not the place, to attempt a detailed tracing of the modern history of cryonics. A partial history is available in We Froze the First Man, by Robert F. Nelson, President of the Cryonics Society of California. Let us just note here a few highlights of recent years, and the situation as of this writing.

At least fourteen people have been frozen, although only eleven of these remain frozen; history, alas, has already seen its first mother-melter. Perhaps the best-known names are Professor James H. Bedford, Marie Phelps Sweet, Steven Jay Mandell, and Mrs. Ann DeBlasio (12) There have also been persistent rumors that certain wealthy and famous people have been quietly frozen, notably Walt Disney, but so far as I know, these are false.

Non-profit organizations active in the program have a probable membership of between one and two thousand. The Cryonics Society of New York
was formed in 1965 as a result of a schism, over activism, within the Life Extension Society, headed by Evan Cooper. The leaders of C.S.N.Y. are attorney Curtis Henderson and editor Saul Kent; they, together with Bob Nelson, have in recent years been the chief sparkplugs of the Societies, and someday historians will pay adequate tribute to their qualities of leadership and determination. Anatole Dolinoff, the principal European leader, has similar qualities.

There are now about a dozen Cryonics Societies in the United States, Europe, and South America. (29) There are also many “cryonics coordinators” laying the groundwork for additional Societies. At least four of the Societies--those of France and, in the United States, New York, California, and Michigan--have physicians and morticians as members or in cooperation, and have substantial physical capability, including specially constructed equipment, e.g., mobile emergency units (special vans analogous to ambulances) and permanent storage units or cryonic suspension modules.

Led by Frederik Horn and the St. James Funeral Home (Long Island, N. Y.) and Joseph Klockgether in California, several morticians have given active cooperation; and the National Funeral Directors Association has moved, in the course of six years, from cautious hostility to cautious approval. (155) Colleges of mortuary science have repeatedly invited our speakers, as have medical colleges. The list of cooperating physicians is headed by Dr. M. Coleman Harris, first chairman of the Bay Area Cryonics Society (San Francisco).

The first permanent storage units, or cryocapsules, were made by Cryo-Care Equipment Corporation of Phoenix, Arizona, headed by E. Francis Hope and his partners. These could be described as giant dewars or thermos bottles, with an inner cylinder of aluminum or stainless steel (which does not become brittle at very low temperatures), an outer cylinder of steel, and a vacuum space between for insulation, with multiple radiation barriers of aluminized mylar. These units, varying in design, are about ten feet long, four feet in diameter, and weigh 1,000 pounds empty; a charge of liquid nitrogen lasts several months. They sold roughly for $4,000, and reportedly required $300 to $500 annually for liquid nitrogen. It was the pictures of Ed Hope’s capsules, big and solid on many magazine pages and TV screens, that began to convince the public that cryonics was more than talk.

In August 1969 the first of the large cryogenics firms entered the field when Minnesota Valley Engineering Co. produced a new unit for vertical storage. (Society members can now say we are so stubborn that when we die we not only refuse to rot, we won’t even lie down!)

Religious objection to cryonics has been minimal, with most major denominations showing no hostility to “God’s frozen people.” When Mrs. Ann DeBlasio was frozen there was a Roman Catholic funeral, with the approval of the priest and the bishop, and the capsule was consecrated by Father Saverio Mattei in a formal ceremony. In connection with Steven Mandell’s cryonic suspension there was an Orthodox Jewish ceremony. Many clergymen have written favorably. (126) Others have objections or reservations, but these seem to be mainly sociological rather than strictly theological.

There has been at least one instance of formal legal recognition: Bronson LaFollette, the Attorney General of Wisconsin, has written that in his opinion cryonic suspension is lawful in that state. (91) A committee of attorneys of the Cryonics Society of New York has prepared suggested legal documents--to be modified for the individual and the jurisdiction--intended to give reasonable assurance that the patient’s wishes will be carried out. (62) There have been several papers in legal journals. (16)

The first two storage facilities have ceased to operate, but the patients have been transferred to others that are intended to be permanent. Cryonic Interment, Inc. has two facilities on land purchased in cemeteries, one near Los Angeles and one in Butler, New Jersey. (29) Cryo-Span Corporation has a facility on Long Island. (29) CryoCrypt Corporation has purchased a small cemetery on Long Island, and built an installation there. (29)

To some extent, there persists a chicken-and-egg problem: the potential customers do not know where to buy a complete package of cryonic ser-
ices, and, therefore, cannot make the demand known; in the absence of a proven large-scale demand, the people best qualified to provide the services hesitate to enter the field. This vicious circle has been cracked at several points, but it remains true that no well-integrated and well-financed organization exists. The societies and the new firms are trying hard to remedy this.

**Advances in Research**

Meanwhile, cryobiological research has advanced somewhat in recent years, despite the scant support it receives and despite the almost total lack of full-time workers in this field. Gains are being made in the understanding of freezing damage. (89) Although supposedly knowledgeable people are repeatedly quoted in the press to the effect that we still cannot successfully freeze “even a single organ,” there have been several successes and partial successes. Ralph Hamilton and Herndon Lehr have frozen a segment of dog small intestine for a week at liquid nitrogen temperature, with full restoration of function after thawing. (66) N. Halasz and colleagues have reported the long-term survival of dog kidneys after freezing to below -50°C; and the kidney is a very complex organ with many functions. (61) More spectacular, although less unequivocal, were the results of Professor Isamu Suda and colleagues at Kobe University: the brains of several cats were frozen, one for over six months, with a fairly good corticogram—brain wave tracing—after thawing. (166) The brain is, of course, by far the most important organ, being the principal seat of the personality and memory; in fact, many physicians advocate using the encephalogram as the main indicator of life or death, so that one could make a case for saying we have already achieved suspended animation!

In fact, the Cryonics Society of Michigan in 1970—following a suggestion a couple of years earlier of Dr. M. Coleman Harris—began investigating the legal feasibility of “mercy freezing,” or freezing a terminally-ill patient before clinical death. The three main advantages are obvious: (1) the patient will be less deteriorated if the presently incurable illness is not allowed to go its full course, and therefore fully successful revival will be more probable; (2) even more important, perhaps, the freezing will take place at a selected time and place, under optimum conditions, whereas ordinarily it is extremely difficult to make an accurate prediction of the date of death, so there is usually a delay after death before the team can reach the patient; (3) suffering and expense will be reduced.

We may go to court and seek a declaratory judgment that will allow freezing before death, under carefully specified conditions, arguing that it is desirable because it improves the patient’s overall chances, and it is permissible both for this reason and because the patient—in light of Dr. Suda’s experiments—may still be “alive” after freezing. Needless to say, if the patient has official status as still living after freezing, this again offers many legal and administrative advantages, along with endless puzzles and difficulties.

(In April 1969, at the Second Annual National Cryonics Conference, at the University of Michigan, the Cryonics Societies of America presented Dr. Suda with the first cash award for outstanding research in cryobiology.)

Another important advance in research was announced at the Third National Cryonics Conference in Los Angeles, in May 1970, by Dr. Peter Gouras, referring to his own research and to work reported by Hossmann and Sato in Germany. Briefly, they have debunked the myth held almost universally by physicians and scientists, that the brain suffers “irreversible” damage after eight or ten minutes without blood and oxygen. Cryonics, of course, have always pointed out that the word “irreversible” refers to existing techniques, and that absolute criteria of irreversibility, if any, are unknown, so it is always wrong to give up. Now we have been vindicated in another important specific instance. It turns out that the mammalian brain (the work was done with cats) can stand at least an hour of total ischemia (lack of blood) at body temperature and recover completely. Apparently, previous failures resulted from inability to re-establish circulation, because of swelling in certain tissues. The remedy is extremely simple: raise the blood pressure to force the renewed circulation despite the swollen tissues. “Irreversible” indeed!

In light of these and other successes, it is clearly
time for the scientist to examine his conscience, if he has not already done so.

The Scientist’s Double Standard & Probability Theory

How is it possible that in spite of growing support and an unimpeachable logical foundation for our thesis, so many men of intelligence, good will, and expert knowledge are still cool to cryonics? The answer is manifold, since the scientist has many facets to his personality and cryonics touches on every nerve and gland; the root cause, in most cases, lies in neurosis, in irrational pathways of fear. But right now I want to look at the shortcomings of these scientists as scientists. The ugly central fact is that many of them have simply been irresponsible, making offhand statements about our program that they would never dream of making in a technical journal. There have been many public statements to the effect that if someone is frozen by present methods, the chance of revival—ever—is “negligible” or “remote” or “vanishingly small.” Well, if someone says the chance is “negligible,” that merely means that he is willing to neglect it. But if someone says the chance is “vanishingly small,” he is simply lying.

The proof is easy: ask him the simplest and most direct questions. How do you know? What is your proof? Where are your calculations? These “experts” have no answers to such questions; they can only point out, lamely, that the repair job will be exceedingly difficult—measured against their estimate of future capability. But our knowledge of the nature and extent of freezing and thawing damage is limited, and anyone who thinks he can estimate the limits of scientific capability in the indefinite future is an idiot. No one, to my knowledge, has even pretended to make such an estimate on any rational basis, let alone succeeded. This is hard for a layman to appreciate, but should be easy for a scientist.

Perhaps some of these men suffer more from ignorance than irresponsibility; maybe they know a lot about biology, but little about probability theory. Yet a little reflection should convince them that the probability of revival is not small; it is simply unknown, which is not at all the same thing.

It is possible, in principle, to make a calculation of probability for any event, past or future, repetitive or not. Yet in many cases the sequence of reference experiments—roughly corresponding to the kollektiv of von Mises—is so vaguely indicated or so limited that the uncertainties make calculation virtually useless. This is our situation with respect to the event, “future technology will allow repair of injury inflicted by present freezing methods.” We want to minimize risks and maximize chances by every means, but we cannot actually assign a number to the probability of success with even moderate confidence.

Some eminent cryobiologists have actually asked us something like this: “If you have so much faith in future technology, why bother with freezing? Why not just embalm these people, or preserve them by some other cheap method? Will they not still be eventually rescued?” Incredible, that people calling themselves scientists should seriously ask such questions! Gegen die Dummheit, selbst die Götter nicht kämpfen können. Although we cannot explicitly calculate the odds with any confidence, it is crystal clear that our chances are better with freezing than with embalming. There is evidence that, under favorable circumstances, most of the cells survive freezing; this is not true of embalming. Mammalian organs have survived freezing, but not embalming. We do not have “faith” in future technology; we simply observe the outlines of history and play the percentages, determined to give ourselves every possible advantage.

Judging a Gamble

The reluctant scientist can, and often does, take final refuge in his “feelings;” he cannot prove the chance is small, but nevertheless feels it is. The giveaway is his frequent use of the word “negligible,” which just means, as already pointed out, that he is a pessimist. There are two sore points here, both related to value judgments. First, it is clearly not cricket for the scientist, if he happens to value extended life lightly, to use his prestige as a scientist to browbeat laymen. (Harold Meryman, for example, is a cryobiologist who has deprecated the chance of revival, and who also has admitted that he hopes we do not learn how to extend life indefi-
Personal values must be kept distinct from scientific judgments of this sort. This is especially true when his professional competence is in question—and no one is competent to make confident predictions about the distant future. The appeal to authority is almost completely spurious.

Second, the deprecator can easily obscure another vital point; the worth of a gamble depends not only on the chance of success, but also on the value of success; in fact, the positive term in the “expected value” is just the product of these two numbers, the probability of success and the payoff. Even if the chance of revival and repair were minuscule— which I do not concede—the prize is so enormous, in the view of some people, that the effort would still be justified. Although there is not—I emphasize, not—a very close parallel, we can draw a partial analogy with the IrishSweepstakes.

The probability of success in the sweepstakes is very small; yet the prize, for many, is attainable in no other way. Unless they buy tickets, they feel sure of dying poor, whereas the chance of winning brightens drab lives. Hence it is not necessarily wrong to participate, even though the expected value is negative, since the positive term is less than the cost of a ticket. In the cryonics sweepstakes this is emphatically not true; the expected value may be tremendous, both in dollars and in the intangibles. An interesting sidelight is that the Irish Sweepstakes generate money for hospitals; there is a good parallel here—the cryonics program is generating money for research in cryobiology and gerontology, with potential benefit to everyone.

The Arrogance of Pessimism

So very many scientists are so very confident that this or that will “never” be accomplished. They are unaware that they are revealing childish egotism! They are saying, in effect: “I cannot imagine how this thing could be accomplished; therefore nobody, even from the vantage point of a later era, will ever be able to do so.” What sublime conceit! What historical illiteracy!

We need not agree that “anything is possible.” In fact, the things that are possible are probably of measure zero—to use mathematical jargon—compared with the things that are not possible. Just the same, every generation of scientists is surprised to find that the end is not yet. Regardless of lip service to radical change, every generation, with the exception of a few hardy souls, seems to think that all the revolutions are past, and that only minor refinements are left.

We have mentioned some of the ludicrous failures of nerve and imagination so frequent among distinguished scientists in the past, including the recent past. Even professional visionaries have been comically short-sighted. H. G. Wells, in 1902, said, “I do not think it at all probable that aeronautics will ever come into play as a serious modification of transport and communication ... Man is not an albatross.” (117) Such examples could be multiplied.

Certainly the optimists have also frequently been wrong; great expectations have often gone unfulfilled. For every successful visionary, there are probably hundreds who are not vindicated. But there is one crucial difference between the optimist and the pessimist: it only takes one success to prove the latter wrong, while any number of failures can only prove the optimist is wrong so far. When the Wright brothers took the air at Kitty Hawk, all the hundreds of previous failures to fly, all the thousands of years of negative results, in that minute became irrelevant.

In any case, the “experts” are nearly the worst people to ask about future prospects—for example, of reviving someone frozen by crude methods. They are so familiar with the difficulties, and so impressed by them, and so devoid of any present ability to cope with them, that they naturally tend to pessimism. And although there is a pleasant legend that great men tend to be humble, my experience suggests the contrary: the more exalted the expert, the more rigid he is likely to be in his insistence that what he cannot conceive, now, no one can accomplish, ever.

Two Extreme Views

Until very recently, in fact, the experts clustered near the extreme lower boundary of pessimism or conservatism, which is the recommendation that
no one be frozen until success is assured. Idiotic as it sounds, this view is actually expressed by many scientists and physicians. It means, presumably, that we must wait until someone has been frozen, stored, revived, rejuvenated and lived forever. More seriously, it means that we cannot place any reliance whatever on future advances in repair; we must assume that damage not reparable now will never be reparable. (And we must lump in thawing damage with freezing damage.) Such an attitude cannot be explained in terms of logic or biology, but only sociology or psychiatry.

The view at the opposite extreme—in which I concur—was expressed by Professor Gerald Feinberg of Columbia University: “I believe...a good first approximation for...predictions is to assume that everything will be accomplished that does not violate known fundamental laws of science, as well as many things that do violate these laws [as presently conceived].”

In other words, if something is possible in principle and if we want it enough, it will be achieved in practice, sooner or later, regardless how formidable the difficulties appear; and even if it is now thought to be impossible in principle, it may nevertheless turn out to be feasible, through changes in the “laws” or in their interpretation.

Through no coincidence, Dr. Feinberg is a member of the Cryonics Society of New York. He is also the author of a paper in the Physical Review, the world’s leading journal of research in physics, which stunned the scientific world and may revolutionize both science and industry, as previously mentioned. In this paper he showed, contrary to the previous opinion of almost every scientist, including Einstein himself, that the theory of special relativity does not necessarily preclude the existence of particles traveling faster than light in vacuo. His hypothetical “tachyons” have also been discussed in many lay periodicals.

If the existence of tachyons is verified—and university laboratories in the United States and Europe are spending substantial sums of money looking for them—there will be staggering theoretical and practical consequences; it will amount to a fourth major advance in physics, comparable to those of the Newtonian era, relativity, and quantum theory, and Professor Feinberg will take his place among the giants of history. But even if tachyons do not exist, the electrifying shock to scientists is scarcely diminished. It has been shown, once more, that things may be achieved which were thought to be not only improbable, but downright impossible. This new lesson in humility is sorely needed.

_Cryonics and Medical Ethics_

Like the scientists, most physicians remain pessimistic and noncommittal. Let us consider the ethics of their position.

Apparently tending to justify reluctance is the tradition that rejects the use of any but proven methods on human patients; and this principle fits well with the natural inclination not to exert oneself or expose oneself to criticism. This combination, in fact, dominates the thinking of most physicians (with some notable exceptions). In addition, there is a school of medical thought that recommends, in principle, against extraordinary efforts to save “useless” patients. (There was a well-publicized scandal in England a few years back about the notation “NTBR”—not to be resuscitated—on the beds of elderly patients in event of heart failure.)

Yet the vital core of the medical ethic is that the patient comes first—not society, not the family, and certainly not the physician’s convenience, but the patient—and that even heroic measures are justified in the attempt to prolong life, especially if the patient requests them. Furthermore, there is wide recognition that desperate cases justify desperate measures: unproven remedies are permissible if the patient has no other hope.

The latter viewpoint was publicized in the fall of 1967, when Dr. Christiaan Barnard appeared on American television after the first heart transplant. He had been criticized for using an insufficiently tested technique, but calmly pointed out that the patient had no other chance. If this reasoning is valid, as most seem to agree, then it applies even more forcefully to cryonics. After all, Dr. Barnard actually killed his patient, in a sense, since he cut his heart out, and the net result might have been to shorten his life, whereas the cryonics patients...
are already clinically dead and have nothing at all to lose.

Another point with a close parallel in cryonics was on the same TV program by an American participant, the celebrated surgeon Dr. C. W. Lillehei. Dr. Lillehei pointed out that Dr. Barnard’s operation gave hope to countless other heart patients, and therefore constituted a therapeutic achievement in itself, regardless of the outcome. Just so, and more so, with cryonic suspension! The patient “dies” with an extra measure of hope, and the family’s grief is mitigated; these are substantial benefits, whatever the medical sequel. This is not guesswork; we have firsthand reports that the patients, and their families, were comforted. After young Steven Mandell was frozen by the Cryonics Society of New York in July of 1968, his mother, Mrs. Pauline Mandell, said: “. . . there is so much less feeling of loss when there is a flicker of hope ... there is a light at the end of the tunnel.” (10)

Needless to say, the feeling of hope does not by itself justify unusual medical measures; if it did, every con artist and fakir could make a case for himself. But when it can be shown that the hope is rational, then the other benefits, such as stimulus to research and reduction of grief, become bonuses.

Understanding is slowly increasing, and medical participation in our program is also. The early fears of scandals and ostracism have proven empty; there has been no hysteria, and the medical and other professionals who have assisted in cryonic suspension have not suffered. But neither the growth of awareness nor the degree of awareness is adequate to the challenge, so far. The minimum moral requirement has been expressed by theologian Robert Johansen, Crozier Theological Seminary:

“Doctors and ministers who, by not at least explaining the freezer program, are actually making a decision about the lives of their followers without even consulting them. Whether or not one favors cryonic suspension, it is my belief that it should at least be made known as an option. That is to say, even a chance of success offers enough merit for close examination by all those who are honestly concerned about life.” (85)

By acquainting his patients with the opportunity, the physician is not putting himself out on any limb. After all, there is no problem of availability of a new drug, of learning an esoteric technique, or of legal permission. The physician does not have to perform any physical services, if he prefers not to; Cryonics Society personnel or associates will take over, if appropriate arrangements can be made in time. The minimum asked--and the minimum the patient has a right to expect--is that the opportunity be made known in time. In this case, silence is not golden, but perhaps the blood red of negligent homicide.

**Research and Cryonics**

There is one more foible of many scientists and physicians important enough for separate attention: the notion that we should spend our money on research, not on cryonic suspension. This is nonsense on its face, and on the record.

To begin with, as repeatedly emphasized, those now dying cannot wait for more research, but must be given the benefit of whatever chance current methods offer. Most of us, if we are in our right minds, have limited interest in abstract humanity or remote posterity; we are primarily concerned with those near us, and cannot forego their probable physical benefit and certain psychological benefit. But even on their own terms, those who complain that research should come first are wrong.

Cryonics does not divert money from research, but channels money into research, and it is the only likely source of such funds in large amounts. Those who speak of using the funds for research “instead” of cryonics are out of touch with reality: these are not the alternatives. This is scarcely even arguable; it is a matter of record. Cryobiology has always been ill-supported, and in recent years support seems actually to have dwindled, partly because of a cutback in NASA funds. And private efforts to raise research money have had very little success. In contrast, organizations growing directly out of the cryonics program have donated money to cryobiological research without the help of a single big name: these include the Cryonics Societies of America, the Harlan Lane Foundation,
and the Bedford Foundation. The sums involved have so far been very modest, but they will grow with the Societies. Note, for example, that Professor James Bedford, not a very wealthy man, left $100,000 of his estate for research in cryobiology and related areas, because he was planning cryonic suspension for himself. (10) Does it require much imagination to see how this research will fare when people are being frozen by the thousands or by the millions?

The can-rattling approach to fund-raising, and appeals to a vague and diffuse altruism, are unlikely to produce more than small change. The community will not support many "March of Dimes" campaigns. But a dynamic cryonics program will mean personal involvement and emotional commitment, and the will to apply major resources to research.

Note carefully, once more, that this is not conjecture: it is happening. I personally know many individuals in our societies who are devoting major energies to the program and making many sacrifices to assure their families' preparations. We in the cryonics societies intend to extend and systematize our efforts to support research in cryobiology, gerontology and related disciplines. The measures contemplated include a routine allocation of a percentage of all funds, and organized solicitation of foundations and individuals, as well as lobbying. (The latter activities will be important only in the short run; the program itself, once it reaches critical mass, will generate all the money the biologists can possibly absorb.) Needless to say, our efforts will depend substantially on the support we receive from the scientific community. A positive feedback is involved: cryonics and biology need each other, and to speak of either as coming "first" is nearly meaningless.

The Scientific Advisory Council

In 1968 a breakthrough was achieved in relations with the scientific community. Until then, very few scientists, especially in biological and medical disciplines, had been willing to associate themselves with us publicly, although many had given informal expressions of sympathy. But by the middle of 1968, through a protracted communications effort, I estimated that a full half of American cryobiologists had come around to a position at least of tolerance or passive approval. In forming the Scientific Advisory Council of Cryonics Societies of America, we did not insist that the members fully endorse all of our positions and programs, but that, in addition to assisting us in areas of common concern, they give formal recognition to the principle of free individual choice and to the fact that the probability of revival (after freezing by present methods) is not small but only unknown. This was done, and the Council now includes important names in cryobiological research, as well as in other areas of science and medicine. While the work of the Council will only develop slowly, as money becomes available, it is hoped that its existence and its activities will benefit all parties. The current list will be sent on request.

The latest recommended freezing procedures are available to members of the Societies, and to others at our convenience.

Among the large majority of scientists who have not been asked to join the Scientific Advisory Council, and have not volunteered, there are many who show a considerable degree of sympathy, and even in nominal opponents there is evidence of decided ambivalence. Audrey U. Smith, for example, the grand old lady of cryobiology, has often expressed disapproval--and yet she has written:

"Recently, our ideas about what is possible in human surgery have been shaken by the transplantation of hearts into patients who would otherwise have died from incurable diseases of their own hearts. Several of these patients have actually returned home and even resumed some of their activities . . . We must therefore hesitate before stating that anything is impossible . . . There is (however) little chance that a whole body frozen several hours or days after death of the animal could be revived either at the present time or at any foreseeable time in the near future...." (158)

The added emphasis in the above quotation provides an interesting contrast to the more categorical statements she makes elsewhere.

Stanley W. Jacob and Ralph D. Robertson, surgeons and cryobiologists at the University of Oregon Medical School, wrote in their excellent 1968 review article, “Now, recent successes in freeze-preservation offer a glimmer of scientific hope for negating death.” They also made explicit a point that has always been emphasized by cryonicists: “Organs frozen and thawed with present technics may not be irretrievably damaged; it is possible that the organ is lost because technics of resuscitation are inadequate. Present knowledge of the effects of shock on the microcirculation may offer fruitful clues to both the pretreatment and the resuscitation of frozen organs.” (Earlier in this chapter a similar cryonicist viewpoint concerning “irreversible brain damage due to ischemia” was shown to have already been vindicated in the laboratory.)

Finally, to cut the list arbitrarily short, there has been a degree of support from a surprising source. Professor Vladimir Alexandrovitch Negovskii is a member of the Academy of Medicine of the USSR and Director of the Experimental Physiology Laboratory for Reanimation of Organisms in Moscow; he is one of the world’s acknowledged authorities in resuscitation techniques. In August 1971 he invited and
received Anatole Dolinoff, President of the Societe Cryonics de France, and was most cordial, expressing his continuing interest in cryonics and his belief that it might work. The general opinion in Russia, according to M. Dolinoff, is that cryonics, although scientifically not impossible, may not be useful and reserved only for a few capitalists; nevertheless, Professor Negovskii promised to come in person to Paris for the formal founding--expected in 1972--of the European Cryonics Corporation. (A French municipality, Beauvoir-sur-Mer, has already donated land--or more precisely, sold it for one franc--to allow the new corporation to build a permanent storage facility.)

In short, while the scientific establishment still is not exactly warm toward cryonics, a definite thaw has occurred and continues.

The Sociology of Life Extension

Volumes could be written--and doubtless will be--about cryonics as a social phenomenon. At this point a brief summary of certain aspects may be useful.

Some of the obstacles to cryonics are obvious, the first being simple inertia of individuals and institutions. One of the charter members of the Cryonics Society of Michigan, Dr. Ronald Havelock, is a social psychologist at the University of Michigan whose specialty is the study of the dissemination and utilization of new ideas, and he doesn't know how to overcome this inertia in any quick or easy way.

Two of the more obvious and direct methods of overcoming inertia would be to incite fear or desire. But in modern circumstances few people can be moved by fear of death or of senility: not many have quit smoking, not many wear seat belts, and I know from personal experience that even in war it is often hard to make soldiers dig in--they would rather rest than improve their chances of survival.

As for the potential rewards of extended life and personal improvement, these remain, to almost everyone dim, distant, and unreal; this book is one part of the intended remedy.

Another major obstacle, touched upon in Chapter 10 and elsewhere, is the threat to value systems and ideologies implicit in an open-ended and activist outlook. In particular, a philosophy of self-interest seems to outrage every ideal based on self-sacrifice or fanaticism. Partly related to this is the unwelcome burden of total responsibility the cryonicist must accept.

These general principles are obvious enough, but certain particular conclusions may not be. For example, what kinds of people have joined the program, and why have some “obvious” candidates remained aloof?

To begin with, the surmise originally made by some--that primarily those with an abnormal fear of death would be attracted to cryonics--has emphatically been proven false. On the contrary, they tend to be bolder than average:

Curtis Henderson, the attorney who is President of the Cryonics Society of New York, flies his own plane, as does W. C. Gaines, President of the Cryonics Society of Kentucky; and Robert F. Nelson, President of the Cryonics Society of California, is a scuba diver and former prize fighter. (But they also tend to be prudent; Mr. Henderson has a blast shelter under his house, and the percentage of shelters among our members runs unusually high.)

The very elderly and the very ill are poor prospects, which surprises some people, but the reason is simple. Those who are suffering, or who have low vitality, typically are not afraid of death, but only of pain and the demands of others. They just want surcease. Young people are usually not the best material either, because their interest is mainly intellectual and they tend to have a short attention span, as well as limited financial resources. Our strength--such as it is--with some notable exceptions is in the middle-aged group, for whom the reality of death and the value of life are becoming serious questions, but who have the vigor and resources to help themselves and each other.

Very rich people apparently are not survivor types either. Alleged millionaires and billionaires are always nosing around, professing either a personal or business interest in cryonics, and we talk to them politely, if not enthusiastically; but they never seem to grasp the nettle. Many well-known personalities, including a considerable number in the entertainment business, have expressed a seemingly substantial degree of interest, only to fade out again. The reasons, I believe, are several: (1) they are too busy; with all their time already committed and pet projects coming out of their ears, they can only be caught at strategic moments; (2) they are afraid of being suckered in some way, and protect themselves with layers of advisers who, in turn, protect themselves by taking the most conservative possible view; (3) they are vain, and tend to avoid areas where leadership has apparently been preempted, or where their business and social peers are not involved.

These difficulties can be resolved, but not easily. My own policy has been to ignore the rich and eminent (and their swarms of greedy relatives) in the main. It is ironic, too, that the very character of the typical cryonicist--individualistic, nonsacrificial, nonfanatic--makes organizational success difficult. Most of the problems of the cryonics societies are
simply the problems of organization, irrespective of goal or ideology, problems shared by every business, every club, every fraternal group, every political party. Those who do the daily work, if not motivated by money, are in other organizations looking for companionship or for a focus for zealotry or rebellion. Perhaps we need more charismatic leaders. Or perhaps, on the contrary, we are fortunate to go slowly (except for those who die unfrozen), since we may be building a more solid foundation and undermining potential opposition. It is true, at least, that early warnings of swindles and hysterical stampedes have fallen completely flat, and few now seem to doubt that the movement, whether right or wrong, is at least sane and sober.

Despite the foregoing there is still some disapproval, even within the movement, of commercial activities. For example, Evan Cooper, one of the early leaders and an important contributor, abhorred commercialism and indeed hoped the program would be taken over by the United Nations. Most of us agree there is room for both nonprofit and commercial organizations, and that large-scale success will come only with profitability; after all, even physicians and pharmacists work for profit. The profitability, in my opinion, requires nothing more than any other successful business—competence and adequate capitalization. The tentative ventures to date have been grossly undercapitalized, and there has never been a professional marketing campaign.

The cryonics societies, of course, are strictly nonprofit and the major ones have federal tax-exempt status. There is one commercial avenue that could have some pitfalls: cosmetic freezing, cryogenic interment at relatively high temperatures and without special preparation, merely to preserve the appearance of the deceased in a way superior to embalming. Pitfalls or no, one firm has already entered this field; freezing with ordinary electrical refrigeration is much cheaper than with liquid nitrogen. Some people may become confused about the difference between cosmetic and prophylactic freezing, and again we may see the right things being done for the wrong reasons, or vice versa.

One of our current efforts to improve both the image and the impact of cryonics concerns a clear understanding of its scope. We are not just abominable icemen; we do not see heaven in the shape of a giant refrigerator. Someone has said: the only thing worse than growing older is not growing older. Saul Kent, Secretary of the Cryonics Society of New York, often says that the only thing worse than being frozen is to die and not be frozen. We don't want to be frozen; we are trying strenuously to avoid it. A soldier digging a trench in expectation of a bombardment would much rather be doing something else, and the foxhole is not his goal in life; in a similar way, we are obliged to focus on freezing for the present, but we have larger interests, involving all of life and its extension and improvement.

A dramatic instance of life-saving without freezing occurred in the summer of 1971, when a Canadian child of eight years was apparently dying of cancer that was destroying her second kidney. A large Montreal hospital had given up on her case and her parents were told it was hopeless. Her parents remembered a Canadian television program on cryonics, and in particular our van (mobile emergency unit) with “Cryonics Society of Michigan” on the side; they reached us by phone to arrange cryonic suspension. After discussion of then available storage facilities, the child was taken to California— but the Cryonics Society of California people did not merely wait for her to die; they had her admitted to a first-class Los Angeles hospital for reevaluation, and the prognosis was reversed. By removing her second kidney, treating remaining traces of cancer with chemicals and radiation, putting her on dialysis (kidney machine), and awaiting opportunity for a kidney transplant, she could probably be saved! At this writing she is back home, much better, an in-and-out patient at another Montreal hospital. A happy by-product of this episode was the discovery that, contrary to the current impression most people have, dialysis machines are not in short supply everywhere; in Michigan and California, for example, there is a surplus.

Perhaps this child will never have to be frozen. Within her “natural” lifetime, maybe we shall know how to retard, stop, and even undo the aging process. Dr. Johan Bjorksten, the eminent and aging gerontologist, thinks he may already have a partly-effective “youth pill,” and that it may be proved and improved in time to save him, not to mention thee and me. A few other scholars also have some optimism about the near future.

My own view, for once, is conservative: I doubt that aging will be cured within a few years or even a few decades. For this reason, and because the heavy talent and the big money have not yet moved in, I feel the Societies must continue to emphasize freezing and build the program. Even so, we also do our best to support and encourage work in other directions, especially in gerontology.

And if techniques of anabiosis or suspended animation more promising than freezing come along, we’ll be delighted to encourage those. (So far, such alternatives as freeze-drying and hibernation seem to show only the faintest promise.)
The sense of the foregoing discussion, as the reader will perceive, is that cryonics is a going concern, that success is nearly inevitable, and that its development is only a matter of time. But there’s the rub: some of us don’t have much time, and almost all of us have less than we think. This is why we find so infuriating the attitude of the typical citizen, who smiles in vague benediction, nods agreeably that science is wonderful, and mumbles something about making arrangements for himself and his family “when the process is perfected.” He is so stupefied by the institutionalization of everything that he has no sense of personal responsibility; and he has no understanding of “lead time.”

The latter concept is very easy to grasp, intellectually, but exceedingly difficult on an emotional level, somewhat as the danger of running into the street is easy for children to talk about, but requires long training—or a broken head—to appreciate. The cryonics program must be supported now, if it is to be scientifically and administratively advanced enough to maximize the chances of those dying later. We need fully-perfected freezing methods, and we need a vast network of hair-trigger emergency centers. (Eventually, it may be routine to wear an electronic pulse-watcher which will flash a coded distress signal whenever the heart falters, a little like the devices now used in the intensive-care wards of hospitals.) The methods and the network cannot bloom overnight; they must grow, bit by bit, and a later or slower start necessarily means a later maturity.

Those parents who imagine their children to be in no early danger, and think therefore cryonics has no urgency for them, are taking false comfort. Not only can death come without warning, but their chances fifty years hence may depend on actions taken now. We do not delude ourselves that the perfection of freezing methods will necessarily be easy; it is conceivable that, even with massive support, it will take another generation, although we hope not. If those dying now are to have any chance, and those dying later a maximum chance, the cryonics program must be implemented on a large scale—now!

Let us not deceive ourselves, either, that we can implement cryonic suspension on a selective basis—freeze only those who die under “good” conditions. We do not know where to draw the line, and a line-drawing attitude would effectively amount to paralysis. There must be no excuses and no exceptions. It must become habitual to freeze the “deceased,” regardless of how unfavorable the circumstances may appear. Only thus can morale be maintained, and only thus can we make rapid progress.

After all, we are at war. The ancient enemy will take ruthless advantage of every weakness, every hesitation. He will give no quarter, and allow no second chances. We must not abandon our fallen, however grievous their wounds. Each time we do our duty, we strengthen the program, and gain confidence that those on whom we rely will, in turn, do their duty by us.

Governments and institutions protect our interests with reasonable efficiency much of the time, and we tend to rely on them. But by their nature they are sluggish, slow to react to new dangers or new opportunities. Just as the frontiersman of the Old West knew that only his own vigilance, courage, strength and skill stood between his family and mortal danger, so must we recognize our individual responsibility on the cryonics frontier.

When Harry Truman was President of the United States, be kept a reminder mounted on his office wall: The Buck Stops Here. I suggest that each of us look at the faces in his family and ask himself, where does the buck stop?

... And this might seem a good stopping point. But not everyone has a functional "duty button," and there is also a low road to the high place,

Greed & Jealousy to the Rescue

We have repeatedly pointed out that the main obstacle to our becoming superhuman is not technological, but psychological; it is a problem of morale, with some unusual kinks.

Ordinary political revolutions are also problems in morale; the question is not whether an oppressed majority can take control, but whether it will rise up, and sometimes all that is needed is a spark—a leader, a slogan, a dramatic event. Once the spark is struck, the flame is maintained by zealotry—idealism, militant enthusiasm, fanaticism.

The incipient cryonics revolution is under a severe handicap, viz., its supporters tend to repudiate zealotry and avoid mobs. To substitute for zealotry and mob action, individual rationalism is probably not enough; we need some emotional incitement. Perhaps greed and jealousy will help fill the bill. (Superman will not need them, but we still do.)

The aborigine who has never head of a supermarket may be contented enough with roots, berries, and grubs. If he hears of a distant land where everybody gets fat on delicacies from the supermarket, he is still unlikely to attempt the journey. But if he hears of a supermarket being built in a nearby town, and if its delights are described in some detail, and if some of his clansmen decide actually to go there, then he may stir himself. He wants his share of the goodies, and he wants to keep up with his neighbors.
Likewise, citizens of a sleepy backwater town may be content with a very modest standard of living, and little intellectual challenge, whereas New Yorkers want more and ever more, both absolutely and relatively. The analogy is only partial, and to make it invites trite and superficial criticism; but the buttons are there, if we reach and press them.

At this point, presumably the reader is acquainted with some of the options of the immortal superman, and hopefully his appetite is whetted, his greed aroused. By now, too, he should be aware that some of us are determined to go the distance; we want it all, and intend to take it. To those who are slow on the uptake, then, we want to ask some nasty questions:

Won't you feel a fool if you are one of the last mortals to die? Won't you be ridiculous if you are one of the last humans thrown on the scrap-heap of history? Can you really settle for your worm's-eye view, your moment in a corner of the jungle, while some of us go onward and upward? Won't you be chagrined when we dance on your grave? Will you hold still for this? Will you hold still? Will you?

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Conclusion and End Notes