

ALCOR LIFE EXTENSION FOUNDATION

A Non-Profit Organization

CRYONICS

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Member Profile: Russell Cheney

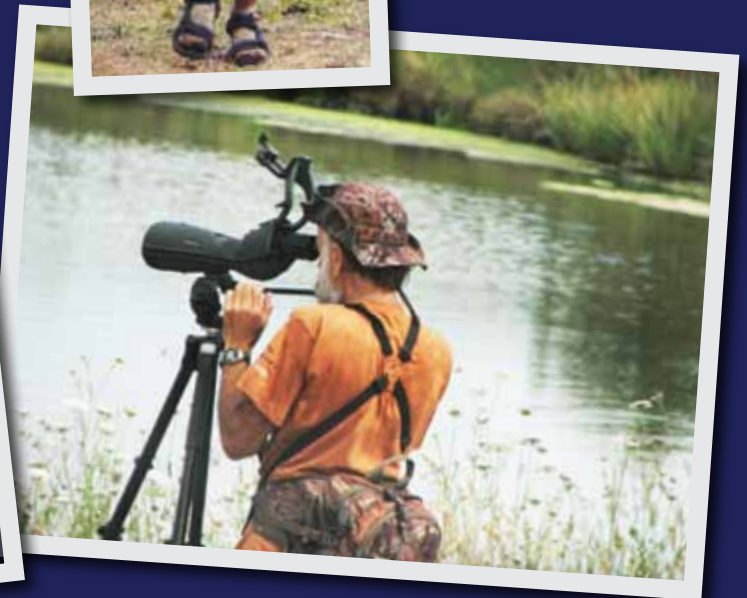
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Two Legal Cryonics Victories

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You CAN Take It With You

PAGE 38



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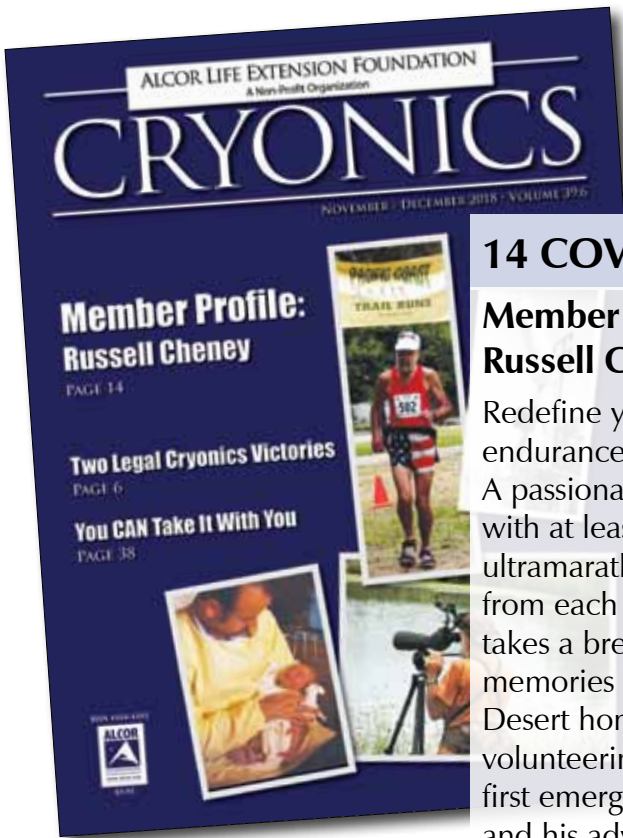
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CRYONICS



14 COVER STORY

Member Profile: Russell Cheney

Redefine your understanding of endurance with Russell Cheney. A passionate distance runner with at least one marathon and ultramarathon under his belt from each U.S. state, Russell takes a breather to share family memories from his Mojave Desert hometown, his years volunteering with one of Alcor's first emergency response teams, and his adventures roaming the country in his 24' Born Free motorhome.

6 Two Legal Cryonics Victories

The year of 2018 witnessed two legal victories for cryonics. In the United Kingdom *Cryonics UK* prevailed in litigation to maintain its charitable status. In British Columbia, Canada litigation forced a new interpretation of the law against offering cryonics services to allow well-informed individuals to contract with local cryonics providers.

38 You CAN Take It With You (and here's how)

Alcor has been collaborating to create a Multi-Investor Future Income Trust that will allow members with more modest assets to take their assets with them. Mark E. House visited the Alcor New York group to talk about what they are working on.

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CRYONICS

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LETTER TO THE EDITOR

Dear Editor,

I wanted to write a letter to enthusiastically endorse the excellent article by Max More in the Sept/Oct. *CRYONICS* issue.

Long term cryonics funding enabling one's coverage to be in place and sufficient in the later years is a non-trivial problem. But it IS a problem that has some optimal and in many cases affordable answers.

Since it has been available for cryonicists, I have encouraged my clients to utilize an INDEX Universal Life policy with a face amount of double the current Alcor minimums. This means \$440k for whole bodies, \$200k for neuros, and even more is better.

In simple straightforward language, when it comes to obtaining cryonics funding life insurance, less is not more. More is more. Extra coverage not currently needed can be directed to loved ones, charities, or an individual cryonics trust.

Overengineering your cryonics funding is THE most important thing you can do for your long term benefit. And you being around in the future is important to the Universe, so please think big and get this one right.

Thanks to Max More for making this clear and explicit.

Rudi Hoffman CFP CLU ChFC
World's Leading Cryonics Insuror

CRYONICS MAGAZINE ANNOUNCEMENT

Starting in 2019, *Cryonics* magazine will switch to a quarterly format and will continue as a more scholarly, in-depth publication. An extensive conversation between the Editor, contributors, and the Alcor Board of Directors generated a consensus that Alcor will benefit from a communication model in which time-sensitive and routine public news will be served to its members in the form of monthly email newsletters and social media, whereas the magazine will become the vehicle for more technical and scientific contributions. Features you can expect to see in the new *Cryonics* magazine include science updates, protocol developments, high-quality case reports, historical and philosophical contributions, Alcor R&D reports, and profiles of prominent scholars and scientists. — **Aschwin de Wolf** (*Chief Editor*)

EDITORIAL



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



GOOD CRYONICS IS LOCAL By Aschwin de Wolf

The enemies of a good cryonics case are time and temperature. Deployment of a standby team that can start rapid cooling upon circulatory arrest should take care of the temperature challenge. The time element is more challenging. Even if a patient is stabilized rapidly after pronouncement of legal death, logistical and legal challenges can interfere with timely transport to Alcor for subsequent procedures. For example, if a patient is rapidly cooled down in North Dakota but logistical challenges and flight schedules prevent arrival of the patient at Alcor until several days later, the patient will still be subjected to progressive deterioration of the fine structure of the brain, breakdown of the blood brain barrier, swelling, and a number of processes that prevent smooth cryoprotection of the brain, or even necessitate a "straight freeze" (cryopreservation without a cryoprotectant). How should Alcor deal with the challenge of having only one physical location in Arizona but being responsible for members all over the world?

The most obvious solution is for a terminal member to move to Alcor. In almost all cases this is the preferred solution because this prevents several potential logistical, legal, and technical challenges. The advantages of moving to Alcor are so great for both the cryonics organization

and the patient that Alcor offers up to \$10,000 in relocation assistance. To further incentivize such a choice, Alcor could consider further increasing the amount of relocation assistance and/or actively assist older and sick members to consider relocating.

Another solution is to bring all major Alcor procedures to the location of the patient. This is easier said than done. Whereas a patient relocation does not require major expenditures and logistical decisions on the part of Alcor, bringing cryoprotection to the patient is a non-trivial task because it entails performing Alcor's operating room procedures at a remote location. In practice, this can be done, and Alcor has cautiously authorized "field cryoprotection" for overseas and selected US cases. In principle field cryoprotection is possible for both neuro-patients and whole body patients but true whole body field cryoprotection would require the creation of an adequately equipped vehicle or satellite facility, not to speak of medical expertise. Recognition of the fact that many Alcor members do not relocate when terminally ill, and potential cost savings, have prompted some Alcor officials to advocate expanding field cryoprotection to more members.

Since it is obviously easier to bring a patient to a hospital than a hospital to a

patient, more effort will need to be spent in educating members of the advantages of timely relocation to the Scottsdale area.

There might be one route to bringing the hospital to the patient and that is to encourage the creation of several of "cryonics hubs" in areas with large numbers of Alcor members. Support and recognition from Alcor for such initiatives is necessary but a decentralized approach could be effective here. Local members can start with creating a cryonics infrastructure to assist professional standby teams. Such efforts can include maintaining a list of pertinent local regulations, cooperating funeral homes, local volunteers and medical professionals, and flight schedules. A more ambitious step would be to equip certain areas with a local rescue vehicle, as was done in the past in Southern California. A more ambitious step would be to equip such a vehicle for field cryoprotection or even set up such facilities in a cooperating funeral home or building. This is a formidable task that would require many hours of work and considerable expenses but it would produce a more robust response infrastructure for Alcor to utilize. It could also make some areas less vulnerable to episodes of deteriorating response capabilities at Alcor. Last but not least, bringing people together to engage in such a project will also tighten the social fabric and local visibility of cryonics. ■

CRYONICS UK WINS APPEAL TO RETAIN CHARITY STATUS

By Tim Gibson



This journey began in the summer of 2016 when Cryonics UK were approached on behalf of a teenager with terminal cancer who wished to be cryopreserved. Several obstacles stood in her way, any one of which would have stopped most people in their tracks. However, she was unusually determined and won a High Court judgement to ensure that her wishes could be followed.

The case brought immense media attention and became the lead story around the globe upon release in November 2016. Coverage was largely positive with a scattering of negativity in the gutter press. This prompted a single complaint to the charity regulator about Cryonics UK's charity status.

The Charity Commission made enquiries about Cryonics UK's finances and operations lasting almost a year, finally announcing that CUK would be removed from the charity register as the Commission did not accept that 'the promotion and facilitation of cryonics and cryopreservation' was a charitable activity.

Cryonics UK could certainly operate without being a charity and received minimal tax benefits from its charity status. However, the loss of charity status produced a negative message. It was therefore decided not to take this regulatory action lying down. The motivation was to stand up for the field of cryonics as a priority and hopefully retain CUK's individual charity registration along the way. There was always the possibility that cryonics could be deemed generally to be a charitable pursuit but that a technicality of CUK's operating model could still result in removal from the register.

An appeal against the Charity Commission's decision was filed with the court in December 2017. There followed formal exchanges of statements of each party's position and arguments, preparation of witness statements, compilation of scientific references and assessment of previous potentially relevant judgements. The intense workload continued right up to the hearing which took place over two days in July 2018.

Cryonics UK's appeal was handled by two part time volunteers. If this had been carried out by even the most basically qualified legal professionals, CUK's costs would have likely been a six figure sum and consequently prohibitive.

The obvious question that the public seem to be asking is 'How did you win?' So if you're also wondering this, here's the legal stuff:

One of the central principles that the Charity Commission relied upon was that they had not appreciated the cryonics-oriented nature of CUK's proposed activities at the time of registration, arguing that insufficient or misunderstood information had led to registration in error.

Charities are formed with particular objectives laid down in a governing document. These are commonly written in broad terms so as not to limit the scope of charitable activity in the long term. CUK's objectives are described in terms of research into organ preservation, transplantation and anti-aging. During initial submissions for the appeal, the Commission stepped up their previous argument, suggesting that the broad objectives were a deliberate misrepresentation, disguising non-charitable cryonics-centric objectives.

The flaw in the Commission's position was that they had destroyed all historic records so could only guess as to the circumstances around registration. The only contemporaneous evidence was two letters from CUK's lawyer. These referred to widely drawn objectives, freezing and storing bodies, an association with Alcor, and the submission of draft documents and a thorough explanation of proposed activities to the Commission. The judge agreed with CUK that cryonics fell within the wording of the objectives, and that the letters indicated the Commission were fully briefed and were involved in the drafting process.

At the start of the hearing, the Commission had to withdraw their argument of a deliberate misrepresentation. If their lawyer had pursued this angle in court, effectively accusing the charity trustees of fraud without any evidence, he could have faced disciplinary action for professional misconduct. The appeal judgement subsequently remarked that there was 'absolutely no evidence' to support the accusation.

The next parts of the legal puzzle are the tests for charitable status. Firstly, the objectives must fall under one or more of the charitable purposes laid down in the Charities Act. Secondly, the objectives must be for the public benefit. This second criterion requires a benefit that adequately outweighs any consequential detriment and that the benefit favours a sufficient section of the public. All criteria must be met. For example, a school for criminal skills would fall under the charitable purpose of education but would not pass the public benefit test so could not be a charity.

The Charities Act does not precisely define the above criteria but instead relies on legal precedents from individual cases to create the definitions. This principle made the case particularly interesting for both CUK and the Commission as by coming at the law with a new set of issues, the case would create influential precedent no matter what the outcome.

Cryonics UK argued that it qualified under four charitable purposes: (1) the advancement of education including the subcategory of research, (2) the advancement of health, particularly the subcategory of the relief of suffering, (3) the advancement of science, and (4) purposes analogous to existing charitable purposes.

The motivation was to stand up for the field of cryonics as a priority and hopefully retain CUK's individual charity registration along the way.

Most of CUK's time and resources are spent on providing information, emergency protocol training, legal and technical research, and development of emergency infrastructure. The Charity Commission argued that the preservation of individuals, which in its opinion was not charitable, was CUK's primary purpose. They further argued that the research, education and development were ancillary to this primary, supposedly non-charitable, purpose. However, case law had previously established that the actual use of resources dictate the primary purpose, consequently the preservation of individuals is the ancillary element. In any case, the court was not persuaded that one part of the field, the preservation of individuals, was not charitable, particularly as the Commission had accepted that cryonics research, education and development could be charitable.

The judge's decision details CUK's qualification as a charity under the advancement of education and briefly includes the relief of suffering. Once charitable status had been confirmed under the first two purposes, there was no need for the judge to decide on the remaining purposes. This was mildly disappointing from CUK's perspective as there was no case law defining the advancement of science and CUK had proposed revised criteria for charitable research by placing it in the context of science rather than education.

The Charity Commission suggested that the cost of cryonics meant that it wasn't sufficiently accessible to meet the public benefit requirement. This subject is where charity law surprises people. Third party costs such as cryonics storage fees are irrelevant as they are not charges for the provision of the charity's resources. Most of CUK's services are provided free of charge or at cost, so the only cost that is relevant is the £5,000 fixed charge for deployment of an emergency team. As mechanisms are in place to reduce this cost, such as CUK membership, life insurance or simply making concessions in appropriate circumstances, this satisfied the court that CUK's resources are accessible to a sufficient section of the public.

An extensive list of previous cases were presented for their precedent value. In particular, a New Zealand high court judgement ruled that the regulator was wrong to refuse charity registration for two cryonics research bodies. These charities and their legal team provided valuable support for CUK's appeal by supplying extensive case documentation. The UK high court judgement referred to in the first paragraph of this article provided legal authority for the lawful status of cryonics in the UK and also evidenced the relief of suffering.

Perhaps the most unexpected case law came from a dispute over a charitable gift in a will. The purpose of the gift was to search for undiscovered manuscripts attributed to William Shakespeare but written by Francis Bacon. The expert witnesses in that case advised that the search was unlikely to yield any results

but could not say it was impossible. The judge also considered the potential value of a successful outcome, citing the search for Tutankhamun as a comparable quest. The charitable gift was upheld. The Shakespeare case proved the perfect counter to the Charity Commission's position that cryonics was too speculative to be charitable research. The evidence suggested a 'credible possibility' of success for cryonics and the value of such success would clearly be huge. In CUK's appeal, the judge confirmed that CUK 'comfortably' passed the threshold for educational value in charitable research.

At the close of the hearing and in the final decision, the judge introduced the subject of protecting the interests of vulnerable people. In dealing with terminal patients and their relatives, the charity provides assistance to vulnerable people. It initially seemed that Cryonics UK was going to pick up a little criticism. However, the judge then suggested that the Commission should have considered and catered for the uncertainty faced by those vulnerable beneficiaries resulting from regulatory action against a 27 year old charity on which those people may rely.

In CUK's appeal, the judge confirmed that CUK 'comfortably' passed the threshold for educational value in charitable research.

In the concluding remarks of the judgement, the court gave particular weight to the opinions of Dr João Pedro de Magalhaes of Liverpool University and Dr Ville Salmensuu, formerly of St George's Hospital in London when reaching a decision. Cryonics UK would like to express its appreciation to the many experts, volunteers and members who provided input and support during this lengthy process. ■

A New Chapter for Cryonics *in British Columbia*

By Keegan Macintosh and Carrie Wong

In 1990, British Columbia quietly passed a law appearing to prohibit cryonics activities in the Canadian province.

In 2018, the Lifespan Society of British Columbia – with the substantial financial assistance of the Life Extension Foundation, and Alcor member Geoff Shmigelsky – reached a settlement with the province wherein the government clarified its position as not intending to investigate and prosecute responsible cryonics practices in the province.

Twenty-eight years. Twenty-eight years of uncertainty, frustration, and hard work to achieve a compromise that allows British Columbians to exercise their right to life, liberty, and security of the person, defining for themselves what constitutes a meaningful chance at surviving an otherwise permanent death.

To fully narrate the twenty-eight years would make for a very long article. For anyone interested in the earlier years, we highly recommend Ben Best's detailed description of the cryonics community's reaction to B.C.'s anti-cryonics law for the period of 1990-2006 (available at <http://cryocdn.org/law57.html>). Were it not for Ben's efforts both at gaining clarity as to why the law was passed and advocating for its removal, but also his documentation of that process, the Lifespan Society might not exist, and the present resolution for B.C. cryonics might not have been reached. I (Keegan) say this because it was Ben's chronicle that laid out the scene for me shortly after I first learned about cryonics during the summer of 2010 – between my first and second years of law school – and that ruffled my justice-minded feathers enough to try to do something about it.

In a fairly short span of time after learning about cryonics and the broader field of life extension (and devouring just about everything I could find online to read about it), I started reaching out to various people and groups I could find associated with cryonics, especially in Canada and British Columbia. The Cryonics Society of Canada, founded by Ben Best and others, was one such group. Charles Grodzicki, who had made some local media buzz by speaking out against the anti-cryonics law in 2006 was another. We connected with a small group of cryonicists in Vancouver and began meeting regularly, trying to set goals and take action, but also creating a community around life extension in Vancouver and the Lower Mainland that would hopefully take root and grow in what is usually viewed as a pretty forward-thinking place.

Mounting a challenge about an issue as fraught with bias and misunderstanding as cryonics is harder still.

By 2012, we really seemed to have something going. I had been able to get some legal research done with the help of Pro Bono Students Canada, which suggested there were indeed numerous arguments that could be made against the law's constitutionality. I had attended the 'Teens & Twenties' cryonics convention funded by the Life Extension Foundation in 2011, but couldn't attend in 2012 –

instead, another of Lifespan's founding members, Luke Cockerham went and spoke with Bill Faloon about the work we were doing in B.C. Getting the call from Bill that the Life Extension Foundation wanted to help us in our challenge is a moment I won't soon forget. The groundwork was set; the Lifespan Society of British Columbia was formally constituted in June of 2012, its mission to advocate for life extension practices underway.

Mounting a constitutional challenge is never easy. Mounting a challenge about an issue as fraught with bias and misunderstanding as cryonics is harder still. Finding a legal team with the right mix of experience, interest, and nerve took some time (...and one false start!). In 2013, Lifespan found a match in Jason Gratl, a constitutional lawyer who had represented one of the intervenors in the (ultimately successful) challenge to Canada's prohibition of physician-assisted suicide. However, as preparations continued into 2014, I came to realize that I was no longer interested in pursuing law professionally myself, and so it was time for me to move on from being Lifespan's full-time executive director in order to develop professionally in other areas (namely, education). Carrie Wong – who got involved in our community after a presentation I gave at the local university some three years prior – came on as Lifespan's executive director in spring 2014.

THE CHALLENGE BEGINS IN EARNEST

On July 14th, 2015, the Lifespan Society commenced its lawsuit challenging the constitutionality of section 14 of the

Cremation, Interment and Funeral Services Act (CIFSA). To our knowledge, British Columbia is the only jurisdiction in the world that has enacted a specific prohibition of cryonics services.

Section 14's specific wording is as follows:

14. A person must not offer for sale, or sell, an arrangement for the preservation or storage of human remains that is based on:
 - a. cryonics
 - b. irradiation, or
 - c. any other means of preservation of storage, by whatever name called, and that is offered, or sold, on the expectation of the resuscitation of human remains at a future time.

Contravention of s.14 by an individual carries a maximum sentence of \$10,000, a term of imprisonment of 12 months, or both. The maximum fine for a corporation is \$100,000.

The basis of our claim was that Lifespan and myself wished to make an arrangement for local standby response (as a backup to Alcor's comprehensive member standby) but were prevented from doing so by s.14, which we argued was a violation of my rights to life, liberty, and security of the person protected by the Canadian *Charter of Rights and Freedoms*.

The lawsuit drew a flood of media attention. Major news outlets across the country covered our challenge, including CBC, National Post, Globe and Mail, CTV, radio stations and others. Carrie and I conducted interviews and did our best to frame cryonics in a positive light. We were generally pleasantly surprised at the quality and tone of the coverage.

In its formal response to our claim later that year, the government took the position that s.14 only prohibited cryonics arrangements if the vendor stated or implied that resuscitation was "likely", or otherwise instilled in the buyer a high expectation of resuscitation in the future. While on its face, that position does not appear unreasonable, the problem was that it came with no assurance that the government couldn't simply change its interpretation of the law in the future, as

no explicit definition of "expectation" is contained within the statute. Moreover, because at this time Lifespan Society and I were only 'contemplating' entering into a cryonics arrangement, the government refused to give an opinion as to whether Lifespan's proposed activities would or would not transgress the theoretical boundary it was asserting existed. Left with this uncertainty, we felt compelled to get clarification by putting the case before a judge – so, Lifespan and I persevered to get our day in court.

Because the government was alleging there was no real 'issue' between the parties (i.e. Lifespan wasn't breaking a law, so there was nothing to argue about), we applied for an administrative hearing on the application of s.14 to Lifespan's *proposed* activities.

Were it not for Ben's efforts both at gaining clarity as to why the law was passed and advocating for its removal, but also his documentation of that process, the Lifespan Society might not exist, and the present resolution for B.C. cryonics might not have been reached.

A hearing for this pre-trial motion was set for early 2016. Lifespan was in the strange position of arguing that its proposed activities *would be* in violation of s.14, in order that the real issue of whether or not the law was unconstitutional would ever even be heard by a judge. In some ways, this made it feel like the parties were on the wrong sides of the courtroom. However, it did mean there was a second potential "win" scenario for us. If the court held that the Crown was *correct* that s.14 only prohibited cryonics arrangements with explicit or implied representations about the likelihood of resuscitation, then even

though our constitutional challenge would have been dismissed, as long as Lifespan made no such representations about its services, it and any other cryonics service providers in the province would be able to rely on the court decision as protection against potential regulatory overreach in the future.

On March 9, 2016, Carrie, myself, and Andrew McKnight (a Lifespan board member) spent the day watching our lawyer, Mr. Gratl argue our case at the Supreme Court of British Columbia. As it had done in writing, the Crown argued we had no legal conflict with the government because our situation was hypothetical – that is, we were not presently under prosecution for alleged violations of the law. The Crown's lawyer further argued that it was neither the role of the attorney general nor the court to give "legal advice" to individuals on hypothetical scenarios in order for them to gain clarity on the meaning of the law in question.

Unfortunately, despite well-articulated arguments by Mr. Gratl that the case could and should be heard without us having to expose ourselves to potential criminal liability, the judge sided with the Crown, agreeing that there was no "live" conflict between us and the government. The judge held that the issue was essentially academic, and there was no factual context upon which he could make an administrative ruling clarifying the meaning of section 14.

It was clear now the case was not going to be quickly resolved. Temporary defeat was frustrating, but we had the means to continue to our next course of action. The silver-lining in this preliminary scuffle was observing how neither the Crown nor the judge seemed inclined to characterize our proposed cryonics activities as illegal (quite the opposite, in fact) – they were merely not prepared to give us a go-ahead we could rely on.

A SECOND ATTEMPT

Reacting to the judge's findings that our case was 'academic', Lifespan took steps to build up its cryonics response capacity in order to infringe s.14 by explicitly offering a cryonics arrangement in violation of the law. We had not initially wanted to approach

the challenge this way, as it exposed us to the possibility of being charged under the offence, but we were left with little choice.

At this time, Lifespan was operating on an (unpaid) volunteer basis with a limited budget, and it needed to raise money to get cryonics equipment. The board voted to invest some of the money left from the Life Extension Foundation grant into the cryptocurrency bitcoin. Over the year that followed, the price of bitcoin doubled, so under Carrie's leadership, Lifespan sold its holdings and purchased an intermediate cryonics response kit from Cryonics Institute. This was a significant purchase and enabled Lifespan to offer basic standby response to its local members.

Our legal team (which now included Mr. Gratl's associate, Toby Rauch-Davis) then amended our original claim to include an executed agreement for cryonics services between myself and Lifespan. We filed our updated Notice of Civil Claim and awaited our day in court. Unfortunately, we were not able to get a court date until February 2018, and then when February came around, the courts were overbooked, and we were pushed back again. By this point, Carrie was eight months pregnant and simply hoping to have the matter resolved before giving birth – but the next available dates would not be until June.

However, the week before the trial was to be heard in June, the government approached our lawyers with a peace offering: a letter from Consumer Protection B.C., the regulatory body tasked with overseeing the funeral industry, and thus enforcement of s.14. The letter laid out the regulator's position that it did not view Lifespan's contract with me as being within its public interest mandate to investigate and prosecute. The letter is careful to note that a major part of the regulator's opinion in this case was based on the apparent level of knowledge and understanding that I possess about the science behind cryonics, and its prospects for success.

Interestingly, just days before our originally scheduled February hearing, I had drafted a lengthy affidavit explaining the scientific research which grounds my belief that cryonics offers a possibility of future resuscitation. In the affidavit, I explicitly

referenced several 'milestone' articles on whole-organ and brain vitrification published over the last fifteen years by Greg Fahy, Brian Wowk, Yuri Pichugin, and Robert McIntyre. I also pointed to the *Scientist's Open Letter on Cryonics*, hosted by the Institute for Evidence Based Cryonics. I think it is likely that the affidavit is what tipped the balance, prompting the government to reconsider whether it could make a principled exception, and give us something of an "advance ruling" on what we were proposing to do.

The silver-lining in this preliminary scuffle was observing how neither the Crown nor the judge seemed inclined to characterize our proposed cryonics activities as illegal...

One other important part of the regulator's position on the matter was that, for the moment, only a very small market in B.C. is interested in cryonics, and there is no evidence that it is being targeted at vulnerable persons. While that does leave the door open for the regulator to reconsider the field in the future if the cryonics market expands considerably, for the time being, it grants us some peace of mind, and a sphere within which we can establish a precedent of responsible, ethical cryonics practices.

Following both our own feelings on the matter and the recommendation of our lawyers, we decided to accept this new "comfort letter" and not pursue further legal action, since the government clearly has no interest in prosecuting Lifespan's current activities. Provided that future contracts between Lifespan and its members are under similar circumstances — that is, ensuring that they are fully apprised of and clearly understand the science informing the practice — we do not foresee regulator interference in local cryonics cases.

We are pleased with this outcome, and are happy that the province eventually took the reasonable approach of providing guidance on whether s.14 would be applied to responsible cryonics practices like those Lifespan aims to provide. We maintain that the practice of cryonics is a protected exercise of our Charter rights to life, liberty, and security of the person, but we also agree that it is a practice that can be reasonably regulated—as are both the funeral and health services industries—to ensure that is not being practiced in a way that is harmful or misleading to consumers. This is a big step forward in the ability for British Columbians to confidently enter into cryonics arrangements with both local and out-of-province cryonics service providers.

FINAL THOUGHTS, AND THANKS

It was a long time getting here, and many, many people were involved in this successful outcome – far too many to be named here. But we want very much for them all to know how much we appreciate their work and support (both moral and financial). My own special thanks go to all Lifespan's board members, past and present, and Carrie Wong, without whom the endeavour could well have collapsed under its own weight years ago. We hope this turns a new chapter for cryonics in British Columbia, and that the Lifespan Society will be able to grow into its role as an extension of existing cryonics services providers such as Alcor and the Cryonics Institute, helping ensure that British Columbians receive the immediate, high-quality standby and stabilization response all of us hope to receive if and when the day comes. ■

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

The Tenth Annual Young Cryonicists Gathering
Teens & Twenties 10 2019: Getting to Know You -
You Getting to Know Each Other

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

★★

Greetings to *ALL Young Cryonicists*,

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

All attention will be focused on:

our getting to know you and

you getting to know each other.

PLUS: an update on the latest emergency response technologies and revival strategies.

Who is Eligible?

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

Younger Cryonicists With Parent(s):

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

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

Program

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

Therefore, I have designed a diverse range of "getting to know you" activities. IF you would enjoy participating in these various getting acquainted activities, THEN this is for you.

Enjoy this exciting & fulfilling weekend.

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

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

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

<https://www.alcor.org/T2-10-2019-details.pdf>

Forever,

Cairn Erfreuliche Idun
Founder/Director: T2

PS Come Early. Stay Late.

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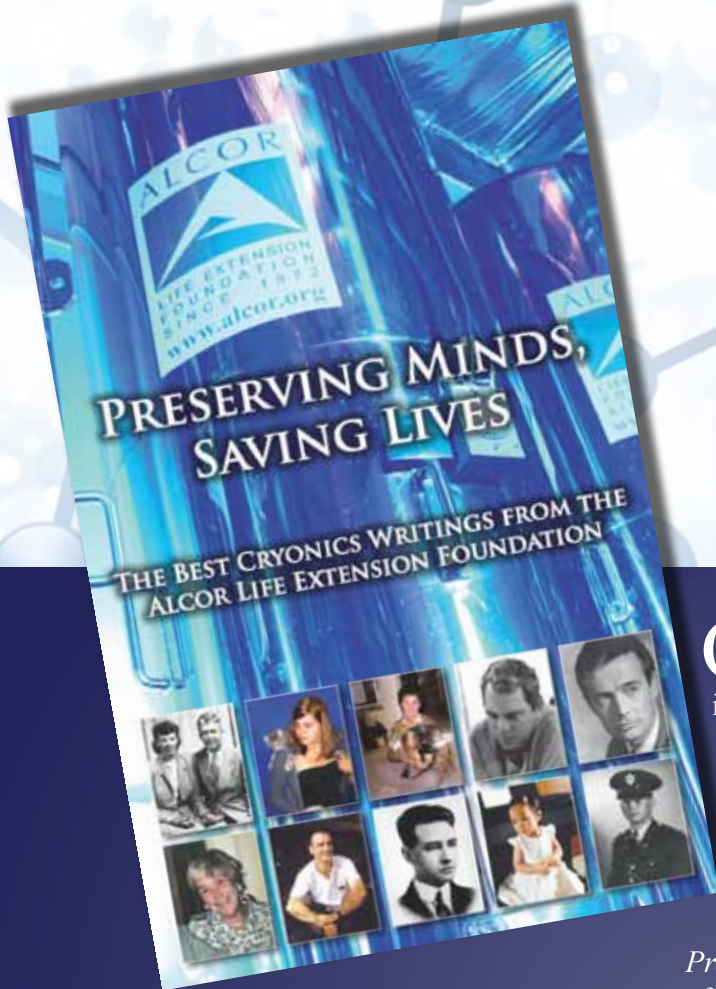
This is at their own expense for additional lodging and food.

I look forward to getting to know you.

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

Cryonics is an experimental medical procedure that uses ultra-low temperatures to put critically ill people into a state of metabolic arrest to give them access to medical advances of the future. Since its inception in the early 1960s, the practice of cryonics has moved from a theoretical concept to an evidence-based practice that uses emergency medical procedures and modern vitrification technologies to eliminate ice formation.

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

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

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

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

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

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



MEMBER PROFILE RUSSELL CHENEY

By Nicole Weinstock



Two thumbs up on the exquisite mountain trail of an ultramarathon.

“I’m a terrified driver,” he laughs, this former driving instructor and current owner-resident of a very mobile motorhome. Humorous, to be sure, he is a devoted adventurer, running geek, former gymnast, and family man. He is an Alcor member of nearly 30 years and one of just a handful of cryonicists who volunteered to support one of Alcor’s first emergency response teams. Meet Russell Cheney.

DESERT BEGINNINGS

Russell was born in Trona, a small mining town in Southern California, about three hours northeast of Los Angeles en route to Death Valley. At the time of his birth in 1941, the town was virtually owned and operated by the American Potash and Chemical Corporation (AP&CC), a large chemical manufacturer that mined raw materials from Searles Lake east of town. A dry lake bed, Searles Lake was abundant in the gray evaporite mineral trona, known for its role in the manufacture of soda ash and baking soda. Unsurprisingly, the Mojave Desert town of Trona was rather extreme in climate; however, its desert topography seeded Russell’s remarkable appreciation for nature at an early age. As of 2018, he has explored over 385 U.S. National Park Service sites.

Russell’s father, Thomas Cheney, was the superintendent of the Trona Unified School District, overseeing all things scholastic from elementary grades through high school. His wife, Eleanor Cheney,

was a full-time Mom during the Trona years, except for one summer when she and Thomas left their three kids with a nanny at a beach community so they could be travelling photographers.



The family’s teardrop trailer, boasting a small darkroom within.

They followed rodeos all over the country, creating iconic images of cowboys roping, riding and flying off their bucking horses and bulls, perfectly frozen in midair. It was a special bonding opportunity for Russell’s parents, who Russell credits for their pivotal role in nurturing their close-knit family. “They got along terrifically,” he says. “They were always the essential core of the family.”

When the Trona summers ended, the Cheneys all traded in their coastal and High Sierra views for business-as-usual back in the Mojave. Though many youngsters grow distressed at the prospect of being separated from their parents for months at a time, it wasn’t a great hardship for Russell, who was the envy of most parents. “[My Mom]

enjoyed the fact that wherever she took me she could set me down anywhere under any circumstances and I would entertain myself... I remember she used to tell me to ‘be a good boy,’ and I pondered what that meant for years and years, and finally decided that a good boy was a kid who didn’t bug their parent,” laughs Russell. His fascination with the otherwise mundane was a parental relief growing up, but would later form the basis for his cryonicism as an adult.



Eleanor, Russ, and Ken in Trona, c. mid 1940s. Photo by Thomas Cheney, professional press camera, on tripod.

When the Cheney family first moved to Trona, the school district was undergoing immense growth and change. It was the perfect time for someone like Mr. Cheney to start as superintendent. “He was very calm, very methodical, extremely intelligent, and very charismatic,” says Russell with pride. By 1948, several years into Mr. Cheney’s tenure as superintendent, district infrastructure had been established and systems were stable. The allure of problems awaiting resolution had subsided in his small town while opportunity sang sweetly from the nearby metropolis of Los Angeles. Change was imminent, as Mr. and Mrs. Cheney, Russell, his older brother Ken, and their younger sister Coni, all relocated to Los Angeles, living a year with grandparents before relocating to Eagle Rock.

DRIVING AND TUMBLING

Eagle Rock was, and still is, a neighborhood sandwiched between Pasadena and Glendale just northeast of downtown LA. It was named after a prominent rock with an eagle-shaped shadow. Though it’s become quite the hip destination over the years, it was then mostly known for being home to Occidental College, a small private liberal arts institution. Mrs. Cheney oversaw the rental of one of their Hill Drive home’s rooms to various “Oxy” students, on top of working her office job, and being Mom, while her husband managed the driving school with his two brothers.



Ken, Coni, and Russ pose at their Hill Drive in Eagle Rock, c. early 1950s

Like any small business endeavor, running the school was quite time-

intensive. “The best opportunity to see my dad was to work at the driving school,” says Russell, who joined his brother Ken in helping at the business whenever they could. It wasn’t long before Russell became a licensed instructor for students hoping to become licensed to drive standard cars as well as semi-trucks and trailers. According to his dad, he was the youngest truck driving instructor in the state of California, earning his certification at age 18.

If truck driver stereotypes are truthful in depicting a certain inattention to fitness and intellect, then Russell was quite the deviant. With the mentorship and coaching of his older brother Ken, who himself competed on the prestigious UCLA gymnastics team, Russell became quite the academic-gymnast at Eagle Rock High School. “It was really due to my brother that I was able to do gymnastics,” he admits. Russell’s best event was parallel bars, but he also competed in vault, pommel horse, and rings. Not only



Russell on parallel bars, c. 1955.

did he score the most points of anyone on his team in both his junior and senior years, but he also held the highest GPA amongst his lettered teammates.

When it came time for college, Russell tried a few different directions. “I think I ended up attending six different universities and colleges. And I had five different majors.” At one point, feeling inspired to attend his brother and father’s alma mater, he applied to the UCLA School of Engineering. He was accepted, but later concluded that the study was not for him. “It was the worst year of my life,” says Russell, who eventually settled into a B.S. in Social Sciences from California State Polytechnic University, Pomona.

Have you ever been told by someone that they could never be a cryonicist because they wouldn’t know anybody in the future? Russell experienced a similar situation when spending his junior year in France with the California State Overseas Study Program. When he arrived he knew nobody and could barely speak, read or understand a word of French. After the academic year, he spent the summer of ‘64 exploring 14 European countries with his siblings. He realized by the end that it had amounted to a great learning experience that serendipitously primed him for a cryonics journey into an unknown future.

Russell later graduated with his MBA in Operations Research and Statistics from California State University, Long Beach.

A RUNNING START

Close family was, and still is, very important to Russell. Five years after he received his MBA, he and his wife Diane gave birth to their son, Bradley, and two years later, their daughter Chrissy.

Russell stays connected to the past—and intends to do the same post-revival—through a collaborative family history project with his brother, Ken. The other thread that connects those years to now, is the simplest exercise known to man: running.

Russell is now a passionate endurance runner who has completed not just a marathon, but an ultramarathon (50K or greater), in every U.S. state, and Washington D.C.



Russ cradles his daughter Chrissy after a fast delivery on May 16, 1974.

You'd never know that he struggled to complete just a couple of pain-free miles when he first started out. Though Russell had always been enthusiastic about running for all its health benefits, he lacked much of the theory, technique, and camaraderie supporting more regular runners.

"My running was very very dependent on my son Bradley," says Russell, "because I didn't know how to get started." Bradley had joined the cross-country team at high school, coming home with helpful running tips and training approaches. Russell put this newfound knowledge to the test and was delighted by the results. "I can remember the first time I was able to run two miles without injury," he says with glee. "I was just overwhelmed. I was so thrilled. I was so happy. Two miles without being injured."

Now that Russell is more than 400 marathons into his running passion, one must inevitably wonder what his favorite among them might be. While Russell explains that there are simply too many factors—weather, organization, food, water, the course itself—to pinpoint an overall favorite, he does admit to certain races feeling more significant than others. The Los Angeles Marathon, for example,

was his very first back in 1990. The Boston Marathon, which he has run three times, was one of the most prestigious. And the 2014 Maui Marathon was the one that marked the completion of his personal goal to run at least one marathon in every state.

He anticipated that victory in advance, but Maui had another memorable milestone in store for him. The marathon,



Number 502, Russell crosses the finish line sporting running sandals, which he swears by.

which attracts notable attendance from some of Japan's best runners, took place on an especially humid and hot day. "I felt like I was under no pressure to do that particular marathon quickly," said Russell, hoping to make the best of Mother Nature, "so I didn't. I just cruised along. I enjoyed myself...I spent most of the marathon chatting with other runners from another part of the world," he laughs. Maybe it was the weather, or maybe a carefree attitude goes farther than we think, because that day he finished first in his age division. Russell says jokingly, "I've never wanted to question it too deeply for concern that there was a mistake somewhere!"

Russell recently finished an ultramarathon in Connecticut, which marked the completion of his personal goal to run an ultramarathon in every state. A man who thrives on challenge, I for one look forward to hearing about his next life goal.

THE ALCOR SOUTHERN CALIFORNIA EMERGENCY RESPONSE TEAM

Outside of running, Russell demonstrated a similar brand of endurance throughout his career. He designed and programmed large business computer application systems for 35 years. Over an 11-year period, he also taught related subjects at UCLA Extension and community college. While he was very grateful to support his family through this vocation, it was not his most deep-seated desire in the end. "That's what cryonics has been for me... I wasn't able to pursue that interest to the depth that I wanted to until I retired, which was 1995."

Russell was first introduced to cryonics in the '80s. He was researching different approaches to longevity when he decided to volunteer for research at the UCLA Medical Center. He met a Dr. Steve Harris there, who lent him Eric Drexler's *Engines of Creation*. Shortly thereafter, with the help of Carlos Mondragon, Russell finalized his decision and became an Alcor member.

Though he encountered cryonics in his 40s, Russell had long been primed for this movement. He was, as you may recall, an easygoing child by his mother's description, largely because he was so effortlessly captivated by the world around him. "To

me, the universe is a place of incredible wonders that continues to expand as human knowledge expands.” Wonder is a double-edged sword however, as many cryonicists can attest. “One of my concerns—and I can remember worrying about this when I was a little kid—was that there were so many fascinating things to do in the world that it seemed like there wasn’t enough time...That, and the fact that people had to die. Those two things just seemed very very worrisome.”

Upon retirement, an opportunity to make a significant contribution to efforts addressing that worry arose: Alcor offered members the chance to take a week-long intensive training course to assist in its local emergency response teams. Russell signed up immediately. It targeted precisely the phase of cryopreservation where he saw the greatest potential for improvement.

“There are a whole series of things that need to go right to give the best chance for an individual to be revived from cryopreservation in the future...especially the steps leading up to the individual arriving at Alcor Central in Scottsdale. Once they arrive in Scottsdale, [the patient] is in a pre-established environment,” explains Russell. This removes many of the unknowns and surprises that make the field portion of cryopreservation so challenging.

Needless to say, Russell was on cloud nine during the emergency response training, boning up on his anatomy and physiology knowledge as well as practical medical skills. What with his formal background in business operations and pedagogy, he was brimming with ideas on how to improve the class for later iterations. “I was,” he laughs, “very opinionated about how to teach things.” But the instructor, Tanya Jones, took Russell and his opinions quite seriously, and provided him with the resources to work for several days on course recommendations right there in Scottsdale.

Shortly thereafter, Russell received a call from a very intrigued Linda Chamberlain, who had taken over Tanya’s role in leading Alcor’s national emergency response capability. She came across his class recommendation materials in the process and requested a face-to-face get-together.

“That meeting to me was so...” Russell



The motorhome (left) became the Alcor Southern California Crambulance for several years.

pauses in thought. “That was like a turning point in my life...I was totally blown away by [Linda’s] enthusiastic energy, by her unbelievable intelligence, by her amazing quickness. We sat and talked for hours about my recommendation list, and it was like, every single point, she got it. She understood and she asked the penetrating questions about everything... We were building on each other’s concepts.” Linda went on to apply many of these same concepts to the development of a nationwide emergency response team of over 50 members, a feat which Russell is still proud to think on today. Linda, of course, had been involved with analogous ideas since her and Fred’s creation of Alcor in the early ’70s.

As for Russell, he volunteered with the Southern California Team for nearly eight years (six as their full-time Coordinator), participating in 30 days of standby and close to 15 cryopreservations. In the latter capacity, often with the guidance of senior staff, he stepped into the role of surgical scrub nurse, “crambulance” (the cryonics ambulance) operator, medications and CPR administrator, circulating nurse, photographer, runner, and general assistant to the team. Russell also taught

28 classes, creating and maintaining several technical manuals “with the indispensable assistance of Hugh Hixon” he so humbly notes, that covered the Thumper Heart-Lung Machine, setting IVs, the Ambu CardioPump, and DualLogR temperature recording. He also updated and rewrote Alcor’s basic team member Emergency Response Cryotransport Manual of 60-plus pages, and created the 79-page management-oriented Cryonics Regional Operations Manual.

In addition to direct services like the aforementioned, Russell also advanced the team’s efforts by providing valuable resources, like his personal motorhome, which was transformed into the immediately-accessible cramulance, his three-car garage, which became the team’s trusty equipment workshop, and his home, a frequent location of Alcor meetings and training workshop sessions.

ON BEING BORN FREE

In 2004, Russell purchased a 24’ Born Free motorhome. He has driven it through all states, with the obvious exception of Hawaii, which he managed by cruise. This mobile lifestyle helps feed Russell’s inner explorer. He has visited nearly 400 national



Scoping birds, one of Russell's favorite hobbies.

park sites in his lifetime, the bulk of them during the Born Free years. He is also a passionate birder, who has documented seeing over 680 species within the mainland U.S., and more than 105 species in Hawaii.

Being positioned to move at the drop of a hat allows Russell the opportunity to break up his marathons, ultramarathons, and nature expeditions with family visits. "I love my family," says Russell, who is now the proud grandfather of four, as well as uncle to several terrific nieces and nephews.

Contributing to cryonics is an enduring priority in Russell's life. As before, he continues to focus on ways to improve regional operations. "I very very strongly believe that it would strengthen Alcor in critical areas if everybody involved in decision-making positions at and related to Alcor was trained for and had at least a minimal level of field experience. Certainly a majority of the Alcor Board of Directors should be so experienced."

He also provides support to asset preservation projects beyond the act of cryopreservation, most currently those focused on the formation of effective trusts, and personality documentation. In his pursuit of the latter, he has researched

platforms and companies like Terasem, CyBeRev, and LifeNaut. His findings underscore the fact that there are many different methodologies and tools out there for developing and storing personal histories. Russell hopes to integrate or

create some kind of comprehensive system that addresses the storage challenges unique to cryonics.

"The problem is that for most contemporary technical people involved, storage means a month or two. Really really long term storage might be a year... That doesn't even begin to address what we think is most appropriate for cryonicists." He adds, "Maybe we could make it part of the mission of Alcor to not just have salt mines for personal information but to have very much greater, broader, deeper storage somehow available to all this personality information." ■

If you are interested in contacting Russell to discuss personality documentation, asset preservation, the wonders of running sandals, or more, he invites you to please email him at rbcheney@msn.com.



Diane, Thomas, Brad, Coni, Chrissy, and Russ in 1990.

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CRYONICS NEWSLETTERS: SOME HISTORICAL HIGHLIGHTS, PART 3, CRYONICS SOCIETY OF CALIFORNIA

By R. Michael Perry



For part 3 of our multipart series on cryonics newsletters we look at publications of the Cryonics Society of California (CSC). Here there is much less material, overall, than in the case of the Life Extension Society (LES) or the Cryonics Society of New York (CSNY). This, however, is an advantage of sorts since it will allow more in-depth focus on what we do have. (It is possible that additional newsletters beyond what is in the author's collection were issued, though it appears to be complete. But please contact me, mike@alcor.org, if you think you have any. – RMP.)

CSC was headed by Robert F. Nelson, a controversial figure. (Nelson also used his adoptive father's surname of Buccelli outside of cryonics.) A gifted talker and energetic organizer, Nelson became a hero in cryonics for staging what is usually considered the first true cryopreservation of a human for later revival, the freezing of James Bedford in January 1967. Later, however, he gained notoriety for the failure of his cryonics operation and loss of patients at its cemetery facility in Chatsworth, California. (Bedford had long before been moved to another location and is now a patient at Alcor, the only one of the patients of either CSC or CSNY whose cryopreservation continues today.) This was in the 1970s when funding for cryonics was meager, funding policies primitive, and commitments uncertain, particularly for relatives whose continuing payments were needed for maintaining the cryogenic storage of their loved ones.

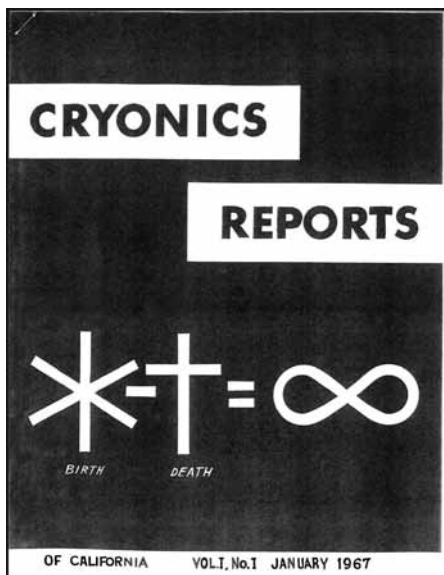
For some Nelson was a fraud and charlatan for his failures and his initial secretiveness about his operations, while others were more sympathetic and forgiving, given the circumstances. (The latter position I've come to favor, agreeing with Robert Ettinger and Nelson's close associate in later years, Kenneth Bly. Nelson, I believe, had good intentions, but also certain shortcomings which, coupled with the adverse circumstances, including the lack of funding, led to the disaster that occurred and much bitterness afterward. Much was learned from his and others' failures, and the cryonics movement is stronger now as a consequence.) In any case, we shall see that the CSC newsletter coverage, though scanty compared to that of LES and CSNY, still has much of interest, with some things left partly unsaid which can be further elaborated and clarified from outside sources.

BACKGROUND

Bob Nelson in his writings tells an engaging tale of how he first encountered cryonics.¹ The year was 1965, and he was estranged from his wife and staying with a friend in a plush California apartment complex that had a swimming pool. At poolside one day he was engaged with other young bathers of opposite gender, when the apartments manager, another young woman (was she jealous?) was holding a newspaper, telling him he ought to read this. She wouldn't go away, so Bob took the paper in hand and read about some bunch of people

who advocated freezing bodies at death to revive them someday, when techniques had advanced. *Hub?* The article went on to mention a man, Robert Ettinger, who had written a book, *The Prospect of Immortality*, which served as a kind of underpinning for the whole venture. Intrigued, Bob with some difficulty got a copy of the book, read it, and was hooked: "It is difficult to describe my reaction to Professor Ettinger's book – so much potential, so much hope was contained between the covers of this astounding book. For the first time I could see a bright light at the end of the tunnel of my existence, and the warmth of this light was very comforting indeed."

By this time Evan Cooper had established a small branch of his Life Extension Society in the area (greater Los Angeles).² In May 1966 there was a meeting at the home of Helen Kline, a warm-hearted, middle-aged cryonics activist who would soon have serious health issues. Nelson attended, met with other activists, impressed them in turn with his enthusiasm and communication skills. A few months later, Curtis Henderson and Saul Kent from CSNY were passing through, as part of their effort to help organize cryonics groups throughout the country. The upshot was to start the Cryonics Society of California as a chapter of CSNY, with Robert Nelson as president. As part of CSNY, and later a standalone, CSC was distinct from LES, whose presence continued in the area. As 1966 drew to a close, the stage was set for CSC to begin issuing its own newsletter.³



The first issue of the CSC newsletter, titled *Cryonics Reports of California*, is dated January 1967 and contains seven corner-stapled, letter-sized pages of double-column, typewritten text with even right margins, without illustrations. It appeared in December 1966 or possibly late November, since a coming event is announced for December 17. There is no mention of the freezing of James Bedford – it hadn't happened yet. It opens, however, with a rousing message by the CSC president, Nelson, which is worth quoting. (Longer quotations throughout this article are in arial typeface; editorial adjustments are in square brackets [] and roman type. I've also used very minimal editing in quotations, silently correcting misspellings or typos. – R.M.P.):⁴

A MESSAGE FROM THE PRESIDENT...

This first issue of CRYONICS REPORTS – emanating from the newly formed Cryonics Society of California – truly marks a milestone in the cryogenic interment movement. No longer a potpourri of disparate groups, we have evolved into a unified, broad-based international organization whose collective efforts will hasten the realization of cryogenic interment NOW – for those of us throughout the world with a far-seeing eye into the future.

Before proceeding to set down the objectives of Cryonics of California, it is necessary first to give credit to those gentlemen responsible for its

formation—Saul Kent and Curtis Henderson of the Cryonics Society of New York, who have given so generously of their time in touring the country and establishing not only our group, but Cryonics of Michigan and were instrumental in the formation of Cryonics of France. Working from the foundation established by them, we hope to contribute equally to the continued growth of the freezing movement.

Cryonics of California is closely associated with the Life Extension Society and all CSC members automatically become LES members upon joining. The Life Extension Society is mainly concerned with obtaining and disseminating information on cryogenic interment and has done a magnificent job in this area under its able president, Evan Cooper. The Cryonics Society will occupy itself mainly with providing facilities for freezing, the training of members in related emergency techniques, and any and all other aspects pertaining to the HERE AND NOW of cryogenic interment, including the recruitment of doctors and scientists in related fields whose knowledge and experience will serve to clarify the mechanics of freezing, and provide us with new and improved techniques through research programs—stimulated – and, where possible, provided – through the joint efforts of Cryonics Societies throughout the world and the Life Extension Society.

All CSC members are expected to enforce their own desires for cryogenic interment. As suggested by the Cryonics Society of New York, we propose that the individual sign an affidavit stating his desire to be frozen, and granting absolute control and possession of his body to whomever he feels will most effectively carry out the process of cryogenic interment; then, proceed to make his own legal, professional (i.e., consultation with the doctor of his choice), and financial arrangements, ideally, via the proceeds of a life insurance policy placed in trust. In future issues, we will offer articles by lawyers, insurance experts, estate planners

and others whose experience will provide clarification of all interrelated problems.

Although this edition of CRYONICS REPORTS is published by Cryonics of California – and is mainly concerned with reportage of those events taking place on the West Coast – we will keep readers up-to-date on the national and world-wide status of the freezing program with the publication of stimulating, provocative articles and interviews by the most eminent men in the field, as well as detailed accounts of current developments and experiments taking place—wherever they may happen to take place.

Before ending this opening message, I would like to make a suggestion: After you finish reading this issue of CRYONICS REPORTS, pass it on to a friend. Today we are a small group of pioneers whose efforts are largely ridiculed, just as the efforts of those with new and startling ideas have continually been ridiculed throughout history. But, as our numbers grow, and more and more people become involved in the freezing program, those who malign us and what we work for will no longer be able to turn a deaf ear.

Robert F. Nelson

PRESIDENT

Next in the newsletter is a report of a visit of Robert Ettinger, “the man who started it all,” November 11-14, 1966.⁵ Ettinger on his visit first spoke at UCLA to a group of graduate medical students on the related subjects of freezing and super-cooling, enthusiastically commending someone in the audience who thought Ettinger was maybe a bit overly pessimistic as “more optimistic than I am.” Ettinger during the visit also made radio and TV appearances, spoke to religious groups, and met with Dr. Dante Brunol who would direct some early freezings.

Later in the issue is a profile of Dante Brunol (actual name: Mario Dante Bruno-Lena), who was an experimental physician and biophysicist.⁶ He is mainly remembered in cryonics for devising the first protocol for cryopreserving a human being for hoped-for revival and for his role in two

of the earliest human cryopreservations, those of James Bedford (January 1967) and Marie Phelps-Sweet (August-September 1967).⁷ In the profile Brunol is compared in his dedication to Einstein. Some of his own views are then presented, quoted from a recent letter to Ettinger. Brunol starts by noting that experimentation with human subjects presents a moral issue not present with animal models, then focuses on the central issue with cryopreservation, protection of the brain.⁷

“What freezing mixtures should be used? At what temperatures? Should we use freezing mixtures of higher temperature but of insufficient protective action? Should I advise a freezing mixture that is the best according to my present judgement? Is the compression of the chest sufficient to keep the brain alive so that we could manage without freezing mixtures?”

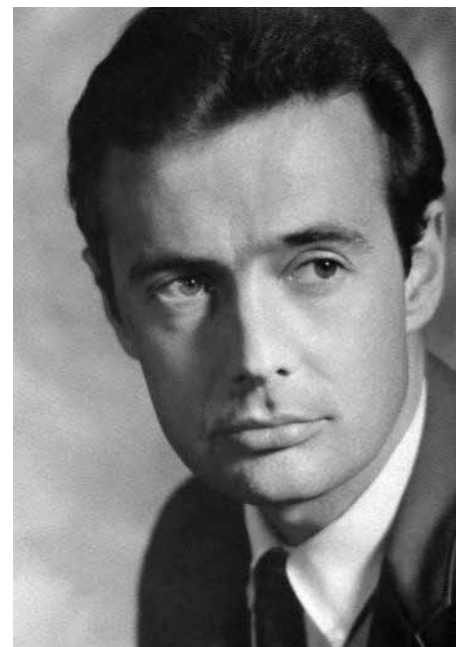
...“These are the questions which torture my brain and do not let me sleep.” [...]

The article closes with a tribute to Brunol’s dedication and a hope of future success, which would occur even without him.

Because of Dr. Brunol’s dedication – his total commitment – these questions will be answered... by him, or by others based on the results of his research and his soul-searching. Dante Brunol spends sleepless nights so that we may awaken—in the future.

Another cryonics activist of a very different sort was Dick (Richard Clair) Jones who was the corresponding secretary of CSC. Jones, under the stage name Dick Clair, would go on to a successful career in show business as a television producer, actor, and television and film writer, winning Emmy awards and becoming wealthy, though at this point he only had modest means. (His interest in cryonics would continue in spite of CSC’s later failure; today he is a patient at Alcor.) The newsletter quotes Jones answering criticisms of the cryonics idea that appeared in a *Time* magazine article, with the greater part devoted to Joseph Sittler’s fears of the deep alienation and even “destruction” of the original person that “must” accompany their return to consciousness after dormancy that may last for centuries.⁸

“To Theologian Joseph Sittler of the University of Chicago Divinity



From left, Joseph Sittler, Dick Jones. To Sittler (1904-1987) to survive to the future through such a method as cryopreservation seemed “an exalted form of madness.” Jones (1931-1988) wanted to “exist in the future” and is now cryopreserved at Alcor.

School, reanimation of human beings after years in a freezer sounds like an ‘exalted form of madness,’ based on a dangerous and ‘radically nonhistoric concept of what a human life is.’ Man, says Sittler, is a ‘profoundly historical being,’ and to extract him from his historical setting is to destroy him. Reanimation could bring living death to man, not salvation from oblivion.

“He calls it a ‘form of madness,’ but evidently he believes it possible—he thinks it ‘mad’ not because of scientific objections to freezing and thawing, but because the thawed person won’t be happy when he comes to. So the man is recommending letting people die so that they won’t have to face an unpleasant life. Isn’t this euthanasia? How does he know about the future? He says, ‘sounds like –’ To which one wants to reply: Oh, well, then, Sittler, in that case pardon me – if it doesn’t sound right to you, I’ll be glad to lie down and die. Yes, it is a ‘radically non-historic concept’ – you’re right – we’re talking about immorality, you see. Hasn’t happened before. Glad you caught that.”

Jones is rather firmly dismissive of Sittler’s claim that “to extract a man from his historical setting is to destroy him” and counters: Maybe it’ll be joyous to wake

up in the future. Maybe the future is his historical setting! Maybe he’s been prevented from being in his historical setting up to now. And why is freezing ‘extracting’ him? Yes, he may be in a coma for many years, but he still exists – he still lives, he has merely been suspended. [...] what if I want to exist in the future?

A further item of interest is an announcement of an upcoming meeting, to be held Dec. 17 as noted earlier (this helping to bracket the appearance of this issue). Robert Nelson, Dante Brunol, and Robert Prehoda were to appear.⁹

As many of you may recall, until presently Mr. Prehoda had long been considered the leader of the friendly opposition to our program. Certainly differences of opinion will always exist within the healthy climate of the scientific community, but, as the late John F. Kennedy said in his inaugural address, “Let both sides explore what problems unite us instead of belaboring those problems which divide us”... and, as one examines Prehoda’s conceptual approaches, there is much that unites us.

In all, CSC seemed off to a fine start with their new newsletter, granted that other, established cryonics-related publications, those of CSNY and LES, were of greater

length and more thorough coverage. The CSC newsletters say nothing about the freezing of Bedford, nor of the next freezing, that of Marie Phelps-Sweet, starting in August 1967, even though it too was a CSC undertaking and both happenings are well-recorded in the publications of CSNY and LES. Exactly why the organization did not herald these two important events in their own history is unclear; perhaps it was felt that the coverage of the other two organizations, with contributions from CSC, would be adequate and more would “overdo it.” In any case, the next issue of the CSC newsletter would be unique.

SECOND ISSUE



The second issue of the CSC newsletter, with title simplified slightly to *Cryonics of California*, appeared on schedule, one month after the first. An artist-signed cover shows what could be a futuristic storage center with white-clad technicians adjusting knobs and taking notes while patients under reduced metabolism (not full cryopreservation) slumber in bedlike horizontal capsules, glass-windowed for observation. Again the pages are letter-sized and upper-left corner-stapled. Apart from the cover, the newsletter consists entirely of a 17-page, single-spaced, typewritten essay by Robert Prehoda, “Reduced Metabolism: Present Research Status and Future Promise.” Prehoda, just noted, had recently changed his stance from opposition to a limited support of the cryonics program, to the extent of generously supplying his essay, actually a draft scientific article (to be expanded into a book – see below),

for in-house publication. The opening paragraph clarifies the nature and perceived importance of the topic and the intended approach:¹⁰

“Reduced Metabolism” is a collective term for all of the various means of slowing down the rate – or speed – of biological processes in cells, organs and whole animals. Life processes can be slowed by lowering the temperature, or through highly specific biochemical reactions that slow metabolic activity by chemical interference. The purpose of this report is to outline, for the intelligent reader, the present status and future promise of the various scientific disciplines and specific research investigations that collectively promise to make reduced metabolism an area of potential revolutionary impact in the next few years.

In fact Prehoda tells us the time is near when suspended animation (*reversible* placement of an organism, including human, in biostasis or a state of arrested metabolism) will be a reality, provided research is diligently pursued.

There are no theoretical barriers to achieving complete suspended animation of humans for indefinite periods of time. With sufficient emphasis and funding support, scientists should be able to achieve suspended animation sometime during the 1970s.

So soon? Prehoda elaborates some reasons for optimism. Many animals hibernate, so it should be possible to extend this capability to humans, particularly in view of some recent progress. Other scientific goals formerly thought impossible are now taken more seriously and research in these areas is massively funded, sometimes with startling successes. The space program is one example, with much progress in earth-orbiting vehicles. (This would soon culminate in a manned lunar landing, though still some two years away.) Fusion power was another promising area, with billions annually being spent by several governments, though practical success had not been achieved (nor has it yet, half a century later).

Knowledgeable scientists have always agreed that human hibernation is possible because many animals, relatively close to man from an

evolutionary standpoint, are natural hibernators. Some scientists have expressed doubt that man will be able to achieve complete suspended animation. Many of these negative evaluations were made before the publication of some recent breakthroughs (described in this report).

So what sort of “recent breakthroughs” are “described in this report” and convey such optimism that reversible suspended animation would be possible within a few years? Prehoda offers a multipage tour de force, summarizing the findings under four headings. First there is hibernation and hypothermia, in which cooling is to above-freezing temperature. Next, super-hypothermia uses cooling below freezing but still at relatively high temperature. Then there is cryobiology, in which cooling is much below freezing, to the cryogenic range (dry ice temperature and below). Finally comes chemical anabiosis, in which preservation is by chemical means rather than low temperature. While we expect this material from more than 50 years ago to be dated and “old news” by now, in fact much of it seems eerily still relevant. For we have to acknowledge that progress has not been as rapid as enthusiasts like Prehoda himself estimated. Much in the way of basic results (human hibernation, reversible biostasis, et cetera) is still to be achieved; so we can still benefit from Prehoda’s summaries and projections.

Hibernation and hypothermia.¹¹ Prehoda first reminds us that hibernation, while not true suspended animation, does at least offer a first approximation, with strong protective effects.

A lethal dose of radiation or a transplanted cancer will not kill an animal during the long months of hibernation. Only after the hibernation period will it die from the tumor or radiation.

Humans might benefit from hibernation, even if it cannot be extended indefinitely and even if brief periods of warming during the hibernation interval are necessary, as with some natural hibernators. But humans are not natural hibernators, though “animals reasonably close to man on the evolutionary tree” are. How to bridge the gap? Prehoda has a ready answer: To duplicate natural hibernation, we must thoroughly understand the combination of very

subtle balance changes in endocrine hormones, key enzyme processes, energy storage and utilization and synergistic interrelationships which permit animal hibernation. Some recent breakthroughs with chemical anabiosis (see below) should be relevant; meanwhile Prehoda is optimistic about some work of a colleague, Dale L. Carpenter, and himself, in which nonhibernating mammals were successfully recovered from below the "fibrillation point," 65-68° F, at which the heart stops beating. The method involved repeatedly cooling the animals, going to a lower temperature each time, then each time warming up to normal body temperature.

Prehoda then discusses work of Joseph W. Still who developed an intubation system based on miniaturized plastic cannulae for adding and subtracting small amounts of fluid from small mammals that were not natural hibernators. Success with artificial hibernation is not reported, but when achieved with small mammals it should serve as a stepping-stone to similar success with larger creatures, including humans.

In addition there is hypothermia:

Hibernation must not be confused with hypothermia which is the well-known medical process frequently used in surgery in which the body is artificially cooled. Moderate hypothermia, above the "fibrillation" point is accomplished with simple ice packing. To go to lower temperatures, sometimes a few degrees above freezing, the patient must be surgically connected with a machine which pumps and oxygenates the blood, completely bypassing both the heart and lungs. One problem with very deep hypothermia in humans is improper oxygenation as blood cells become sluggish moving through very fine blood vessels (capillaries) in the body. This can be overcome by removing all blood cells and substituting "synthetic blood" composed of a balanced salt solution, glucose, and other essential chemicals. Oxygen is supplied by "hyperbaric" means in which the patient and heart-lung machine are placed in a chamber where, at three times normal atmospheric pressures, there is enough oxygen dissolved in the synthetic blood to oxygenate all the tissues of the body, even at

temperatures within two or three degrees of the freezing point. Some species of Antarctic fish, called "ice fish" have naturally achieved this state. They have no red blood cells, and live out their lives at zero centigrade temperatures, apparently using hyperbaric dissolved oxygen.

Super-hypothermia.¹² Hypothermia is still at temperatures at or above freezing. But some organisms regularly endure temperatures well below this.

Some insects are able to hibernate at temperatures between ten and forty degrees below the freezing point by producing a biochemical "anti-freeze" substance, glycerol, within their cells. Some arctic fish maintain temperatures a few degrees below freezing by means of an unknown natural "anti-freeze" substance. This process of going below the freezing point without ice crystal formation is called "supercooling," and the author has proposed that extended research on synthetic blood, artificial hearts, and non-toxic antifreeze chemicals within hyperbaric pressure chambers might eventually permit a form of supercooled human hibernation (super-hypothermia) at temperatures many degrees below the normal freezing point. Such a technique should reduce oxygen and nutritional requirements to less than one two-hundredth of normal. As in natural hibernation, it might be necessary every fifty or one hundred days to raise the subject's temperature to normal in order to maintain the essential biochemical balances.

Super-hypothermia might be adapted to human use, with profound consequences.

In time, continuously improved super-hypothermia might permit life processes, including aging, to be slowed down one thousand times, a condition which is naturally achieved by some super-cooled insects. Already, dog kidneys have been supercooled using dimethyl sulfoxide (DMSO) which is presently the least toxic biological anti-freeze. These kidneys were maintained at six degrees below freezing for long periods before they were re-implanted in the dogs where they functioned normally. Super-hibernation would

be inherently a very expensive technique requiring constant monitoring and periodic changes of the synthetic life-preserving fluids. However, in time, automated patient-monitoring techniques could reduce "maintenance costs."

High pressure could be useful as an alternative to chemical cryoprotection or used in combination. Work of Soviet scientist N. I. Kalabukhov is noted, in which bats were kept alive for several days supercooled to temperatures of -5° to -7° C, without formation of ice crystals. More research is needed. Tissue culture cells supercooled through the use of DMSO, ultrahigh pressures or a combination of both lend themselves to inexpensive "proof-of-principle" experiments. Such tissue culture cell experiments should also show to what extent diffusion may present a time limitation on long term supercooling.

The section closes on a further note of optimism, offering that "it should be possible to maintain a subject in a supercooled state for periods between six months and five years." To do better than that will require lower temperatures, in other words, cryobiology.

Cryobiology.¹³ Prehoda notes steady progress, over two or three decades, in the recovery from low-temperature storage, first of single cells, then larger tissue samples and whole mammalian organs. (Exactly what temperatures are involved is not clear, but presumably well below water ice temperature.) An early discovery that frog sperm treated with glycerol could be recovered from deep, subfreezing cooling led to many more encouraging results in less than two decades, and hopes of significant clinical applications.

More generally, "cryobiology offers the tantalizing possibility of permitting man to be indefinitely preserved in a state of suspended animation at extremely low temperatures." As usual, however, much work must be done. A striking result is then cited, the Suda cat brain experiment, which directly, if tentatively, supports the cryonics hypothesis:

Professor Isamu Suda at Kobe Medical College, Ikutaku, Kobe, Japan, has reported that he has obtained a somewhat normal EEG from an isolated cat brain that was kept at a -20° C. temperature for 203

days. Suda surgically isolated the brain after carefully perfusing it with a cooled salt balanced artificial solution with an adjusted colloidal pressure. Glycerol was slowly added to the perfusion fluid so that the brain cells were protected with a 15% glycerol solution. The brain was then slowly cooled to -20°C ., and maintained at that temperature for 203 days. This brain was probably in a partially supercooled and partially frozen state, perhaps a state on a small scale that would resemble chips of ice filling an alcoholic beverage on a large scale.

Professor Suda believes that the tiny veins in the brain (the microcirculation) do not properly reopen when blood flow resumes after a circulation stoppage. This, rather than oxygen lack, may account for the extreme sensitivity of brain tissue to a temporary cessation of oxygenated blood. Suda believes that his perfusion technique keeps the microcirculation open and that this is the most important factor in the viability of brain tissue stored at -20°C .

Suda's re-warming technique should be mentioned. The brain was slowly brought to 2°C . The glycerol was washed out over a 30-minute period at that temperature, then fresh cat blood with suitable additives was perfused through the brain using a heart-lung machine. Good EEG's were obtained at temperatures between 30°C . and 36°C . Suda is the first scientist to attempt to maintain a complete mammalian brain at significantly low temperatures.

If his experiment can be successfully repeated, it will provide strong evidence that animals can be supercooled for long periods. Modifications of Suda's experiment may show us how to successfully freeze and revive mammalian brains. The next step would be supercooling of entire animals followed by experiments attempting to successfully freeze and revive large mammals. Suda's perfusion technique should be very carefully studied as it is likely to confer protection in whole animal perfusion.

Though Suda deserves much credit for his work, Dr. Audrey Smith has made

many of the most important advances in cryobiology. She has observed that "some simple new idea may be all that is now needed to insure the full recovery and completion of a normal life span by mammals which have been... frozen... with deep body temperatures below zero." Therefore, it is important that a search be made by clever scientists for new approaches to the protection of cells and organs during freezing, low temperature storage, and thawing.

A major problem, particularly with a large organism such as a human, is that cooling should be rapid to minimize any deterioration or other complications. Audrey Smith thought about this problem, which might be amenable to a special perfusion protocol; funding would be needed for experiments. Prehoda then offers some prescient thoughts on how the desired goal of tissue vitrification might be achieved using perfusates that remain liquid well below water ice temperature.

The ideal cryobiological perfusate would be primarily composed of a liquid that would not penetrate the cells and would have a very low freezing point allowing perfusion to be continued until all intra-cellular water is in a vitrified state (which will require a suitable intra-cellular content of DMSO, glycerol or some comparable substance offering protection against freezing damage). At the present time, there are two classes of chemical candidates that meet the theoretical qualifications. They are: 1) Silicone oils and, 2) liquid fluorocarbon compounds. There are actually a number of different silicone and fluorocarbon compounds which may be suitable. They all must be tested for possible toxic effects.

Other prescient thoughts concern the idea of liquid ventilation for more rapid cooling of the subject (animal or human) in the early stages of cryoprotective perfusion. Otherwise oxygenation of the tissues, desirable to protect against deterioration, typically occurs through air or other gaseous breathing mixture administered by chest compressions that induce artificial breathing. Prehoda describes some experiments with mice and cats showing the viability of some versions of liquid ventilation (using fluorocarbon rather than silicone compounds) and suggests some

directions for research.

Other possibilities are discussed, including use of xenon gas dissolved in an aqueous solution to modify ice crystal formation during freezing and further reduce tissue damage. The section closes on another optimistic note, quoting from Dr. Richard C. Lillehei, who worked with dog kidneys, that, with properly funded research programs, we can achieve the freezing and thawing of experimental animals before the present decade is over. Then it is, of course, just a short step to humans.

Chemical Anabiosis.¹⁴ There is an alternative to suspended animation through cryogenic means: to instead use chemical means. Speculation on this concept began in Czarist Russia in 1912 when biologist P. Bakhmetyev coined the word "anabiosis". A form of chemical anabiosis appears to exist in nature. Normally life processes are most active during embryonic development, but at normal temperatures during the embryonic development of certain species of fish, all biological functions are almost brought to a complete standstill for periods up to one year. This is not hibernation because it happens at normal body temperatures.

There has been serious speculation among scientists that biological processes can be brought to a standstill by injecting chemicals called "anti-metabolites" into the bloodstream of mammals. Anti-metabolites are compounds which stop special (but not all) biochemical reactions within the living cell. If an optimum mixture of anti-metabolites could be found, it would be possible to stop or greatly slow down many of the chemical activities which are involved in the aging process. Recent experiments (not yet completed) indicate that oxygen utilization in blood could be stopped by anti-metabolites and then started again by appropriate antidotes, without injury to the animals involved. Probably several types of anti-metabolites would be required to reduce all the major activities pertinent to aging in cells, including anaerobic reactions using carbon dioxide in place of oxygen.

A natural approximation of anabiosis has attracted some notice. Lung-fish

inhabiting African marshes survive long, dry summers by “aestivating.” This is a form of natural reduced metabolism, similar to hibernation but there is no drop in body temperature. Large African lung-fish secrete a gelatinous material which becomes a hardened cocoon. Their metabolic rate falls to 15% of normal, a state they can maintain for almost two years in the tropics. It is obvious that metabolism is suppressed chemically, not by temperature.

Prehoda notes some research in which rats injected with extracts from African lungfish experienced a 30-40% reduction in oxygen uptake and CO₂ production, with only a slight decrease in body temperature. Great promise is seen in this apparent breakthrough, in combination with other research, a starting point being to further determine the properties of the anti-metabolic agent or agents responsible.

Once the molecular structure of these substances is identified, then changes in the molecular structure might permit even more significant metabolic reduction than found in nature. These biochemicals would be extremely useful in many fields of biomedical investigation including research in cancer, shock, fatigue, sleep, and the aging process. Such anti-metabolites could revolutionize the clinical treatment of high fever, trauma, heart failure, infection and cerebral vascular accidents. These would be benefits in addition to permitting a form of human hibernation. Collectively they justify a significant research effort.

An additional benefit could be to reduce freezing damage for cryogenically cooled tissues, organs or organisms. If some biological damage is caused by ice crystals acting as catalysts when in physical contact with enzymes, natural or synthetic anti-metabolites may prevent the enzymes from being active in an environment of small growing ice crystals. Anti-metabolites may prevent other causes of freezing damage. In fact, anti-metabolites, used in association with cryobiological protective agents such as DMSO may prevent all causes of biological freezing damage except possible physical damage resulting from the

expansion of small ice crystals during the phase change from liquid to solid.

In fact there is an interdependence of all reduced metabolism research so that anti-metabolites may be the key to chemical anabiosis without freezing, and they may also be necessary in suspended animation at cryogenic temperatures. Success will require an “across the board” acceleration of all research activities that have a direct or indirect relationship to metabolic phenomena in animals.

Some possibilities for chemical anabiosis using super-hibernation techniques are discussed, including elimination of blood cells. Chemical anabiosis might permit human suspended animation for years, perhaps even decades, and it would be by far the least expensive of all the alternate reduced metabolism possibilities. It could be used for organ storage, and it would also permit exotic surgery that would not be possible by any other means.

Revolutionary Potential.¹⁵ A stirring paragraph near the end of the essay explores the possibility of indefinitely extended life through low-temperature storage:

The person who would receive the greatest benefit from suspended animation is one dying from an incurable disease, or in constant pain from some crippling ailment such as arthritis. The doctors of some future generation may be able to cure every disease, and people could be left in a suspended state until a complete cure for their particular ailment is perfected. Anyone burdened with the cumulative deterioration of old age would likewise benefit, for tomorrow's advances in geriatrics may eliminate senility and physical old age. It can be seen that suspended animation would make any illness curable, for it would make available the medical wonders of the distant future to those suffering today. In times to come, people may be frozen until researchers leisurely learn to cure their maladies, at which time they could be revived and cured. Delayed therapy cases would probably make up the majority of people going into “cold sleep.” Suspended animation coupled with the maximum potentials of longevity could possibly confer potential

immortality on those with the courage to “sleep away the years.”

Prehoda's generally supportive stance on cryonics unfortunately did not last for long but soon turned markedly hostile, as we shall see.

1968



Robert Prehoda, chemist, reduced metabolism expert, and futurist, was generally dismissive of cryonics, though sometimes showing limited support.

After the first two issues of the CSC newsletter there is a long hiatus. There were no standalone issues of a CSC newsletter in 1968, but space was provided in the CSNY periodical, *Cryonics Reports*, for a “California Section” that reported news from CSC. This section itself appears in only two issues, May and June. The May issue starts with a notice of an imminent case, that of Helen Kline, who was then critically ill with cancer in Los Angeles “and has requested that she be cryonically suspended.”¹⁶

Mrs. Kline, who was a major influence in the formation and early development of the California

Society, is in the intensive care unit of a local convalescent hospital where she is under 24 hour observation. The California Society is currently attempting to raise funds to cover the expense of cryonic suspension for Mrs. Kline, who was unable to obtain appropriate insurance coverage. Mr. Russ Stanley, a longtime, active local member, is deserving of special thanks for his very generous \$500.00 contribution. (Several paragraphs here combined to one.)

There is an article by Marshall Neel, a teacher of general semantics in the Los Angeles area who served as a publicity expert for the CSC and would later head Cryonics Interment, Inc., a sister organization set up to handle long-term storage of cryonics patients (comparable to CryoSpan for CSNY). Noting that language “literally shapes our reality,” Neel goes on to consider the problem that new medical technology poses in terms of our understanding of life and death:¹⁷

Currently we are witnessing a semantic struggle in medical-legal areas over the definition of death. We have introduced a new process whose reality conflicts with the old definitions. In transplanting kidneys, we did not engage a problem; once we transplanted a heart, we faced an obsolete concept that *life* and *death* are connected to the heart as such. If the heart beats there is *life*. If the heart stops there is *death*. The medical profession, in transplanting hearts from patients suffering irreparable brain damage, seeks to change the definition of death to “the cessation of brain waves.”

This won't do however, for “stopped brain waves have been restarted.” Something more comprehensive is needed, particularly to handle the problem posed by cryonics. Semantically, the whole dying process must be reevaluated in terms of a newly developing capability to suspend the living process, to turn once-irrevocable death into extended anabiotic pause. Neel proposes a new term, *cryogenesis*, “to describe the low-temperature process of reducing the metabolic rate of living tissue indefinitely for later restoration to viability.” (The term exists in the lexicon today, but has other meanings,¹⁸ and we must make do

with others that approximate it but likely have unwanted, “cultish” associations, like *cryonic suspension* or are vague and over-inclusive like *cryopreservation*.)

Some later remarks refer to a newly-formed Cryonics Societies of America, an attempt (ultimately futile) to unify the movement (several short paragraphs here combined to one):¹⁹

The Cryonics Society of California is delighted to share in the pages of *Cryonics Reports*, which, for the past 3 years, has been the primary voice of the cryonic interment movement. Our inclusion in this newsletter is in keeping with the role of *Cryonics Reports* as a major unifying force in the cryonics movement. And it is in harmony with the emphasis on unity of action implicit in the formation of the *Cryonics Societies of America*. It is only natural that *Cryonics Reports* should evolve into a showcase for all of the cryonics societies. We hope that the other societies will follow suit in taking advantage of this opportunity to speak from a common platform.

The June issue covers the freezing of Helen Kline, which occurred May 14 at the Burlington Convalescent Hospital in Los Angeles, with some moments of high drama. Disputes occur with a sister who at one point tries to block the cryopreservation, and a “friend,” Mrs. Sheff, who tries even harder, all to no avail with the generally supportive and cooperative hospital staff. A special rapport develops between Mrs. Roche, the head nurse, along with the rest of the nursing staff, and Helen Kline herself,



Helen Kline, early California cryonics activist, 1966.

while she is still conscious, and with the other CSC members. The cryopreservation with cryoprotective perfusion appears to go very well for such early times, though details are skimpy. (Sadly, though, Ms. Kline's cryopreservation did not endure; she was among those lost at Chatsworth, as noted later.)²⁰



Mrs. Roche, head nurse, after perfusion of Helen Kline in May 1968.

1969

There were no further CSC newsletters dated in 1968, whether as “inserts” in another periodical or as standalones. Meanwhile there was an important development that would have an impact on CSC and cryonics more generally: two of the principal scientific supporters, Brunol and Prehoda, ceased involvement.²¹ Prehoda, who had earlier been critical of the freezing program, ended his tentative support and again resumed his negative stance, with more vehemence than ever. His essay, so generously supplied to CSC for their newsletter, was expanded into a 1969 book, *Suspended Animation: The Research Possibility That May Allow Man to Conquer the Limiting Chains of Time*. That this might be construed as support for the existing (fledgling, beset with numerous difficulties, and hard to keep going) cryonics movement is dispelled early on (emphasis original):²²

During the past five years, the public has been cruelly misled by a pseudo-scientific cult which proclaims that suspended animation is possible today, that people should be frozen when they die. *There is absolutely no scientific evidence to support this ludicrous proposal, and one principal*

purpose of this book is to completely refute the claims of the “freeze-now” fanatics. Hopefully, readers will be persuaded not to waste their funds on cryogenic interment – money which should go to the families of the deceased or to research.

(The book includes a chapter, “The Lunatic Fringe” attempting to argue that cryonics is unworkable and pseudo-scientific. For a rebuttal of this and subsequent, similar criticism, see [23].)

Life for the CSC went on, however, with other scientific support, and for the



First issue of Cryonics Review.



Paul Porcasi, editor of *Cryonics Review*, from photo dated Dec. 1970.



Young photos of Russ Stanley, left, and Rosario Coco. According to Robert Nelson, “Rosario thought cryonics was ridiculous, but he respected Russ’s wishes [to be cryopreserved] and fulfilled them the best he could.”

start of 1969 they offered a newly-titled, newly-numbered newsletter called *Cryonics Review*, with a named editor, Paul Porcasi. (Actually the issue appeared in November the previous year, though postdated.²⁴) The newsletter had a different format, a saddle-stitched booklet with sheets folded to half-letter-size pages, similar to CSNY’s *Cryonics Reports*. An explanation is offered in this first issue (Jan. 1969) for why they are now a standalone publication:²⁵

[W]e wish to thank Cryonics Society of New York for allowing us to appear in *Cryonics Reports* as a separate California Section. Regrettably, the logistics problems involved in publishing in concert with *Cryonics Reports* on a cross-country coordination basis proved awkward and prompted the decision to publish a separate CSC newsletter; namely, *Cryonics Review*. We plan to continue under the same general editorial policy of emphasizing action, information, California activities, and a certain amount of fun. (Several paragraphs here combined to one.)

There is a report of the Russ Stanley cryopreservation in September 1968, here excerpted and condensed. (Robert Nelson at the time was in San Francisco, assisting in the formation of the Bay Area Cryonics Society,

so could only participate by telephone.²⁶)

The cryonic suspension of Russ Stanley is a major milestone for the CSC for two very significant reasons. Russ is the first suspended patient to have made truly adequate personal preparations ahead of time, and... Russ is the first patient suspended by the CSC without assistance, coordination, or leadership normally provided by the President of the CSC, Robert F. Nelson. The significance of these two facets of Russ’ suspension is, perhaps, self-evident, but they bear elaboration. By ensuring that he had made all possible preparations for his suspension and long-term maintenance, Russ made it much easier for his close friend and the executor of his estate, Mr. Rosario Coco, to provide these services for him. CSC has for years stressed the urgency of making complete medical, legal, and financial arrangements for cryonic suspension in order to maximize the chances for suspension and ease the sometimes overwhelming burden placed on those who must perform the suspension and provide the maintenance.

(Russ unfortunately was also lost at Chatsworth, when the funding provided

by his estate proved to be inadequate for himself and other patients who had much less funding.²⁷⁾

Another reported development, one which seemed to herald a bright future for the CSC, was the establishment of a secure patient storage facility (several paragraphs here combined to one):

The world's first commercial, long-term cryonic suspension facility now exists in Southern California. This new facility utilizes high-reliability, multiple-patient, vacuum storage units that will maintain more than 2 dozen patients at temperatures in the liquid nitrogen range. CSC has arranged for the use of the new facility to provide the final element in a complex cryonic suspension system for the members participating in the CSC cryonic research program.

The issue that followed (February) has an article on Walt Disney, who died in December 1966 (of lung cancer). Though "Disney had expressed a desire to be cryonically suspended," a death certificate stated he was cremated.²⁸⁾ (It has been a persistent urban legend since then that Disney was cryopreserved after all, but no evidence of this has ever surfaced.)

In the next (March-April) issue there is more about a CSC cryonics facility, now given the name "cryotorium." A company, Cryonic Interment, Inc. (CI), has been set up to offer cryopreservation services to the CSC, much as it was found expedient to set up CryoSpan to offer services to CSNY in New York.²⁹⁾ An unattributed article (author later identified as Marshall Neel, under Nelson's direction³⁰⁾ is enthusiastic if not very clear on details:³¹⁾

WORLD'S FIRST CRYOTORIUM

Cryonic Interment, Inc. (CI), has completed construction of a multiple storage facility for cryonic preservation. The multiple principle introduces high reliability, flexibility, and efficiency into the cryonic preservation process. Tri-check metering precludes malfunction or variation from the critical standards required by CSC.

The multiple principle permits addition of patients and ultimate individual withdrawal of patients without affecting the temperature of patients who remain in storage. High transfer costs are eliminated.

CI designs are a product of technical

studies and intensive investigation over a period of two years involving the services and counsel of engineers and specialists in several related fields.

Legally, Cryonic Interment's new facility offers an alternative to burial and cremation. Scientifically, CI meets CSC standards for arresting cell damage after "clinical death" has occurred. With completion of the Cryonic Interment multiple storage facility, a total cryonic suspension program is now available through CSC. The program provides all necessary arrangements from pre-death preliminaries, emergency treatment, and latest method perfusion, to maximum-security suspension storage.



The third issue of Cryonics Review announced completion of the "cryotorium."

So what was this "facility" on which construction had been completed? Was it just an invention? Or perhaps a cover-up for very primitive capabilities involving a single, horizontal capsule, intended for a single human patient, in which several had been placed? That's what appeared to be so when, many years ago, this writer started investigating. A little more was said about it, though not in the CSC newsletters but those of CSNY, mainly, a report by Robert Nelson (April 1969), in which he states:³²⁾

This is a facility that is built below ground, but it is not a hole in the ground that bodies and tanks are thrown into. It's a multiple-storage facility that cost in the neighborhood of \$40,000 to manufacture. The multiple-storage units have a maximum capacity of 20 or 15 people depending on the size of the patients. Each patient is in an individual metal container very similar to the units that were used in *2001: A Space Odyssey*. The inside is stainless steel. It's 14 ft. by 6 feet in width, and the patients are introduced into an allotted slot inside the inner chamber similar to a honeycomb unit. It doesn't turn. Units are moved by a series of stainless steel cables that guide them into position and they can be introduced and retrieved at will without disturbing the other patients, the liquid nitrogen or the vacuum.

There is another brief mention, by Marshall Neel, in another CSNY newsletter (November 1969) where he concedes that the cryotorium is not yet operational, though "we're rapidly reaching the point where we are going to be able to announce an existing facility."³³⁾ (No such announcement after this date was made.) In any case we may ask, what was this "multiple storage unit"? Eventually it came out that there *was* something to it, a very large, horizontal cryogenic capsule that had been obtained by Cryonic Interment, which could have held many patients, had it become operational. Unfortunately, this would not happen, and the facility itself was only operated at a much reduced capacity, with more ordinary, much smaller capsules. Much later, in his 2014 book, Robert Nelson would comment:³⁴⁾

In our newsletter we boasted of the world's first cryotorium – a proclamation I later regretted, because my detractors claimed I had overstated our accomplishments. But we were desperate for paying suspensions, and I thought a little exaggeration was justified. Hundreds of letters and phone calls were pouring into CSC, and people were signing up. Still, there were no new patients, and the expenses just continued to mount. I didn't know how much longer I could hang on, but I couldn't think about failure. Somehow, I hoped we could save our frozen heroes.



Robert Nelson stands beside a jumbo cryogenic capsule that was to have been used in the cryotorium as a multiple storage unit. Unfortunately, lack of funding for basic requirements, including a workable location for the huge capsule, prevented its use, and the facility was never operated as intended.



Besides being a teacher of general semantics, Marshall Neel was a professional public relations counsel, lecturer, and radio commentator; he also became president of the ill-fated Cryonic Interment, Inc.

The “cryotorium” problem aside, the issue also contains what I think is a memorable interview “with a prospective suspension patient,” Judy Ellman (a pseudonym). Born in Berlin of Jewish background, she fled from Hitler’s regime to the Belgian Congo, then to New York, arriving there in 1940. Finding that area

too cold, she then relocated to Los Angeles. As of the interview she was 48 years old, divorced, and had two sons, David, 23, and James, 22. A freelance commercial artist, she had studied at the Kann Institute and the Otis Art Institute in Los Angeles. She was a victim of myelofibrosis, “a currently incurable and fatal bone marrow disease which produces abnormal, defective blood cells.” Her illness was diagnosed five years before; she was advised then that she had 6 to 10 years to live.³⁵

Cryonics Review (CR) further describes her as a beautiful, warm, and honest human being – articulate, and the owner of an infectious laugh and brittle sense of humor. She is sensitive and artistic and lives in a modest home richly adorned with her own artwork. She is medium sized, dark haired, dark eyed, olive complected, and highly animated. She is alternately smiling and serious, emotional and intellectual, mundane and profound. She has a deep feeling of kinship with her fellow man.

Judy is asked if she fears death.

If I am honest with myself – it’s a very strange thing. Yes, there was a

time when I was frightened. But fear yielded to an understanding of it and the understanding became a part of the feeling. It no longer holds the fear it once did. What holds the fear for me is the pain. Pain holds a tremendous amount of fear – my tolerance for pain is quite reduced. But, you know, I have a “feeling” and it’s right here ([...] pointing to her stomach) – a restlessness. I do have anxiety, definitely.

On the other hand, does she enjoy life?

Oh! Very much. Every moment I do: I think that’s why my endurance to pain is so little. I was always full of energy and coming and going. Yes, I was always blessed with enormous energy resources. I know many people who were so envious of it – my energy. Yes, I enjoy life – I love it. There are so many things.

Her family, the two sons, are supportive, if not enthusiastic, and “would not interfere.” She is then asked why she is interested in cryopreservation for herself.

My good old body should be devoted to humanity. But I was also very much interested in myself. However, I felt that I could go into it without first going through the damaging effects of the illness – while I was still living. The immortality aspect was unimportant to me. I first felt that I could avoid the suffering. Perhaps I can go to another country – to another, more aware culture – to do this ahead of time and still avoid the legal tangle.

Judy first became aware of cryonics through a Time magazine article on the (July 1968) Steven Mandell case, the first cryopreservation of CSNY, though the article also mentioned CSC.

My emotional state at the time, dominated by physical pain, was: “That’s the answer!” – the answer to the pain. I had done everything I was supposed to, and the pain didn’t let go. It always had up till then.

Some common objections to cryonics are noted, and Judy responds. Many object because it is not yet perfected, and Judy answers:

Well, since my original purpose was pain avoidance, coming back was unimportant. I was not concerned about “perfection.” But I want my body to go to science anyhow.

On the problem of overpopulation that cryonics might aggravate:

Overpopulation must be dealt with anyhow. Don't ask the person who is "IT" at the moment. He isn't concerned.

As for the possibility of "coming back old" she does not respond with the knee-jerk (if good) answer that we will certainly cure aging but has another reason to be optimistic:

I don't consider myself old. Art, for instance, improves with the maturity and age of the artist. Imagine Picasso – to him, to hell with how old he is. For an artist, this is an ideal thing.

The future, however, might just be strange and forbidding – "we won't know anything about the world we will be living in."

I am also aware that by that time there will be new techniques and devices – electronic devices that will teach us and prepare us by supplying the data we will need. These have been responsibly predicted. Also, it is up to the individual. After all, what is it to say "I was suspended – teach me!"? We don't know what may happen or what they can do.

Some on the other hand are frightened by the prospect of "not knowing anyone."

That doesn't frighten me at any time. I just sort of get acquainted. I'm an extrovert – that'll be fun. To people who don't make friends easily, I'll bet this is a serious and frightening thing. Also for people who don't "give of themselves" it may be frightening.

Then there is the issue of who would want to revive you.

I'll have to look at my own ego for the answer to that. But really, I presume they will want to revive me to make the method work.

Judy assures the (anonymous) CR interviewer that she does not believe in God, a soul, or Heaven, then is asked, "how do you feel about mankind and his future?"

I'm an optimist at heart. My answer is more optimistic than it is "reasonable." In spite of the great destruction at the moment, youth will grow to have more conservative ideas. Understanding will be greater. Man will be "loosened up" in the future.

When asked what she thinks is the major obstacle to cryopreservation arrangements, Judy responds, "finances," at least for "a

great many people." She then is asked her expectations about the world she would come back to, and notes her revival could conceivably happen in the next 10 or 15 years. What I would really love would be to come back in the lifetimes of my children.

Finally, she is asked if she has any feelings or "message" she'd like to give to others on cryonics:

Just that it's a magnificent idea. I would like to see it open up for everyone. We are fighting a disease – and its name is death.

1970

There were no further issues in 1969. In 1970 the newsletter adopted a new format, letter-size and bifoldd from top to bottom, but retaining the title *Cryonics Review*. Most issues consisted of a single, folded sheet. Opened out it had the cover design and addressing information on one side, with possibly limited, additional text, and a single, double-columned text in fine print on the other side. Needless to say, this abbreviated format allowed for only limited coverage of events, whether in or outside of CSC. Prior to this the CSC newsletters had had two rivals, *Cryonics Reports* of CSNY, and *Freeze-Wait-Reanimate* of LES. By 1970 the LES publication had ceased, while the CSNY newsletter continued briefly under its new title *Immortality*. In 1970 a new newsletter joined the group, this from the Cryonics Society of Michigan. Like the CSC, the CSM had been formed in response to the 1966 cross-country trip of Curtis Henderson and Saul Kent. A few years went by; then it was time for them to have their own mouthpiece. At first prosaically titled *Cryonics Society of*

Michigan Newsletter, it soon was renamed *The Outlook*, a title it kept for several years. (For many years after that the publication was titled *The Immortalist*; today it continues as *Long Life Magazine*.)

The 1970 CSC newsletter issues are mainly taken up with the cryonics conference held in Los Angeles in May that year, with representation from all the major organizations. Four of the issues, January-April, appearing monthly, are mainly about the upcoming conference, with the usual limited coverage of other matters. The next issue, in July, notes that the conference has "just concluded" but devotes the rest of the issue to one of the speakers, Dr. Peter Gouras. Gouras presented findings by himself and others, implying that the postmortem brain is much more resistant to deterioration than commonly supposed. Conventional wisdom, for example, held that the brain is irreversibly damaged after four to six minutes of postmortem ischemia (cessation of blood flow).³⁶ But according to Gouras:³⁷ Even using today's repair techniques, the brain damage resulting from over an hour of ischemia can be reversed, giving Cryonics technicians at least that much more time in which to accomplish low-temperature suspension. The next (August-September) issue is about Fred Chamberlain, who has been newly named Vice President of CSC. Fred also spoke at the conference in May, and coverage is given of his talk on the possibility of "anomalous water" (also called polywater) which would stay liquid below the normal ice temperature and thus might find use in cryoprotectants. (Eventually this possibility was discounted; "polywater"'s fancied properties were shown to be due to



CSC newsletters, 1970, from left: Isamu Suda received 1969 cryonics award (February); Peter Gouras spoke at May conference, received 1970 cryonics award (July); Fred Chamberlain becomes CSC Vice President, spoke at conference (August-September).

impurities and not special arrangements of water molecules.³⁸)

Meanwhile there were tragic events on the side, involving the loss of patients, which were not reported in the newsletter or any newsletter of the time, but add much-needed perspective.³⁹

As of May 1970, with the cryonics conference in Los Angeles ready to start, the CSC had four frozen patients: Marie Phelps-Sweet, Louis Nisco, Helen Kline, and Russ Stanley. (James Bedford, the first CSC case, was in the care of relatives and, save for a short period at the start, never in CSC's custody.) Three of them: Phelps-Sweet, Kline, and Stanley, had all been cryopreserved without any container available for long-term storage in liquid nitrogen. So they were stored in a mortuary on dry ice. Stanley was the last to be frozen, in September 1968. Meanwhile, Louis Nisco, from the Detroit area, expired and was frozen by his daughter, Marie Gricius, who was able to purchase (on an installment plan) a cryogenic capsule made by Cryo-Care Equipment Corp. in Phoenix, Arizona, and have the capsule, with her father inside in liquid nitrogen, stored at their facility. When financing became a problem for Mrs. Gricius the capsule with its occupant was transferred to the custody of CSC, and stored at the mortuary used by them (the Renaker-Klockgether Mortuary in Buena Park), in the Los Angeles area. Nelson saw an advantage in acquiring the capsule, which might be used to store additional patients. In March 1969 the capsule, whose inner container in normal use was welded shut with its single occupant, was cut open and the three other CSC patients joined Nisco inside. (This required a careful welding operation to avoid compromising the vacuum jacket insulation that greatly reduced the capsule's boiloff.)

The capsule with its four occupants was stored at the mortuary until just before the conference in May the following year. At that point (with Joseph Klockgether who operated the mortuary wanting it moved) it was transferred to a location in the Oakwood Memorial Park, a cemetery in Chatsworth, California. A vault had been constructed there by Nelson to hold the capsule and other containers expected to be acquired, though for now the capsule was stored in a maintenance area, above-ground, where it could be serviced more easily, that is, periodically replenished with liquid

nitrogen. The capsule was not performing well – even with pumping to “harden” its vacuum insulation – and had to be serviced once a week or oftener rather than its nominal rate of once a month or less.⁴⁰

At this point, according to Nelson, the financial situation was desperate. Much had been spent on constructing the vault and paying for the large-sized capsule which was still unusable and was also stored in the maintenance area. (A bigger vault in which to store it was one unmet requirement.) The extra liquid nitrogen to replenish the badly performing smaller capsule cost extra money. Mrs. Gricius had not been paying and there was no more funding from the other three patients' estates or relatives. Nelson hoped someone would come forth with assistance when he conducted a tour of his existing facility for the conference attendees.⁴¹

I showed the vault to Professor Ettinger and several prominent cryonicists but no one at the conference offered financial help. [...] I could stall with temporary solutions no longer – the permanent solution was likely going to be death. [...] I hung my head low, remembering that this wasn't about me but about my four patients. I was killing them [...]

In the summer of 1970 maintenance of the faulty capsule ceased and the four CSC patients thawed and were lost.⁴² The abandonment was carried out in secret; it appears that officers of Cryonic Interment were aware of it but, aside from Nelson, not those of CSC. (Fred Chamberlain, for instance, did not learn of it until later.⁴³ The Chamberlains would pioneer a lower-cost preservation: head only or “neuro” rather than whole-body, as practiced up to this time. Apparently the idea of saving the heads of the patients to continue their preservation was not considered by Nelson's

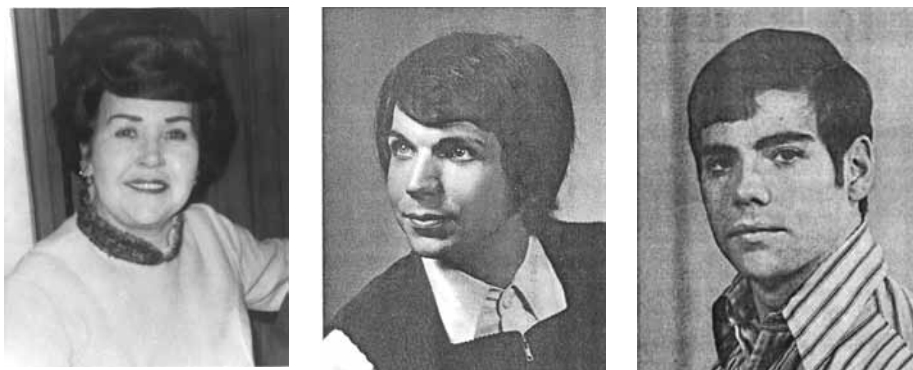
group; in the words of Paul Porcasi, the subject just “didn't come up.”⁴⁴) The secrecy, maintained in the newsletters, protected CSC from what might have been immediate dissolution, but set the stage for later, similar failures and ultimately compounded the disaster. In any case the fortunes of CSC would soon experience a major, if temporary, upturn: a new cryonics case occurred under relatively favorable conditions.

Mildred E. Harris, a 55-year-old store department manager in Des Moines, Iowa, died September 20 of bone cancer and was promptly cryopreserved. She had learned about cryonics several years before and became more serious about it when her terminal condition developed. The last 1970 issue of the newsletter (October-November), reporting at some length on the Harris case, is “jumbo-sized” – two bifolded, corner-stapled sheets rather than the usual one (the only such extra size in the 1970-74 group). The cryopreservation was attended by both Robert Ettinger (Cryonics Society of Michigan) and Robert Nelson of CSC, and was described as a joint effort of the two organizations. Near the end of the report is an upbeat summary:⁴⁵

Overall, Mrs. Harris' cryonic suspension was accomplished under excellent conditions. There was sufficient time, complete cooperation from Mrs. Harris' sons Terry and Dennis, availability of all the required technical and administrative cryonics expertise, sufficient financing, the very best available suspension method, and timely perfusion and temperature reduction after clinical death.

1971-74

Only six more issues of the one-sheet newsletter would appear, two each in 1971



From left: Mildred Harris and her sons, Terry and Dennis.

and 1972, and one each in 1973 and 1974. The two issues of 1971 are interesting for rather different reasons.

The first, September issue proclaims that a “new East Coast facility” has been opened (“by Cryonic Interment, Inc.”). Nicholas Deblasio, whose wife, Ann, had been frozen by CSNY in January 1969, had become dissatisfied with that organization’s continued care of his loved one, and wanted to set up his own storage facility. Nelson, when contacted, obliged by helping construct a vault like the one he’d built in Chatsworth. For the moment the facility, in the Mount Holiness Memorial Park in Butler, New Jersey (not so far from CSNY’s patient storage location in Coram, and later in West Babylon, New York) was advertised as an extension of CSC. (This represented a considerable turnaround from a few years before, when CSC was itself treated as the California chapter of CSNY.) CSNY, on the other hand, was experiencing doldrums. Their newsletter publication had ceased that spring, leaving only the CSM’s monthly publication *Outlook* as a competitor and complement to CSC’s limited, irregularly issued *Cryonics Review*. But CSM did not offer cryonics services. CSC seemed to be, perhaps reassuringly, “taking over” from the ailing CSNY – both organizations in fact were not far from collapse.

The financial troubles that plagued CSC were temporarily put on hold with contributions totaling ten thousand dollars or more (the exact amount is uncertain) from the two Harris sons.⁴⁶ Their mother was maintained on dry ice for a time and then would be transferred to a cryogenic capsule when another one became available. Before this, another case intervened, covered in a second 1971 issue which would especially tug at the heart-strings, a little girl with kidney cancer.

A French-Canadian child living in Montreal, Quebec, the seven-year-old Genevieve de la Poterie (pronounced, approximately, *Zhahn-vee-ev duh lah poh-TRAY*) came to southern California, accompanied by her parents, in July 1971, and seemed near death. Her father, Guy (“Gwee”) had contacted CSC about the possibility of freezing. It was decided that it should not happen in Montreal, due to complications with officialdom over the very strange (to them) practice, but that California would be a better venue. (Nelson also reported that the family had

little money, but the case was so compelling that he couldn’t say no.)

At first little Genevieve seemed doomed but, incredibly, rallied. One of the cancerous kidneys had been removed before her arrival in California and now the other was hemorrhaging badly and had to come out also, along with surrounding, metastatic tissue. The child survived, started to get better, was released from the hospital August 31, and let it be known she’d be interested in seeing the nearby Disneyland. She was taken there, and also to Marineland, before returning to Canada a few days later, September 14.

Bob Nelson gives a touching account of the visit to Disneyland.⁴⁷ An entourage consisting of Genevieve’s mother, Pierrette, along with Bob and his ten-year-old daughter, Susan, accompanied the little girl, wrapped in a blanket in her wheelchair. They saw the various sights and went on the easier rides, such as It’s a Small World (a boat ride), for which Genevieve was lifted in place then returned to her wheelchair when the riding was over, in this case, after two repeats. When informed of the situation, the Disneyland staff were entirely sympathetic and arranged for Mickey Mouse and Donald Duck in their familiar costumes to come over and “recognize” Bob as an old friend. They then said a warm hello to the astonished little child and had an extended, friendly conversation using her mother as interpreter, since Genevieve only spoke French.



Genevieve visits Disneyland,
September 1971.

With her condition improved, Genevieve went back to Montreal. For a short while, the urgency of her predicament

diminished and other matters gained focus. The next issue of *Cryonics Review*, January 1972, reports on the formation of a new New York cryonics group, with a pair of organizations: Cryonics Unlimited (CU), and Society for the Advancement of Cryonics Science (SACS). Among the participants was Pauline Mandell, whose son Stephen was cryopreserved by CSNY in July 1968 (their first case).⁴⁸

The two societies are separately incorporated to minimize the occasional awkwardness of handling both research and suspension activities within one legal body. Accordingly, the basic purpose of CU is to aid members in arranging their own cryonic suspension, and the complementary objective of the SACS is to fund cryobiological research and education and disseminate cryonics information.

Despite this show of promise, the group seems to have accomplished little and quickly fades from the scene. The next issue of *Cryonics Review* is a “quarterly,” dated February-March-April, 1972, and again reports on Genevieve.⁴⁹

[...]Those of you who met Genevieve at the going-away party given her in September 1971 can appreciate the impossibility of maintaining a close, long-term, and essentially dramatic relationship with a courageous, beautiful, appealing little girl like Genevieve without becoming emotionally involved.

When Genevieve returned to Montreal in September 1971 after her long fight against cancer, the removal of her one remaining kidney, and a series of artificial-kidney crises and postoperative complications, we all shared her father’s hope that “bad luck can’t stick forever to Genevieve.” But it was not to be.

Back in Montreal, Genevieve apparently continued to improve, and even returned briefly to school. But soon it became apparent that her cancer had not been checked. In January of this year her parents, Guy and Pierrette, returned with her to Los Angeles. This time there was no question that Genevieve was in terminal condition, and arrangements were made for her suspension. On January 25 she was pronounced

legally dead and was immediately suspended.

On the positive side, the cryonic suspension of Genevieve de la Poterie was the smoothest and most medically sophisticated effort of its kind to date. For their part in giving Genevieve this one more chance, we wish to thank her parents, Robert C.W. Ettinger, Robert F. Nelson, Dr. Peter Gouras, Robert and Ann Price (Burlington Convalescent Hospital) and their wonderful staff, Dr. Joseph Still, Gregory Fahy, Paul Segall, Art Quaife, and Joseph Klockgether.

The issue also notes that Stephen Mandell's capsule, up to then with CSNY, has been moved to the Chatsworth site and the custody of Cryonic Interment. (According to Curtis Henderson, head of CSNY, Mrs. Mandell wasn't paying for her son's liquid nitrogen, which, in effect, resulted in an eviction.⁵⁰ Nelson was willing to accept the capsule, and ended up storing two others in it with Stephen.)

Sadly, Genevieve would also be among those eventually lost at Chatsworth, along with Mildred Harris, Steven Mandell, and two other patients which, added to the four who were abandoned in 1970, would total nine altogether. (CSNY's seven patients, one of which, Mandell, also became a CSC patient, would also be lost, by a usually different route of being handed back to relatives or others when continued maintenance in liquid nitrogen became problematic.) For the time being, both Genevieve and Mrs. Harris were maintained on dry ice. It appears this storage lasted about a year. Then the capsule containing Stephen Mandell was opened and the two joined him inside.⁵¹

Only two more issues of the newsletter remained: May 1973 and February 1974. The 1973 issue excitedly reports: "new experiments provide cryonics proof of principle." Scientists using a DMSO-based cryoprotectant have successfully cryopreserved mouse embryos, which, after rewarming, were implanted in female mice, developed to term, and were born normally.⁵² The suspension method used is a familiar one to those involved in cryonics. It closely resembles the protocol developed for the cryonics societies by Dr. Peter Gouras of the National Institute of Health, Education, and Welfare and used in all recent suspensions.

The last issue, February 1974, features young, attractive Jeannie Russell as the new CSC Vice President. Otherwise it offers a potpourri of short news items. One report suggests that insight into better cryopreservation could come from studying "interface water" – the outer layer of 100 to 1,000 water molecules that line a container of water-bearing material, "be it a blood vessel, living cell, grain of sand, milk carton, or test tube."⁵³ It also notes that interface water is not to be confused with "polywater" which is by then known be just ordinary water with impurities.



Final issue of the CSC newsletters

BRIEF CLOSING THOUGHTS

Along with CSNY and Cryo-Care Equipment Corporation, CSC and their sister organizations (CryoSpan, Cryonic Interment) comprised the major early experiment in cryopreserving individuals for possible later revival. (I include also the Butler, New Jersey facility, which started as part of CSC.) Of about 20 people cryopreserved by them, only James Bedford remains in cryopreservation today; the rest were lost many years ago. The organizations failed in different ways, but the main shortfall clearly was funding to keep patients frozen, despite any wishes of both the organizations and the relatives of the patients to maintain the freezings. Bitter lessons were learned from all this, and today cryonics is operated on a sounder financial footing, with the tradeoff, no doubt, that much fewer than would like to be are being preserved for later revival, even if they are preserved more securely. This is a

difficult bottleneck to address, but address it we must. One possibility is to consider lower-cost forms of biostatic preservation such as chemical brain fixation, which might serve as a useful stepping-stone to cryopreservation, when funding can be arranged. Such has already been done,⁵⁴ but more efforts in this direction are very much needed. ■

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Robert Nelson Memorial Service

By R. Michael Perry

A Buddhist memorial service was held in Pomona, California September 8, for Robert Nelson, who was a practicing Buddhist, inspired by his Cambodian wife Moeurth ("Mert"). In keeping with tradition, the service was held 90 days after his passing June 10 at age 81. Following his wishes, he had been cryopreserved and become a patient at the Cryonics Institute. Outside of cryonics Nelson used his adoptive father's surname of Buccelli. Prior to retirement his principal occupation had been to own and operate a TV repair business.

Children from two marriages attended the service, along with Moeurth and many other acquaintances and well-wishers, about 75-100 people in all. The service, held at the Cambodian Buddhist Society of Pomona temple complex, 1129 W. 10th Street, started about 10 a.m., orange-robed monks chanting a message of respect, calmness and compassion for the one being honored and to those paying respects. (Interestingly, I found a reference stating

that "many Cambodians are Buddhists who do not view death as the end of one's life but rather as the end of a life cycle. It is a passage from one stage of the cycle to the next."¹ Certainly this has an echo in cryonics!) After this was a sumptuous meal with a myriad of Asian and American dishes, and finally, around 12:30 p.m., a short video of Bob's life by his friend and one-time employee, Ken Bly.²



Monks chant as attendees pay respects at Nelson/Buccelli memorial service, Sep. 8, 2018.



Ken Bly shows his video of Bob to conclude the service.

I extend thanks to Ken for his generous hospitality in providing transportation to this beautiful service, which indeed was my first attendance at any Buddhist gathering (and also for usefully commenting on an earlier draft of this article). Cambodian Buddhism, I learned, is a variant of Theravada or "early" Buddhism – I am still investigating. ■

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YOU CAN TAKE IT WITH YOU *(and here's how)*

By Nancy Fisher

On August 31, Alcor's New York regional group enjoyed an exciting presentation by Mark E. House, a highly experienced Trusts and Estates attorney from Scottsdale, Arizona. That's right; exciting. And what he told us should gladden the heart of every cryonicist.

Who wants to be revived with no money to live on? But finding ways to send assets into the future without running afoul of legalities such as the rule against perpetuities, and the "impossibility doctrine" (see below), not to mention identifying respected investment banking firms and attorneys that understand and are willing to accept the challenges and responsibilities of acting for cryonicists who want to "take it with them," has been challenging. Until now.

Clearly, and with great enthusiasm (he is an Associate Member of Alcor and about to become a full member, so these strategies are important to him personally), Mark outlined two types of asset preservation trusts specifically designed for cryonicists. They have different funding requirements, but either one of them will enable you to "send money into the future" to fund your financial future after revival.

The most important considerations for any trust are stability, the probability of ongoing operations for years to come, a rigorous system of checks and balances, and a reliable trustee with knowledge of the relevant laws. With these factors in

mind, Mark explained how the two trust models came to be, how each one works, and what level of funding is required.

He noted that in creating these trusts, he worked closely with the folks at Alcor, particularly Ralph Merkle, Michael Seidl, and Linda Chamberlain. He designed the trusts under Arizona law which has fewer restrictions than many other states, and with the added advantage of being administered in the state in which Alcor is located. And he arranged for the highly-regarded international investment banking firm of Raymond James to serve as Trustee and Custodian.

Aside from the \$5,000 set-up cost, which is the same for both types of trusts, no monies are paid into either type of trust until death occurs, at which time the trust is funded via the member's will or revocable trust.

FUTURE INCOME TRUST (FIT), AN ASSET PRESERVATION TRUST

This type of trust is custom-created for each individual – you can even build in language around the possibility of a future cyber twin resulting from brain-uploading – and is funded either directly during one's lifetime or at the time of death by distribution from another estate planning document such as your will or via a life insurance policy. During your lifetime, the FIT is a simple revocable trust. At death, the trust becomes irrevocable. When you are revived, you become the trust beneficiary.

Of special significance to cryonicists is the specific, Alcor-approved language Mark has created in the "Material Purpose of Trust" section of the trust document in order to limit the possibility of a premature termination of the trust under the "Impossibility Doctrine." This regulation holds that "if all of the purposes for which the trust is created are or become impossible of accomplishment, the trust will be terminated." Mark's wording creates a strong barrier against such an eventuality.

There are several versions of asset preservation trusts. These include an accumulation trust without distributions; an accumulation trust with distributions to descendants (a "dynasty" trust); a simple accumulation trust with payment of income only; and a Charitable Lead Annuity Trust (CLAT) which pays out money each year with the remainder going to the ultimate beneficiary. Each has its advantages and disadvantages. Mark recommends creating a straight accumulation of interest trust and naming Alcor as the remainder beneficiary.

Raymond James requires a minimum investment of \$500,000 in this type of trust. Clearly, many cryonicists cannot invest that large a sum. But don't worry – that's where the second type of trust comes in.

In association with Alcor, Mark has developed a different trust model that allows cryonicists to invest less than the minimum required for an individual

Future Income Trust by pooling investments from multiple members.

MULTI-INVESTOR FUTURE INCOME TRUST (MIFIT)

This is a specialized version of an asset preservation trust in which the contributions of a number of specialized trusts created by Alcor members are pooled within a corporation, which is structured to be taxed as a C-corporation. Raymond James is the Trustee of the MIFIT and the investment advisor for the corporation, while Alcor nominates the Trust Protectors. To participate, you arrange your trust account while you are alive, and you tell your estate planner that a portion of your assets will be invested in this trust when you die. Your estate planner will put that in your will as a payment from your estate. There is no minimum investment per se, although investing less than \$25,000 is probably not advantageous. The ideal investment would be between \$100,000-250,000.

The MIFIT somewhat resembles a Defined Contribution Pension Plan in terms of how it works. Upon your death, your estate buys shares of the corporation, called FIT Investments, Inc., using the assets earmarked for that investment in your will. When you are revived, your shares of FIT Investments are sold and you receive the funds realized from that sale and pay capital gains taxes on that amount.

Mark expects the MIFIT to be up and running by the end of 2018 or early in 2019, at which time Alcor will send an announcement to members and post information and links on the website.

WE INTERRUPT THIS FINANCIAL DISCUSSION FOR A THOUGHT EXPERIMENT.

As the evening wore on – nobody wanted to leave! – the conversation veered in some fascinating directions. For example, Mark posited: After you've been revived, are you the same person who died, or are you a different person? This is more than just a philosophical question, and the ensuing discussion was lively.

Your status when you're in biostasis, Mark explained, is "legally dead." But if you're the same person after you're revived

as you were when you were cryopreserved, do you have to pay back the proceeds of any life insurance policy? Can you collect back payments of Social Security? Is any pension plan you participated in required to go on paying you forever? And how old would you be after being revived – the age at which you died plus all the years you were in biostasis?

Given these issues, Mark feels you would need to be treated as a new person. Which begs the questions: When is your birthday – the day Alcor revived you? Do you need to apply for a new driver's license? If your spouse was revived with you, are you still married? Mark also wondered whether you could be subject to the Generation-Skipping Transfer Tax on the assets of your trust that exceed whatever the exemption amount is at that time (today it's \$11.2 million).

FOR MORE INFORMATION...

In theory, a customized version of a Future Income Trust can be prepared by your current attorney – although, speaking personally, I would feel way more comfortable working with Mark, an Alcor member who has studied the issues and is personally vested in cryopreservation and revival.

The MIFIT, developed jointly by Mark and Alcor, is proprietary to Mark, which means that if you want to participate in it,

you need to arrange for that directly with him.

Meanwhile, this article has only scratched the surface. So if you think you might want to invest in the MIFIT when it debuts, or if you'd like to speak with Mark about creating a custom FIT for you, or if you simply want more information—feel free to contact him at mark@beckerandhouse.com or (480) 240-4020. He's happy to answer your questions and help any way he can. And if your local Alcor membership group would like him to come speak, that can likely be arranged as well.

Isn't it reassuring to know that you actually *can* take it with you? ■



Mark E. House
Attorney

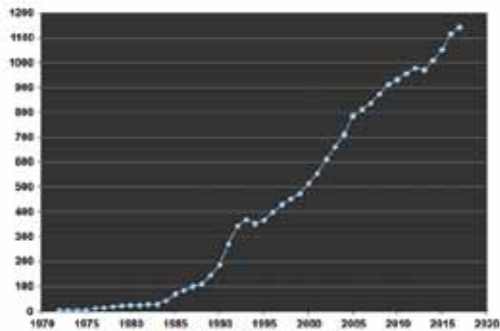
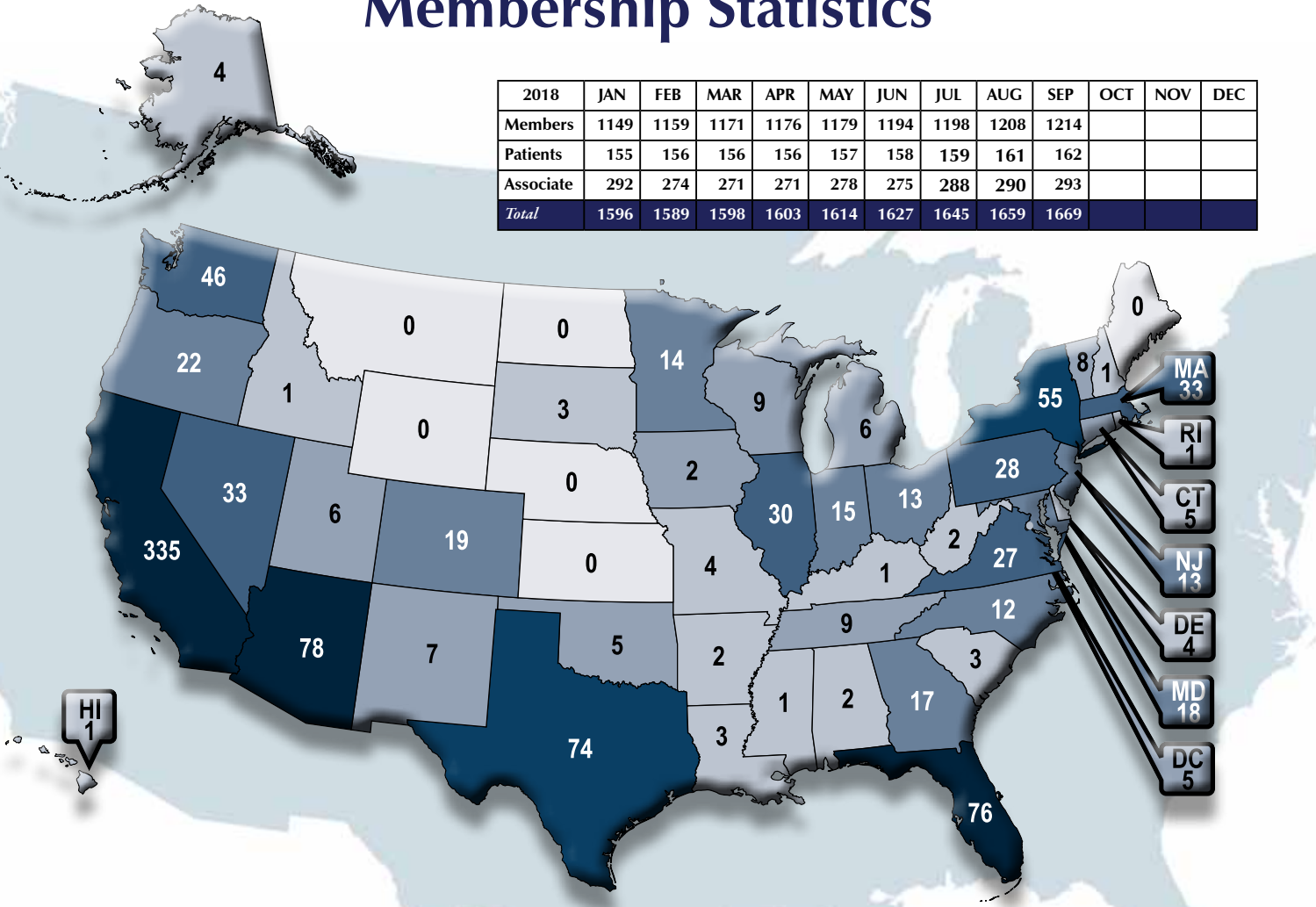
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mark@beckerandhouse.com

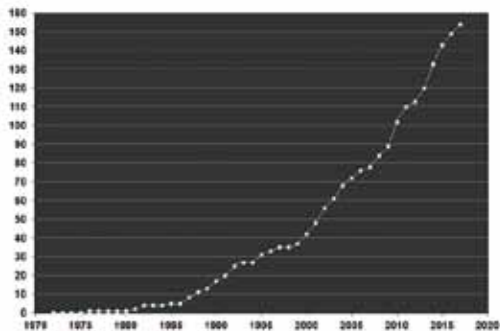


Membership Statistics

2018	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Members	1149	1159	1171	1176	1179	1194	1198	1208	1214			
Patients	155	156	156	156	157	158	159	161	162			
Associate	292	274	271	271	278	275	288	290	293			
Total	1596	1589	1598	1603	1614	1627	1645	1659	1669			



Number of Alcor members



Number of Alcor patients

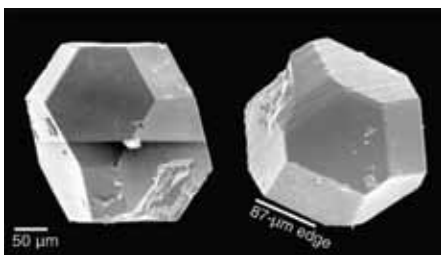
- 0 Members
- 1-4 Members
- 5-9 Members
- 10-24 Members
- 25-49 Members
- 50-74 Members
- 75+ Members

International Members & Patients

Country	Members	Patients
Australia	13	3
Austria	1	0
Brazil	1	0
Canada	54	3
China	0	1
Finland	1	0
France	0	1
Germany	18	0
Hong Kong	2	0
Israel	1	1
Italy	3	0
Japan	5	0
Luxembourg	1	0
Mexico	4	0
Monaco	1	0
Netherlands	1	0
New Zealand	1	0
Norway	1	0
Portugal	5	0
Singapore	1	0
South Korea	1	0
Spain	5	1
Taiwan	1	0
Thailand	5	1
United Kingdom	35	3
TOTAL	161	14

Promising Research for NMR and MRI Using Diamonds and Lasers

A new approach developed by researchers at UC Berkeley's College of Chemistry shows great promise for enhancing the signal from magnetic resonance imaging (MRI) and nuclear magnetic resonance (NMR) using lasers without expensive magnets. In newly published research in the journal *Science Advances*, lead researcher Ashok Ajoy and an international research team have announced development of a new technology that has the potential to decrease the cost of multimillion-dollar medical imaging and spectroscopy devices. The research was carried out in the lab of Professor Alexander Pines, in close collaboration with Professor Jeffery Reimer. Alex Pines said of the research, "What Ashok with his team and collaborators Carlos Meriles and Jeff Reimer have accomplished is amazing. In a powder of diamond nanocrystals they achieved a hyperpolarization almost three orders of magnitude higher than thermal, by means of optical pumping together with a novel method of microwave DNP [dynamic nuclear polarization, a signal enhancement technique] by multiple sweeps."



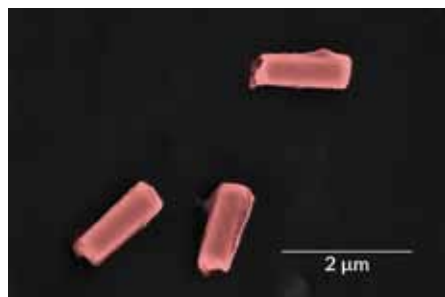
Two SEM micrographs of diamond microparticles employed in the investigation. The particles have uniform size distributions and are characterized by their unusual truncated octahedral shape set by particle growth size. Credit: UC Berkeley College of Chemistry.

John Fyson / Berkeley College of Chemistry
21 May 2018

<https://chemistry.berkeley.edu/news/promising-research-could-lead-new-strategies-nmr-and-mri-using-diamonds-and-lasers>

Cell-like Nanorobots Clear Bacteria and Toxins from Blood

Engineers at the University of California San Diego have developed tiny ultrasound-powered robots that can swim through blood, removing harmful bacteria along with the toxins they produce. These proof-of-concept nanorobots could one day offer a safe and efficient way to detoxify and decontaminate biological fluids. Researchers built the nanorobots by coating gold nanowires with a hybrid of platelet and red blood cell membranes. This hybrid cell membrane coating allows the nanorobots to perform the tasks of two different cells at once—platelets, which bind pathogens like MRSA bacteria (an antibiotic-resistant strain of *Staphylococcus aureus*), and red blood cells, which absorb and neutralize the toxins produced by these bacteria. The gold body of the nanorobots responds to ultrasound, which gives them the ability to swim around rapidly without chemical fuel. This mobility helps the nanorobots efficiently mix with their targets (bacteria and toxins) in blood and speed up detoxification. The work, published May 30 in *Science Robotics*, builds on efforts of Joseph Wang and Liangfang Zhang



Colored SEM image of nanorobots coated in hybrid platelet/red blood cell membranes. Image courtesy of Esteban Fernández de Ávila/Science Robotics

UC San Diego Jacobs School of Engineering
30 May 2018
http://jacobsschool.ucsd.edu/news/news_releases/release.sfe?id=2550

"Right to Try Act" Signed into Law

President Donald Trump signed the "Right to Try Act" May 30, a measure aimed at helping terminally ill patients access drug treatments that are yet to be fully approved by the Food and Drug Administration. Trump, at a White House ceremony surrounded by patients and families who will be affected by the legislation, said his administration "worked hard on this" but said repeatedly he didn't understand why it hadn't been done before. The bill will give terminally ill patients the right to seek drug treatments that remain in clinical trials and "have passed Phase 1 of the Food and Drug Administration's approval process" but have not been fully approved by the FDA. Some opponents of the bill argue that the legislation won't change much but could have a detrimental effect on how the FDA safeguards public health. Trump said he thinks "hundreds of thousands" could be saved as a result of the legislation. "With the passage of this bill, Americans will be able to seek cures," Trump said, adding they will finally be given "the right to try."

Allie Malloy, CNN
30 May 2018

<https://www.cnn.com/2018/05/30/politics/right-to-try-donald-trump/index.html>

Synthetic 'Tissues' Build Themselves

How do complex biological structures – an eye, a hand, a brain – emerge from a single fertilized egg? This is the fundamental question of developmental biology, and

a mystery still being grappled with by scientists who hope to one day apply the same principles to heal damaged tissues or regrow ailing organs. Now, in a study published May 31 in *Science*, researchers at UCSF have demonstrated the ability to program groups of individual cells to self-organize into multi-layered structures reminiscent of simple organisms or the first stages of embryonic development. “What is amazing about biology is that DNA allows all the instructions required to build an elephant to be packed within a tiny embryo,” said study senior author Wendell Lim, PhD. “DNA encodes an algorithm for growing the organism – a series of instructions that unfolds in time in a way we still don’t really understand. It’s easy to get overwhelmed by the complexity of natural systems, so here we set out to understand the minimal set of rules for programming cells to self-assemble into multicellular structures.”



Researchers programmed cells to self-assemble into complex structures such as this one with three differently colored layers. Credit: Wendell Lim/UCSF

Nicholas Weiler / UCSF News Center
31 May 2018
<https://www.ucsf.edu/news/2018/05/410596/synthetic-tissues-build-themselves>

Implantable Interface Innovation

In April 2013, when he was US president, Barack Obama launched a research initiative aimed at revolutionizing our understanding of the human brain. With a budget of around \$100 million, the BRAIN – Brain Research through Advancing Innovative Neurotechnologies – Initiative looked to develop and apply technologies that explore how the brain records, processes,

uses, stores and retrieves information. As part of this so called Grand Challenge, the US Defense Advanced Research Projects Agency (DARPA) launched a set of programs designed to understand the dynamic functions of the brain and to demonstrate breakthrough applications based on these insights. One element is the Neural Engineering System Design (NESD) program, announced in January 2016. This aims to develop an implantable neural interface capable of providing “unprecedented” signal resolution and data-transfer bandwidth between the brain and the digital world and to do this in a biocompatible device which has a volume no larger than 1cm³. DARPA’s Dr Al Emondi is currently the NESD program manager.

NewElectronics
12 Jun. 2018
<http://www.newelectronics.co.uk/electronics-technology/implantable-interface-innovation/174945/>

3D Printing with Magnets in Microgravity

While methods of 3D bioprinting vary, most of them have one thing in common – they print cells layer by layer into a desired shape, which is then transferred to an incubator where it further grows and develops. Alternative methods exist, however, that involve the manipulation of the cell material by magnetic fields. The cells are then “labeled” with magnetic nanoparticles. But now a Russian research team has developed a new method of bioprinting that neither prints layer by layer nor uses magnetic labeling. This method could lead to the creation of radiation-sensitive biological constructs and the repair of organs and tissues. The new method, which involves magnetic levitation research in conditions of microgravity, was conducted by the 3D Bioprinting Solutions company in collaboration with other Russian and foreign scientists, including the Joint Institute for High Temperatures of the Russian Academy of Sciences (JIHT RAS). The research was documented in a paper: “Scaffold-free, label-free and nozzle-free biofabrication technology

using magnetic levitational assembly,” *Biofabrication*, June 18.

Clare Scott / 3Dprint.com
26 Jun. 2018
<https://3dprint.com/217647/3d-printing-magnets-microgravity/>

Possible Anti-Aging Intervention

New research from a team at the Marshall University Joan C. Edwards School of Medicine demonstrates that the Na/K-ATPase oxidant amplification loop (NAKL) is intimately involved in the aging process and may serve as a target for anti-aging interventions. The researchers were also able to successfully demonstrate the therapeutic potential of pNaKtide, a synthetic peptide, in improving impaired physiological functions and disease development. The findings are published in the June 26, 2018, edition of *Scientific Reports*, an online journal from the publishers of Nature. “I am extremely excited about the research involved in the current Scientific Reports article,” said Joseph I. Shapiro, M.D., senior author and dean of the Joan C. Edwards School of Medicine. “I believe that our team has not only implicated the NAKL discovered by our colleague, Dr. Zijian Xie, in the aging process but identified a novel therapeutic target as well as a specific pharmacological strategy to actually slow the aging process. Although it will be some time before we can test these concepts ...”

Marshall University Joan C. Edwards
School of Medicine / Eurekalert!
16 Jun. 2018
https://www.eurekalert.org/pub_releases/2018-06/mujc-mso062518.php

Manipulating Single Atoms with an Electron Beam

All matter is composed of atoms, which are too small to see without powerful modern instruments including electron microscopes. The same electrons that form images of atomic structures can also be used to move atoms in materials. This technique

of single-atom manipulation, pioneered by University of Vienna researchers, is now able to achieve nearly perfect control over the movement of individual silicon impurity atoms within the lattice of graphene, the two-dimensional sheet of carbon. The latest results are reported in the scientific journal *Nano Letters*. As an epoch-making achievement in nanotechnology, the scanning tunneling microscope has since the late 1980s been able to move atoms over surfaces, and has until very recently been the only technology capable of moving individual atoms in such a controlled manner. Now, the scanning transmission electron microscope (STEM) is able to reliably focus an electron beam with sub-atomic precision, allowing scientists to directly see each atom in two-dimensional materials like graphene, and also to target single atoms with the beam. ...

University of Vienna
9 Jul. 2018

<https://medienportal.univie.ac.at/presse/aktuelle-pressemeldungen/detailansicht/artikel/manipulating-single-atoms-with-an-electron-beam/>

HPE, EPFL Launch Blue Brain 5 Supercomputer

HPE and the Ecole Polytechnique Federale de Lausanne (EPFL) Blue Brain Project yesterday (July 9) introduced Blue Brain 5, a new supercomputer built by HPE, which displaces a long line of IBM Blue Gene systems that previously supported the 13-year-old Blue Brain Project whose ambitious goal is to “digitally reconstruct and simulate” the human brain. The new HPE machine, say both HPE and EPFL, was carefully designed to meet the massive

data handling and simulation requirements of modern brain research. The Blue Brain project, which has occasionally stirred debate among European brain researchers, came into being in June 2005 when IBM and EPFL signed an agreement to launch the project and install a Blue Gene at EPFL – hence the name Blue Brain for the machine. When IBM stopped development of Blue Gene around 2015, EPFL was forced to broaden its search for next generation supercomputing technology, said Felix Shürmann, EPFL, co-director EPFL Blue Brain Project during a press briefing yesterday.

John Russell / HPC
10 Jul. 2018

<https://www.hpcwire.com/2018/07/10/hpe-epfl-launch-blue-brain-5-supercomputer/>

A Roadmap to Revival

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

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

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

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Start preparing your

MEMORY BOX ...now!



Start your own time-capsule!

Create a Memory Box with items to augment your memories when you are resuscitated.

No one knows better than you what you will want to have with you.

Alcor makes available to every member and patient, without charge, one acid free Memory Box about the size of a standard banker's box (H10" x W12" x L15") for memorabilia to be stored underground at a commercial storage site called Underground Vaults and Storage (UGVS) in Kansas. Additional Boxes are a one-time charge of \$250 each for perpetual storage.

Some of the most popular items that have been placed into storage are such things as letters, cards, photographs, diaries, journals, notebooks, books, clippings, army records, directories, recipes, video tapes, cassettes, medical records, flash drives, and external drives.

If you would like to begin working on your own Memory Box, or perhaps contribute items to a Box for an Alcor Member already in stasis, or if you have any questions, please contact **Linda Chamberlain at linda@alcor.org or call toll free at 877-462-5267 ext 115.**





REDUCE YOUR ALCOR DUES WITH THE CMS WAIVER

Alcor members pay general dues to cover Alcor's operating expenses and also make annual contributions to the Comprehensive Member Standby fund pool to cover the costs of readiness and standby. Benefits of Comprehensive Member Standby include no out-of-pocket expense for standby services at the time of need, and up to \$10,000 for relocation assistance to the Scottsdale, Arizona area.

Instead of paying \$180 per year in CMS dues, Alcor also provides members the option to cover all CMS-associated costs through life insurance or pre-payment. Members who provide an additional \$20,000 in minimum funding will no longer have to pay the \$180 CMS (Comprehensive Member Standby fund) fee. This increase in minimums is permanent (for example, if in the future Alcor were to raise the cost of a neurocryopreservation to \$90,000, the new minimum for

neurocryopreservation members under this election would be \$110,000). Once this election is made, the member cannot change back to the original minimums in the future.

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

- **\$220,000 Whole Body Cryopreservation** (\$115,000 to the Patient Care Trust, \$60,000 for cryopreservation, \$45,000 to the CMS Fund).
- **\$100,000 Neurocryopreservation** (\$25,000 to the Patient Care Trust, \$30,000 for cryopreservation, \$45,000 to the CMS Fund).

If you have adequate funding and would like to take advantage of the CMS waiver, contact **Diane Cremeens** at diane@alcor.org.

Become An Alcor Associate Member!

Supporters of Alcor who are not yet ready to make cryopreservation arrangements can become an Associate Member for \$5/month (or \$15/quarter or \$60 annually). Associate Members are members of the Alcor Life Extension Foundation who have not made cryonics arrangements but financially support the organization. Associate Members will receive:

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

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

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

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



MEETINGS

ABOUT THE ALCOR FOUNDATION

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

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

ARIZONA

FLAGSTAFF: Arizona without the inferno. Cryonics group in beautiful, high-altitude Flagstaff. Two-hour drive to Alcor. Contact eric@flagstaffcryo.com for more information.

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

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

CALIFORNIA

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

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

FLORIDA

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

NEVADA

LAS VEGAS: A new group for the Las Vegas areas has been started for those interested. Contact Gilda Cabral at gcabral@korns.com or Mike Korns at mkorns@korns.com for details on upcoming meetings.

NEW ENGLAND

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

NEW YORK CITY

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

PACIFIC NORTHWEST

Alcor Pacific Northwest organizes meetings for Alcor members in the Pacific Northwest. Meetings are usually held in the Portland area but other locations are possible, too. The contact person for the meetings is Aschwin de Wolf: aschwin@alcor.org. See also: <https://www.facebook.com/alcor.pnw/>

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

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

TEXAS

DALLAS/NORTH TEXAS: Please join us at www.meetup.com/North-Texas-Cryonauts/ or contact David Wallace Croft at (214) 636-3790.

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

JAPAN

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

ALCOR PORTUGAL

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

SWITZERLAND

CryoSuisse, the Swiss Society for Cryonics To join, email: info@cryosuisse.ch Website: www.cryosuisse.ch

UNITED KINGDOM

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

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

WHAT IS CRYONICS?

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

HOW DO I FIND OUT MORE?

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

- A fully illustrated color brochure
- A sample of our magazine
- An application for membership and brochure explaining how to join
- And more!

Your free package should arrive in 1-2 weeks. (The complete package will be sent free in the U.S., Canada, and the United Kingdom.)

HOW DO I ENROLL?

Signing up for cryopreservation is easy!

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

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

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

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

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

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

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



Call toll-free TODAY to start your application:

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