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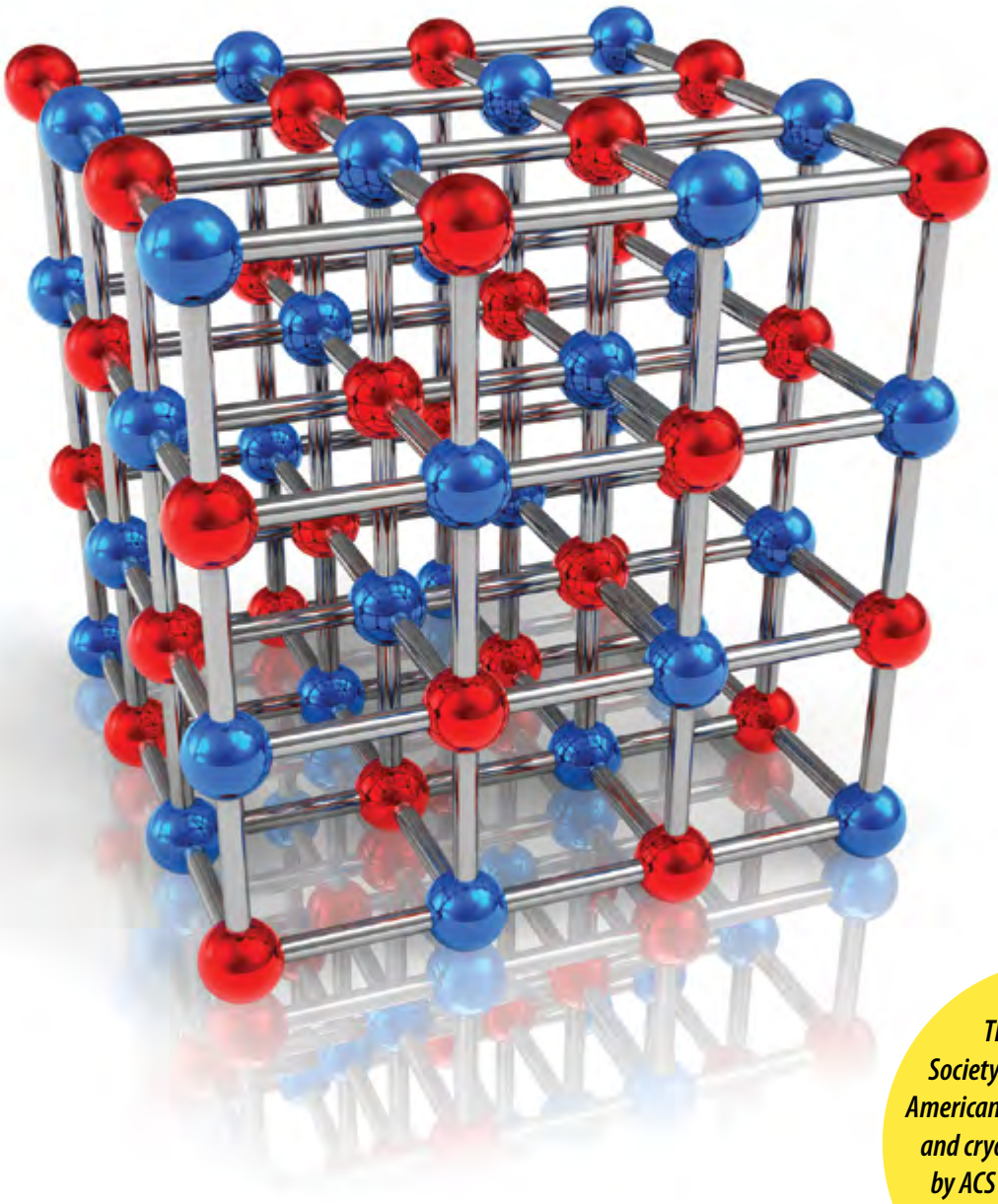
LONG LIFE

Longevity Through Technology

Volume 51 - Number 01



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

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CRYONICS INSTITUTE
Technology for Life

Why should You join the Cryonics Institute?

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

1) Cryonic Preservation

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

2) Affordable Cryopreservation

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

3) Affordable Membership

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

4) Lower Prices for Spouses and Children

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

5) Quality of Treatment

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

6) Locally-Trained Funeral Directors

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

7) Funding Programs

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

8) Cutting-Edge Cryonics Information

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

9) Additional Preservation Services

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

10) Support Education and Research

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

11) Member Ownership and Control

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

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

To get started, contact us at:

(586) 791-5961 • email: cihq@aol.com

Visit us online at www.cryonics.org

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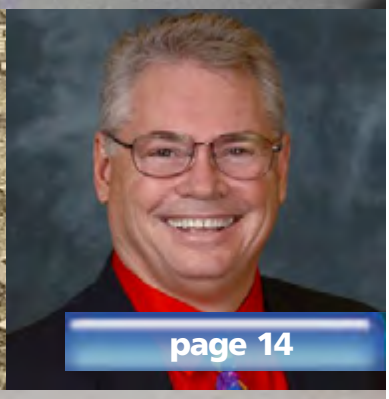

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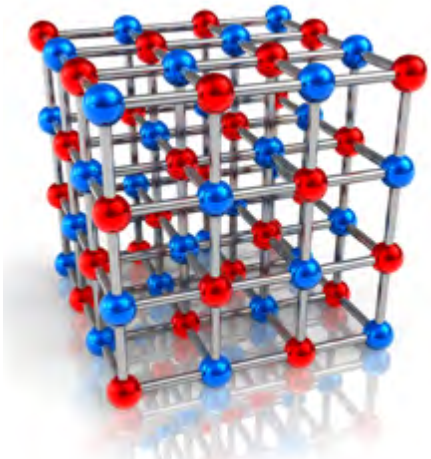

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LONG LIFE
MAGAZINE

A publication of the Immortalist Society

ORGANIZATION NEWS

FEATURE STORIES

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

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

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

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

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

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

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

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

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

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

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

CRYONICS INSTITUTE
Technology for Life

LONG LIFE

A quarterly publication of the

Immortalist Society

24355 Sorrentino Ct. Clinton Township MI 48035-3239

President: York W. Porter Vice-President: Debbie Fleming
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CI EXECUTIVE REPORT

Dennis Kowalski - President, Cryonics Institute

Welcome everyone to yet another new year and new adventures. It was a very cold and snowy winter here in the Midwestern United States. Here in Wisconsin, with our long, often harsh winters, we look at warmer weather as the light at the end of the tunnel. Many Midwesterners are not fans of the cold, but I prefer to make friends with the winter by looking at the positives. As rough as it can be, without the cold we have no skiing, snowmobiling or ice fishing. Ironically, the same goes for cryonics. If we find ourselves cryopreserved that means we are in a bad way. We had to be legally pronounced dead and we are at that point frozen at very cold temperatures but there is light at the end of the tunnel. We have a real chance. As long as society continues to exist and advance technologically there is a strong reason to believe we may be repaired, rejuvenated and brought back to life in an advanced world where life is expected to be even better than it is today - which despite what one's pessimism might say, would be light years more comfortable than the conditions of our ancestors just a few generations before. There's no room for spoiled pessimism when there is every reason to be optimistic. We really do have it good and now we actually live in a time where the possibility exists for us to escape the cold grip of death and someday explore the warmth and comfort of new life in a promising future.

Recently, at CI things have slowed down a bit with patient intakes which has given us breathing room to work on some more of the finishing touches on our current building while at the same time beginning to retrofit our new location with the needed equipment to expand and push forward. Testing continues on new cryostats. CI has been looking at larger more efficient cryostats that may be able to hold 8 patients vs the current 6. These vessels would require less retrofitting, labor and use less overall LN2 per pt.

CI also continues to fund research at the university level in the field of cryobiology in efforts to improve preservations by lowering toxicity and ice formation in tissues. We don't just pursue science for the sake of it but always aim to see tangible results that we can bring back and apply in actionable ways. It is important to be frugal with limited resources and although we'd love to fund all pursuits we have to look out for the best way to stretch every penny of our members' money.

Money spent frivolously or without focused goals and results is money that could be spent on additional people, including our friends or family. This is why CI keeps our prices low while encouraging members to overfund and donate if they have the means. We are in this together and it doesn't take a lot to review your life insurance and consider upping your amount for bequest to help our mission. Bottom line-The stronger CI is the better all of our chances will be. As always, we encourage you to review your personal situation and make sure your paperwork, contacts, preplanning arrangements and standby are all up to date. There are plenty of resources and some people have done a great job of taking the initiative but others have procrastinated. If you take anything away from this magazine, make a resolution to yourself and CI to check off a few items on the CI Members Readiness Checklist. My resolution is to do just that and to assist anyone who reaches out to me to do the same. Best Wishes and hope to see you in the future.

Dennis Kowalski
CI President

ACS Inspection for 2018

By: York W. Porter
Voting Member, Cryonics Institute
President, Immortalist Society
Member, Board of Governors, American Cryonics Society

On the weekend of September 9, 2018, both Jim Yount and York W. Porter, as representatives of the American Cryonics Society (ACS), conducted an inspection of the Cryonics Institute (CI) facility that is located at 24355 Sorrentino Court in Clinton Township, Michigan. The "walk through" part of the inspection was conducted during the time period available for public viewing of the facility. In addition, documents were also provided later by the staff of the Cryonics Institute and at the annual meeting of the Cryonics Institute. These documents included liquid nitrogen invoices showing, in general, liquid nitrogen usage and the annual financial statement of the Cryonics Institute. Further, the staff of the Cryonics Institute was readily available to answer any questions that might arise during the inspection itself. The same staff members have always been more than helpful in previous years in the obtaining of any information needed after the actual physical inspection. This information in the modern era is, of course, easily obtainable by e-mail or other telecommunications means as well as the traditional method of U.S. Postal Service and/or other ground transportation delivery methods.

It should be noted by the reader that CI has an additional physical facility other than the one at 24355 Sorrentino Court. This facility is generically known as "CI West". This facility was not in active use in terms of patient storage/preparation at the time of the 2018 ACS inspection so no attempt was made by ACS representatives to look at this facility during the inspection. At the appropriate time, this facility will be included in future ACS inspection efforts.

The basic purpose of the American Cryonics Society inspection regimen is based on a strong desire by ACS to act as an adjunct in helping insure that organizations that engage in the care and long term maintenance of past, present,

and future ACS members are maximizing their efforts at quality work. This is more or less identical to the fact that hospitals, for example, in the United States and elsewhere have many internal and quite laudable quality control efforts that serve to help a particular hospital identify potential and/or existing problems within the institution itself. In addition, however, external looks at these same facilities by representatives of governmental and/or private agencies help to act as a "double check" and to possibly point out problems that may have been unintentionally overlooked in the internal QC efforts. The efforts by ACS to take an "independent look" at a facility and provider should be viewed in a similar fashion; that is as an attempt to be of help in making sure quality is at the top of the list in cryonics services provision. ACS has as its intention annual visits of organizations and facilities as needed on behalf of ACS members. Discussions are ongoing, from time to time, within ACS as to ways in which ACS may improve it's inspection regimen. Input on this topic is welcomed at any time by anyone wishing to contact ACS with suggestions regarding said improvements.

In addition to the "technical aspects" of an inspection, there is always the personal interaction between inspectors and the individuals at a facility/organization being inspected. Both Mr. Porter and Mr. Yount have been involved in cryonics for a number of decades and both are well known to each other and to individuals within the Cryonics Institute. In particular, Mr. Andy Zawacki, who serves as one of the full time employees of CI, and who also serves on the CI board, is a well-known individual by both Mr. Porter and Mr Yount. Mr. Zawacki is always very helpful and forthcoming in efforts by ACS to carry out its annual inspection of CI.

Physical Plant

The main CI facility is located in an industrial park in Clinton Township, Michigan. The CI facility is built primarily of concrete masonry units (so called "concrete block") in a utilitarian but still pleasant looking fashion. The CI facility is surrounded by several other similarly built structures. The parking area at the building is well maintained and the exterior of the building is very neat and orderly. Entering the building, one is exposed to a very well cared for interior. The front of the building contains and includes a small office area, rest area/room, and filing cabinet room. Staff and visitors may use an associated coat closet/utility closet and a rest room facility.

A relatively new tiled floor that exists throughout parts of the building provides a professional looking appearance compared to a previous floor covering. This tiled floor should stand up for years to foot and other daily traffic. Further, the tiled floor should make cleaning up of any spills a relatively easy task.

As one goes into the general area that holds the cryostats, on the right is the preparation room where the procedures on individuals who are undergoing the cryonics' protocols set out by CI may be carried out. This room is well maintained with cabinets and supplies as would be needed at any point in the cryonics procedures. The general piping associated with the fire sprinkler system that was installed several years ago through, in part, the financial assistance of the American Cryonics Society, runs through this room. All piping and valves of the sprinkler system appeared to be in proper and working condition.

Moving down in the cryostat area and also on the right is a fairly good-sized room that had previously been used in past years for member meetings and/or some aspects of general storage. This room has been renovated since that time and is now used as a very functional and professional looking Memorial Room and room for meetings of the Board of Directors.

In the Memorial/Board of Directors room exists a large flat screen television that may be used for various purposes. At one previous inspector's visit, this television was running a "loop" of photographs of some of the individuals who are already under the care of CI. This was a very nice and professional touch that helped to fully emphasize that the purpose of CI is centered on the individual members and the incalculable value of each of their individual lives. If further reminded one of the realistic possibility that, with the advancement of science and technology, each of these individuals has a reasonable chance of restoration to life and reasonably youthful good health.

The cryostat area itself was fairly large and takes up most of the space in the building. Readily available was an adjoining handicapped accessible restroom. A new epoxy covering had been placed on the floor that greatly enhanced its appearance over the previous year. Halogen overhead lights were in the process of being installed which should both be an energy saving feature in the facility as well as providing a better and less harsh type of illumination compared to the fluorescent lights which had previously been utilized.

Noted in the area was the "cool down" box where an automatic lowering of individuals down to liquid nitrogen temperatures can be carried out. This device also has the capability of being run in a manual mode if need be in case of any software or other problems with the automatic functioning of the unit.

The entire cryostat and work area was quite presentable, neat and orderly, and should make a quite professional impression on any potential visitors/possible members.

As more individuals are arriving to be placed under the care of CI, the cryostat area has continued to gradually fill up. In response to this, as well as to provide for future influx of cryonics patients, a second building has been obtained by CI. As mentioned above, this facility was not being used at the time of the ACS inspection, so no inspection of it was warranted or needed. The obtaining of this facility is, however, in the opinions of the 2018 inspectors, to be a very prudent act of foresight in making sure CI prepares for the future. At the initial purchase of the present main facility, for example, the amount of space seemed (and was, given the relatively low patient load at that time) quite ample. Now the main facility is gradually reaching its limit in terms of ability to store individuals. While far from an emergency situation as a fair amount of storage capability remains at the present main facility, the purchase of "Cryonics West" was a prudent action to take in terms both of providing for future growth and in providing time to prepare this facility for use in dealing with future patients.

At the very back of the 24355 Sorentino Court facility stands a large "bulk tank" which is CI's present method of receiving new supplies of liquid nitrogen. Dual chain link fencing that is secured by locks surrounds this tank. This bulk tank has resulted in financial savings to CI over the smaller volume delivery methods that CI was understandably forced to use in its earlier days. The bulk tank also serves as a substantial "reserve" of liquid nitrogen. This is a big plus in case supplies were to be delayed in being received, or if there should be a short term increased need for additional liquid nitrogen between deliveries due to an influx of patients. This large bulk tank appeared to be in excellent condition. At present, cryostats are filled via a nozzle and hose system where liquid nitrogen is added through the top of the cryostat. There is a metal "catwalk" that workers utilize in accomplishing this task. Through this arrangement, liquid nitrogen flows from the bulk tank through the hose utilized by the CI worker and directly into the cryostat.

Liquid nitrogen invoices that were provided appeared in good order and seemed to reflect proper purchase amounts for the number of cryostats in use. Lack of ready availability/purchase of liquid nitrogen was, very sadly, a key factor in the one major disaster in cryonics that occurred a number of years ago. This topic remains, of course, an important item to be cognizant of in the operation of any cryonics organization that engages in the long term storage of cryonics patients. CI has this potential source of failure well in hand at this point in time.

Finally, it should be noted that several years ago a system was installed in the area with the purpose of insuring that nitrogen vapors do not build up excessively and that a mechanical ventilation system is available to insure that the air quality in the building is compatible with good standards.

Cryostats

In previous years, there was "in house" construction of cryostats for use by CI. Now CI engages an outside company to build cryostats according to design specifications provided by CI. These cryostats are built primarily using fiberglass and have proven to be extremely reliable with no major failures of any cryostat that has been in use storing patients. All cryostats in use, both those custom built for CI as well as those constructed by CI itself in earlier years, were intact at the time of the 2018 inspection with no visible signs of leaks/malfunction. It should be noted that repair of said cryostats, if ever needed to be done, is made easier by their fiberglass construction. It should be further noted that the newer cryostats that are custom built for CI have resulted in decreased liquid nitrogen usage, i.e., they have been more efficient than previous cryostats and more efficient than the initial and understandably conservative assumptions made early in CI's history. This means that the amount of funds that need to be set aside for liquid nitrogen replacement per patient has turned out, overall, to be less than initially believed and planned on in the early days of CI. Any monies saved can be used, of course, for other organizational purposes and/or for investment.

As a possible point of personal interest, it should be noted by readers that cryostats basically function as large thermos bottles. While electrically operated vacuum pumps are used from time to time to help keep the cryostats insulating space at maximum efficiency, they do not require any electricity to continue to routinely function making them relatively immune to electrical grid failure. Further, as opposed to what some persons may mistakenly think, the liquid nitrogen, although at a state of extreme cold, doesn't violently "boil" in the cryostats but will, instead, gradually evaporate. The amount lost by evaporation is simply replaced by CI workers using the line from the bulk tank as generally described above.

There are, of course, electrically dependent devices such as the cool down box, lights, computers, etc. within the CI facil-

ity. For those devices a 10 kW generator is on site to provide back up power to run those devices should it become necessary.

Personnel

Mr. Andrew Zawacki has served as one of the key employees of CI for several decades now, first being employed around 1985. During that time, Mr. Zawacki ("Andy") has gathered a wealth of knowledge about cryonics and about the particulars of the operation of CI. Mr. Zawacki also serves on the CI Board of Directors. In his dual role as employee and CI Director, he is in an excellent position to keep the CI Board of Directors well informed as to any problems and concerns in the day-to-day operations of CI. Mr. Zawacki is well known to be very polite, very honest, and to be a very pleasant and helpful person to deal with. One inspector (YWP) has known and dealt with him for around thirty years now as a CI member and has found him to be unfailingly loyal to CI and deeply concerned about the welfare of the organization as well as its many members. He is a quite valuable and important person in CI's operations.

In addition to Mr. Zawacki is Mrs. Hillary Martenson as another full time employee. Mrs. Martenson holds a bachelor's degree in mortuary science and has been, in the inspectors' opinion, a big asset to CI. Like Mr. Zawacki, Mrs. Martenson is quite intelligent and also, like Mr. Zawacki, she is a very pleasant person to deal with. Mrs. Martenson is reported to be a "quick study" and, between her professional qualifications and Mr. Zawacki's mentoring, she represents a bright future, personnel wise, for CI and she will, no doubt, continue the excellent personal touch that CI is somewhat noted for. She should continue, for some decades to come, to be a big asset to CI.

For some additional information, Mrs. Martenson has been a licensed funeral director since April 28, 2015 (Michigan Mortuary Science License Number 4501007964). Mrs. Martenson formal background in mortuary science is a big asset in dealing with other funeral director's worldwide as well as in her dealing with members.

Mr. Dave Fulcher is a part time employee of CI and has been so for quite a number of years, offering a further "safeguard" in the case of illness and/or loss of other employees.

A recent hire by the Cryonics Institute was Mr. Mike McCauley. Mr. McCauley was working on lighting installation near the time of the annual meeting. He is, like his daughter Mrs. Martenson, another pleasant and intelligent person to deal with. His skills should be an asset to CI as well.

The combination of staff members CI presently employs and utilizes positions CI in a very strong position for the foreseeable future, personnel wise. It also results in CI being in an excellent position to have key persons in place that will allow the training of the next generation of workers and supervisors for its facility.

Governance of CI

The day-in, day-out operational control of CI rests in a 12 person Board of Directors. Voting members of the Institute are eligible to vote by virtue of having both paid a membership fee and having a fully funded suspension contract that is up to date. Four of the twelve Board of Directors are up for election, in a rotating fashion, at each annual meeting. That is to say, the first year, "Group A" of four seats are up for election. The second year "Group B" of a different four seats comes up for election. The third year, "Group C" of a different four seats comes up for election. The fourth year, "Group A" comes up for election again and the cycle continues.

A fairly common mechanism of electing individual Board members in many corporations is through the so-called "cumulative voting" method. CI utilizes this method in the election of its Board Members. In this method of voting, each voting member is allowed to cast a total of four votes at each election (the same number as the number of seats open for election). Voting members may cast all four votes for one candidate or "mix and match" votes if they so desire, i.e., one vote for one candidate, three votes for another, or two votes for one candidate, two votes for another, or one vote for each of four candidates, etc., etc. Votes are tallied up and the four candidates receiving the top four numbers of votes in the election become the new Board Members. Each Board member, as indicated above, serves a three-year term before they are up for reelection.

Under this methodology of election, a relatively small group of voters may band together and insure that at least one person sympathetic to and/or agreeing with their viewpoint is guaranteed election to the Board of Directors at each annual election. In the particular case of CI, a group consisting of only twenty percent of the entire number of voting members can cast all four of their votes for one particular candidate. If they can talk one additional voting member to cast only one vote of their four votes for that same particular candidate, that candidate will be guaranteed a seat on the CI Board of Directors.

By using this same "bloc voting plus one" method, this group can insure the

election and control of three seats on the Board of Directors by electing one out of the four candidates at each election. While those three seats do not, of course, constitute a majority of the Board of Directors, this methodology does insure that a tremendous "watchdog" force can and will exist on the Board. The three individuals elected to these three seats will be privy to documents, actions, Board minutes, etc. of the corporation. They can actively participate in Board meetings, make motions, argue for or against a particular position or course of action, etc. They can communicate with individual members at will. In the financial realm, which is a particularly important area of oversight for any board, they can look at and analyze expenditures and revenues. They can consult with CI's legal counsel or, if they so desire, can consult with an outside counsel if need be. Well-disciplined minorities within the organization's Board of Director's can, therefore, serve as a major "check and balance" on Board conduct. Although not entirely impossible, the mechanism for selecting members of the Board of Directors makes a "dictatorship of the majority" very, very difficult to carry out.

An additional "check and balance" exists within the Board selection mechanisms in that the officers of the Board (President, Vice-President, Secretary, Treasurer, and Contract Officer) are chosen by the members of the Board. (Other offices may be established by the Board but must be approved by the voting members at the next annual meeting). This mechanism forces the Board to work, within limits, in a collegial fashion in which no one person has dictatorial power within the organization.

Even in the case of the President of the organization, who has more or less CEO status, they are also in a position where they must be quite cognizant of the wishes of the majority of the members of the Board of Directors and, thereby indirectly, of a relatively wide number of members in the organization. The President may also be assigned duties as specified by the Board of Directors. This power of the Board acts as a further mechanism to prevent any one individual interested in abusing their authority from doing so.

In any organization, a strong willed and forceful personality might be able to greatly influence the operation of things. That occurrence is understandable and not all that uncommon in human organizations. In the case of CI, however, without a fairly total abdication of responsibility among the Board of Directors and of the membership in total, any such an attempt based on malevolent purposes will be short lived.

An additional check and balance is represented by the fact that members of the Board of Directors may be removed without cause by the membership (subject to provisions within the Michigan Nonprofit Corporation Act). As a further safeguard in the CI bylaws, it only takes five percent of the membership (or five members, whichever is greater) to stop new or non-customary action by the Board of Directors or of the corporation's officers. In the case of such an event, a special meeting of the membership must be called.

Two persons who are members of the Board of Directors may also do the same as regards actions of the Board of Directors/the corporation's officers. This aspect of CI bylaws/operations gives great "check and balance" power to any minority group utilizing strategic voting under cumulative voting procedures as outlined above. In the case of this "two person" Board member(s) objection, the action of the Board is then "suspended" in any event until either a majority of a quorum at a membership meeting votes to confirm a Board/corporation officer's actions or until a petition representing the majority of the entire number of voting members is presented to do the same.

The membership, within the governance scheme of CI, has the final say so on all matters. This may be viewed as the ultimate "check and balance". Although the Board is vested with the day-in, day-out operations of CI, any action is subject to any "corporate resolutions" (standing rules) established by the membership itself. Corporate resolutions may be passed by a majority of a quorum at a scheduled meeting or may be brought into effect by a petition signed by two-thirds of the voting membership. These would be binding on the operations of the corporation, as long as they are consistent with local, state, and federal statutes/regulations.

An additional "democracy first" mechanism that keeps CI having to operate in a collegial and not dictatorial fashion, is the capability of only ten percent of the members (or ten members, whichever is more), to send a petition that would result in a special meeting of the membership being called. (This may also happen by the vote of a majority of the Board of Directors). In the case of a special meeting of the membership, the requirement is that thirty days notice must be given to the membership as to the date of the meeting. This requirement is in place whether the special meeting is called by the Board or by some of the members. Members may vote by proxy (either general or specific) on any issue or issues that come before a meeting of the membership. Board members may also use proxies in Board meetings. The use of proxy voting allows a member that may

otherwise be unable to participate in a meeting to do so.

It can be easily noted by the above information that membership capability within CI is very vigorous and strong. With all these mechanisms and safeguards, member control of CI is ample and abundant. That being said, it is a reality that, as in any organization, nothing can fully insure the proper operation of that organization except an involved and informed and well-intentioned membership and Board of Directors. Further, it is true that in any organization and/or governmental unit in the world it is always necessary for well-meaning people to be willing to be assertive in the face of what might be considerable opposition. While nothing can "save one from himself" the procedures outlined above give diligent CI members the ability to be the final arbiters of CI actions. Acted on judiciously, this can be a key measure in the success of the Cryonics Institute.

Financial/Legal Matters

At least three individuals serving on the Board of Directors have work experience and/or training in the field of organizational and/or professional finances. A major avenue for the failure of organizations is simple inadequate attention to their financial status. With these three individuals serving on the Board of Directors, the chances of this avenue of failure occurring are greatly decreased. It should be noted that one of these individuals engages, from time to time in an informal "audit" where the individual goes to the CI facility for an in depth and random look at CI's financial records. This has been an ongoing multiyear project and to this date, no problems or irregularities have been found.

At the annual CI membership meeting, an annual financial statement is presented to anyone present that wants one. A copy of the 2018 financial statement should be found attached to this report. From time to time, such a statement is placed on both the website of the Cryonics Institute and of the Immortalist Society. The Immortalist Society also tries to place both its own financial statement as well as the CI financial statement in the pages of the Immortalist Society magazine Long Life. While seemingly somewhat redundant, a printed written record published independently of CI helps, at least in a minor way, to maintain a clear record of CI's financial activities, i.e., the written record may not be changed without it being readily noticeable to someone double-checking such figures.

Further, the use of both the CI and IS websites provides a mechanism where the CI financial statement is readily available to numerous CI members, as well as members of the public, some of whom may have significant financial expertise themselves. In short, anyone on the Internet may look at general CI finances with an eye towards financial errors or significant problems.

In terms of legal support, David Ettinger, who is Robert Ettinger's son, serves in the capacity as the Board's legal counsel. Mr. Ettinger has been in practice for quite some time now. He is both well familiar with Michigan law and regulations as well as the particular challenges the Cryonics Institute may face in coping with legal and/or regulatory situations.

Due to a fortuitous circumstance, two individuals on the CI Board of Directors are both law school graduates who successfully passed the bar exam post graduation. Although, at present, both work in other areas than legal practice, their presence on the board helps to guide CI in a manner to try to avoid legal problems to begin with. It is a sad reality that litigation can be a tremendously expensive and, sadly, can in some instances be dangerous to the successful continuation of an organization. With the presence of David Ettinger plus these two individuals, it is the inspectors' opinion that CI has benefited greatly down through the years in the avoidance of potentially troublesome legal situations. This has certainly helped in insuring that CI has continued to survive and prosper without self-inflicted and costly/possibly organization threatening legal problems.

Internal Quality Controls/ General Security

CI has as one of its stated goals having internal inspections and quality control. This is a very positive thing as it enhances quality assurance at CI. As in the area of hospital work as mentioned above, however, any efforts within an organization to try to maintain high standards, coupled with an "outside" look by independent agencies/individuals, only serves to strengthen an organization's efforts towards safe and effective operations.

In terms of physical security, an electronic surveillance company has been employed. This means there is an alarm system as well as numerous cameras placed throughout the CI campus. This helps to decrease the possibility of break-ins and/or disruptions to CI daily operations. The security cameras are accessible to CI employees with a cell phone app where CI personnel can check the premises out 24 hours a day if need be. Prominently posted are stickers that announce the use of electronic security measures. These prominently placed stickers serve to dissuade any persons of ill intent.

Multiple locations, both inside and outside of the CI facility, serve as storage for patient records. These records are kept in secure, confidential, and fire resistant areas.

Local fire protection is located only about two and a half miles away at 21250 Fifteen Mile Road. The Clinton Township Police Department is at 37985 Groesbeck Highway and is about four miles away from CI. As in any city, officers are on active patrol in the Township at any one time. To facilitate access for non-destructive first responders, CI uses the KNOX-BOX® Rapid Entry System.

In terms of telephone security, CI maintains phone lines, both landlines and cellular phones, at all times both for routine and emergency use.

Conclusions:

CI is a long-standing provider of cryonics services. It is an organization that is gradually continuing to grow and is working diligently to meet the challenges of that growth through rational addition of both personnel and physical plant resources. The Cryonics Institute has been a very long-standing provider of cryonics services. In terms of its internal governance, there are numerous "checks and balances" which can help insure its long-term survival. Individuals of special expertise are serving in the organization and on its Board of Directors. This should also help in the long-term survival of CI and it's operation in a safe, efficient, legally correct and financially stable manner. The governance structure of the organization lends itself to relatively effective oversight by the members and the Board of Directors given, as in any organization, due diligence on their part. Several "checks and balances" that exist in its bylaws should be of considerable help in maintaining stable operations given that same diligence by the membership/Board of Directors.

The physical plant is relatively near both fire and police assistance. The building and grounds remain in a state of being well maintained and are reasonably secure through both relatively close by fire and police help as well as electronic security measures that are in place. Further, there is the automatic monitoring of safe air levels in the building to detect excessive build up of nitrogen vapors. Supplementing this is a mechanical ventilation system that keeps air inside the facility at a safe level of oxygen concentration and human inhabitability. A sprinkler system, which was installed several years ago and that was paid for in part by the financial assistance of a trust administered by the American Cryonics Society helps to keep fire danger very low in a building that is fairly fire resistant to begin with. In addition, fire extinguishers exist in the building to supplement the fire department resources that are relatively close by. Duplicates of patient records are kept in secure locations. Very reliable cryostats are used and which have resulted, in the aggregate, to a cost savings to CI patients due to their lower than expected use of liquid nitrogen. Finances of CI seem to be managed in a way that should both be considered reasonably prudent and in a way that should alert the Board and/or diligent members to potential problems. With the relatively recent addition of an additional facility, space for any reasonable number of patient inflow seems to be secure for the foreseeable future.

Readers should note that, of course, virtually no inspection regimen is able to absolutely guarantee proper operations of any organization. Continued day in, day out interest by the group's members is also an important aspect in helping to insure proper operation of any organization. In the real world, one cannot be fully prepared for every conceivable catastrophic event. To use very extreme examples, the case of the presently dormant "Supervolcano" that is under Yellowstone Park in the United States starting to erupt or the sometimes discussed possibility of an asteroid hitting the planet Earth are circumstances that no reasonably effective remedies presently exist for. In terms of the normal day-in day-out human realm, however, the Cryonics Institute seems to function in a well thought out and rational manner which can only lead to a reasonable expectation of its continued operation and the reasonable safety of individuals it cares for. CI continues to apparently work diligently within its manpower and financial resources to deal with reasonable threats to its continued existence and to its patient's safety. If the future brings, as it inevitably will, more patients to care for, it is only reasonable to expect those efforts will be redoubled and that CI will continue to improve its operations. As reported in a previous ACS inspection reports, CI's operations give a reasonable level of assurance that individuals under the care of CI are in no immediate danger and that the prospects of their continued long term storage and care, at least for the foreseeable future, are excellent.

(It should be noted by readers that the American Cryonics Society is a totally independent organization from either the Cryonics Institute or the Immortalist Society and the responsibility for the contents of this report lies entirely with the American Cryonics Society).

The Affordable Immortal

By: Rudi Hoffman

Email: rudi@rudihoffman.com • Phone: 386-235-7834 •

Website with "Quote Request" form short cryonics videob can be found at www.rudihoffman.com

Introduction by York W. Porter, Immortalist Society President *In this chapter of The Affordable Immortal, my long time and dear friend, Rudi Hoffman continues to put some substance into his thesis. That thesis is, simply, that with some realistic planning, cryonics, and the promise it offers of greatly extended physical life, can be made available to virtually anyone at all.*

As stated before, the opinions here and the illustrations here are all Rudi's own. Cryonics, as mentioned in previous installments, is a broad field and opinions vary greatly on various subjects. The costs and financial aspects of this endeavor and the particulars of the operations of each cryonics service provider are among those. Rudi has a wealth of professional background in the topic of insurance, investment, and personal financial planning and has been, as well, a long standing and respected member of the cryonics community. Nevertheless, readers should use care and due diligence and double check the aspects of their own particular situation with both readings of writings by and personal contact with other cryonics members. No one person can be all knowing about every conceivable situation and subject in cryonics. That being said, Rudi's excellent contribution to helping his fellow cryonicists to deal with this basic and important subject is a great place to start.

Chapter 3

What's the Fare on This Time Machine?

So, if cryonics is a potential time machine, what are the costs involved to buy transport? Is this technology affordable for the brain that is reading these words?

As noted in the last chapter, there are two main cryonics organizations doing business in the United States today (2018), Alcor Life Extension Foundation, hereafter referred to as Alcor, and the Cryonics Institute.

Other cryonics organizations exist or are being developed throughout the world, such as CryoRus in Moscow, Russia, and the American Cryonics Society.

To keep this explanation relatively straightforward, we will only discuss costs for Alcor and the Cryonics Institute. This covers the organizations which represent well over 90% of worldwide cryonics membership.

The reader should be advised that this is written in 2018 of the Common Era, and that costs generally can and do change over time. The purpose of this chapter is to provide an accurate and comprehensive overview of the cost of cryonics as of this moment, and also to deal with future costs in a reasonable, although speculative, manner.

Costs at Alcor

Alcor has two options for cryopreservation—full body and neuro vitrification.

The full body cost is currently $200,000, generally paid with an extra life insurance policy. The cost for neuro vitrification, or "neuros," is $80,000, also generally paid for by life insurance. (These prices do not include the Comprehensive Standby Waiver.)

Alcor recommends you overfund above and beyond current costs in order to handle possible price increases (which will almost certainly occur) as a result of technological enhancements and price inflation.

Early in 2013, Alcor reversed a long-standing policy of "grandfathering in" rates at the costs which were in effect the day that people signed up. There is now an additional dues cost designed to incent people to have CURRENT level funding for when the actual service of cryopreservation is performed.

What does this mean as a practical matter? It means that more coverage is better, quite simply.

But how much more? Well, here are some considerations.

Let's assume, for a moment, that you signed up with Alcor in 1994, the year the author of this chapter signed up. The cost of a whole-body cryopreservation then was $120,000. If I had to be cryopreserved right now, in 2018, Alcor would provide me with a service legitimately and currently costing $200,000. (This amount of $200,000 charged by Alcor, one should realize, includes about $100,000 which is added to the internal "Alcor Patient Care Trust.")

The new pricing model indicates I will need to have $200,000 going to Alcor to secure a state of the art cryopreservation. So, if I had only obtained $120,000 of life insurance for my funding when I signed up, I would now need to buy an additional policy to make sure that I was funded for the full current cost of $200,000.

The Rule of "72" and How to Plan for Your Future Cryopreservation Needs

This short explanation may seem like a digression at first, but we will soon find out it is not.

Have you ever heard of the "Rule of 72?" It is astonishingly simple, but powerful.

You can determine the future cost of a compound interest calculation by dividing the number 72 by the interest rate. The result indicates the number of years it will take to double the original amount. Cool, huh?

For instance, let's say we are buying an item which today costs $200,000 – like a whole-body cryopreservation at Alcor. Let's further assume that medical inflation increases costs by 7.2% a year. While no one knows for certain what inflation rate to expect in the future, you are almost certainly aware of current macroeconomic events which make ongoing inflation virtually inevitable.

It is extremely unlikely, given the actual numbers of people signing up for cryonics throughout the planet, that the economies of scale available for commodities like your iPhone are going to happen for cryonics in the near or midterm future.

Medical Inflation Rates

By way of a data point of hard reality, the health insurance premiums I pay went up 30% and 17% per year for the last two years. So, 7.2%, as a working figure for increasing costs of specialty medical interventions, is not unreasonable.

The number 7.2 goes into 72 ten times. This gives us a rather convenient shortcut for calculating without a calculator or even without pen or paper how costs will rise.

At a 7.2% inflation rate, costs will double every ten years. So, a service which costs $200,000 today will cost $400,000 in ten years. Ten years from that point, the cost doubles again to $800,000, and in just another ten years the cost jumps to a staggering $1.6 million.

However, historically, Alcor's increase in cost has been more modest, coming in at 3.2%. Again, using the "rule of 72" we divide 72 by 3.2, and come up with a doubling time of about 22.5 years.

So, if we are anticipating that the rate of increase in cost for Alcor will continue the historic trend of 3.2%, and we want to make sure we are covered for this future increase in cost for at least the next few decades or so, we will want to have double the current funding requirements, or about $400,000 of life insurance.

Costs at the Cryonics Institute

A full body cryopreservation at the Cryonics Institute is only $35,000, which seems like a dramatic reduction in cost compared to Alcor's cost of $200,000; however, there are some important nuances to consider.

Unlike Alcor's cost, in which the medical stand-by team and transportation logistics are included as part of the package, the Cryonics Institute has "un-bundled" the cost of cryopreservation and transportation.

So, what are the current global costs of the Cryonics Institute?

The answer is obtained by adding the Cryonics Institute cost *and* the expense of a separate cryo transport and medical standby organization called "Suspended Animation, Inc." along with the cost of a private air ambulance.

The global cost of the Cryonics Institute, Suspended Animation, Inc., and a private air ambulance is currently $143,000, which is expected to increase. To their credit, the Cryonics Institute portion has been stable for several decades.

Patient Care Trust

One of the distinctions between Alcor and the Cryonics Institute is the amount each organization sets aside for the long-term maintenance and costs involved in taking care of

the "patients." (Yes, in the world of cryonics, the members who have been pronounced legally dead are referred to and treated as "patients," not corpses.)

Alcor, charging $200,000 for a full body cryopreservation, places a total of about $100,000 in the "Patient Care Trust" each time a patient is cryopreserved. As of 2018, there is around $12 million in this fund. The Patient Care Trust has its own separate board of directors and is not utilized for day to day operation of the Alcor organization, but instead is used strictly for costs of maintaining the patients.

The Cryonics Institute, charging much less, clearly cannot set this much aside for each patient, and they do not. The amount added to the Patient Care Trust at the Cryonics Institute is currently about $20,000 each time someone is put into cryopreservation.

Dues

In addition to the cost of the cryopreservation, which is generally paid by a life insurance policy at the time of death to the cryonics organization, both Alcor and the Cryonics Institute have membership dues.

Membership dues enable the organizations to keep up with the costs of doing business and to be stable and sustainable.

The annual dues (2018) for Alcor are $525.

The annual dues (2018) for the Cryonics Institute are $120. Additionally, at "CI" one can pay a lifetime membership, a one-time cost of $1,250, eliminating any further annual dues.

There is a reduced dues structure for additional family members for both organizations.

It is important to understand that these "dues" are separate from and additional to the cost of the life insurance. These membership dues are payable only prior to cryopreservation. Dues stop once cryopreservation has occurred, since the Patient Care Trust covers all ongoing costs.

Sample Membership and Life Insurance Costs

How are people paying for the costs of cryonics? Here are some actual client examples.

Most clients are paying with some version of life insurance.

Life insurance comes in different types, and the cost varies dramatically with age and the types of coverage.

The following are actual rates paid by genuine human beings. The names have been changed, of course, but these are accurate and representative exemplars of cryonics funding.

John

John is a software engineer, age 29, in excellent health. He invests $142 a month in an Index Universal Life, because he wants an insurance policy that will be in place in his later years without cost increases. He also knows he wants and needs a systematic, disciplined, long-term savings plan, and the Index Universal Life provides a tax advantaged long-term savings plan.

He has an immediate death benefit of $300,000, which is more than sufficient for Alcor's full body cost for now and for the mid-range future. Additionally, John's Index Universal Life policy grows cash - cash which accumulates tax free and is creditor proof. John's policy projects to a substantial sum in the future: at age 100, the cash value *and* the death benefit of his policy grow to over $1.7 million.

Nancy

Nancy is an emergency room nurse and deals with the fragility of life daily. She sees first hand nearly every day how life can provide unexpected and life-threatening events. Even though she is only 37, she would like the security of knowing she is doing everything she rationally can to live on into the future, so she is interested in cryonics.

After filling out a website form for some quotes and information, Nancy is pleased and surprised that she can, indeed, afford the global costs of cryonics.

Although she has a savings plan at work, Nancy likes the idea of an additional long-term savings plan, a way to automatically "pay herself first" a portion of the money that goes through her hands.

She finds that for only $151 a month, she can purchase an Index Universal Life policy for $175,000. That amount is sufficient for the Cryonics Institute and the medical transport team costs. Additionally, the policy enables the growth of a cash value. Nancy does not need to die to benefit from this cash value in the policy, which is growing at a rate of return that historically beats inflation.

At Nancy's age 100, this cash value, using historic rates, could well grow to over $1.2 million.

Dan

Dan is a PhD student, living on a stipend provided for his graduate studies of $12,000 a year. He is intrigued by the idea of cryonics, but his initial thought is that he probably cannot afford to sign up now.

However, after listening to a motivational tape encouraging him to take some action in the direction of his goals, Dan decides to do some research on different ways of funding cryopreservation.

He is pleased and surprised to find that there are two basic types of life insurance. We'll quickly summarize these provisions here and go over them in more detail later.

"Permanent" life insurance builds an internal cash value, enabling the policy to remain in place in the later years without cost increases, or even become "paid up" with no further premium required. This is the type recommended by cryonics organizations because it can stay in place in the later years when humans tend to die.

There is also "term" life insurance, which is life insurance for a term or specific period of time. Both the life insurance cost (the premium) and the death benefit stay level for a term of time, for example 20 years.

Dan discovers that term life insurance is quite inexpensive in the early years! He recognizes that it can be very expensive in the later years when the statistical odds of death are much higher.

Dan finds out another important fact about *some* term policies. They can be obtained now and can be changed or upgraded to a permanent policy in the future, without evidence of insurability. (No medical exam would be required to upgrade these policies.)

So, after thinking about his age and how the costs may rise in the future, Dan decides he would like $400,000 of coverage.

And he finds he can get this $400,000 in a 20-year level term format for only $344 a year, which is less than he is spending for his mochas at Starbucks over the year!

As Dan continues to investigate, he learns that both the coverage premium and the face amount of the 20-year term policy are contractually guaranteed to stay level for the full 20 years.

At the end of the 20 years, the premiums will take a very large increase. And, because there is no internal cash value to make payments if Dan is late or misses a payment, term insurance lacks the "robustness" associated with permanent life insurance.

He also finds this policy is "Upgradeable." Dan's first thought is that this means he can obtain an increased amount of life insurance with no evidence of insurability. But, as he researches, he finds the "Upgradeable" feature means that he can actually change the *type* of coverage from term to a permanent policy like Universal Life or Whole Life with no evidence of insurability.

Dan learns that this can happen at any time during the first 10 years of his 20 year level policy. The upgrade to a permanent type policy will be priced at the then attained age, but no evidence of insurability will be required.

Dan sees this as the perfect and affordable way to enable him to sign up for cryonics now, lock his good health and insurability in, and not face the risk of being unable to obtain a life insurance policy later due to health concerns that could arise.

Lucy

Lucy is a 45-year-old real estate investor. With an eight-digit net worth, she could actually afford to pay the cost of cryonic suspension with cash.

However, as she investigates, she finds that the cryonics organizations do not allow funding to be structured by simply naming them as beneficiaries in a will or even a trust. Alcor, for instance, requires that the $200,000 be set aside with them, growing in a safe money market account. Money market accounts are traditionally among the lowest yielding investments.

Lucy has seen a lot of ups and downs in her career, and she knows the uncertainties in the business market. She has seen colleagues with multi-million-dollar estates unable to pay their bills after major disruptions in the business world. So she likes the idea of getting her cryonics paid off in a manner that will not require future payments.

But, she understands that her investments average a reasonable rate of return, and to escrow the $200,000 with Alcor, as required, means that she would not have that money grow-

ing for her elsewhere. Lucy understands this as the "opportunity cost" which is the simple fact that choosing to invest money in one place means you are not putting that money in other options.

As Lucy continues to investigate, she is pleased to find that she can indeed gain the certainty of fully paid off cryonics funding. And this can be done while still using the leverage of life insurance.

Lucy can reposition a single lump sum of $65,101 and immediately create a fully "paid up" policy, establishing an immediate $200,000 death benefit to pay for her cryopreservation at Alcor.

She finds she has other options. She could create a "fully paid up" policy by paying for the policy over a seven-year period, paying $12,374 a year for seven years. She could, alternatively, pay a lifetime annual payment of $2,664 each year.

All of the above options build up substantial cash value that can be withdrawn from the policy.

Lucy realizes that she can have the certainty of payment without tying up $200,000 at an unacceptably low growth rate. Like other investors and smart individuals, Lucy expects to average 5 to 10% a year or more on her money. At a 10% rate, we could say the opportunity cost of Lucy tying her $200,000 at Alcor is $20,000 a year. How silly would it be for Lucy to pay a $20,000 opportunity cost per year if she can create the necessary funding for under $3000 a year?

Of course, this assumes that Lucy is insurable and able to qualify for life insurance. If she were to be uninsurable, she could still utilize the benefits of a guaranteed annuity for funding her cryonics. This annuity option does not require evidence of insurability, but it does require that the entire amount of the funding cost would need to be repositioned into the annuity.

Wes

Wes is a retired software engineer. At a youthful age 70, Wes does everything he can to stay healthy. However, he realizes that no amount of exercise, diet, or good lifestyle choices have enabled his friends to beat the inexorable encroachment of aging and involuntary death.

He notes that professional athletes, astronauts, vegetarians, marathon and ultramarathon runners, anti-aging activists, and even self-styled health gurus still are dying at rates not far from the mortality expectations of the general population.

As an engineer, Wes believes that the diseases of aging are best described as a very complicated engineering problem. He has been following the advances and breakthroughs in anti-aging medicine closely. He is excited about the emerging science of regenerative medicine, with the promise that stem cells, cryopreserved organs, organ printing and banking, and other interventions will enable dramatically extended health spans for intelligent humans who can take advantage of these technologies.

Wes realizes that he is quite possibly in the last generation in which involuntary death and the horrors of aging are inevitable.

Wes has good reason to believe that future technologies will enable intelligent humans to live well past the current life expectancies. He continually discusses this with his friends, most of whom dismiss his obsessions with aging and defeating death as wishful thinking.

But Wes reads widely and cultivates an ability that served him well as an engineer. He continually keeps the big picture in mind, while being aware of subtle details. This ability to visualize the arc of history has given Wes a different view of life than his more provincial friends. While his contemporaries look back fondly to the so-called "Good old days," Wes has a completely different orientation.

He reads books like *The Rational Optimist: How Prosperity Evolves* by Matt Ridley, and *Abundance: Why the Future is Better Than You Think* by Peter Diamandis. These books document how, by virtually any metric and for the vast majority of humans, life is better than it has ever been. And humanity is learning rapidly how to create a thriving civilization that will enable humans and all sentient beings to live not with pain but experience a continuum of bliss.

Wes does not want to miss this!

Despite the good-natured ribbing he takes from his friends and contemporaries, Wes is pretty sure he is not delusional. By applying the standards of health and longevity that were in place as recently as 1900, he and virtually everyone he knows would already be dead. Zooming back to take the long view of history, Wes can see the long-term trends while his grumpy friends focus on the short-term and negative perturbations.

Is it too late for him?

He needs a bridge to get him across to a future technology. After all, it's amazing how many advancements have taken place in his lifetime, particularly the last decade. He feels that it's not a question of *if* this technology will exist, but rather *when* it's going to finally happen.

Wes had heard of cryonics but assumed, as many people do, that this is a fantasy technology, and even if the technology were available, it is only for the mega-rich and powerful.

And, at age 70, surely this is financially out of the question for him. While healthy, Wes also has some cholesterol issues and takes two different blood pressure medicines.

However, being a possibility thinker, Wes decides to investigate the cryonics option.

He finds he can fund membership at the Cryonics Institute which would also include private air ambulance transportation and the specialized medical transport team Suspended Animation, Inc.

And the global cost of these is just $143,000. Providing a cushion against cost increases, he figures he needs a minimum of $160,000 of life insurance coverage.

He finds he can obtain this $160,000 of permanent coverage for an annual payment of $7,734.

Wes is on his second marriage, and his current wife, Susan, is supportive of most of his plans. However, since they pool most of their funds for living, Susan is understandably concerned that her husband might spend money on unproven or speculative ventures.

While they had discussed the idea of cryonics in general in the past, Susan had not expected that Wes would pursue the idea seriously. Now here he is, sitting across the kitchen table, asking her to figure out how to put an almost $8,000 a year budget item into their plans!

"It is a matter of value systems!" exclaims Wes, a little more stridently than he had intended. "We have friends who put much more than that amount into boats, airplanes, fancy cars, country club memberships, and optional vacations."

"Yes, Wes, that may be true. But boats, airplanes, fancy cars, and vacations are all things I can brag about to my friends. They have value that can be seen by anyone who is paying attention. Instead, you want to take this money and put it into something no one can observe. Could this be just a little selfish and not quite fair to me?" she asks.

"Well, let's think about this, Susan," observes Wes, realizing that he is entering one of the most crucial conversations of his life. "What if I had a heart condition or other life-threatening disease, and the cost of keeping me alive was less than $8,000 a year? We have both worked hard and become reasonably successful. If I needed this money to live, or if you required this $700 a month for your required medications, we would find it. How would you feel about selling the RV that we have not been using much? That would free up about $600 a month. Now we are just talking about a hundred a month, and I can save that with one or two less rounds of golf."

"Wes, I'll tell you what: if you handle the details of selling the RV, and we look at our budget and see where you, not I, can redirect some spending, we may be able to make this work. But, Wes, I want you to remember that cryonics is your dream and goal, not mine. I will support you and do what I can to get you the best cryopreservation possible, but don't expect me to sign up, even if we could afford to have both of us signed up."

"Oh," she continues with a sly smile, "and the next time I want to do something, and you don't, we aren't even going to have a discussion. We'll do this for you, and the next big decision, you will happily go along with my wishes. Whatcha think?"

Wes is delighted with his wife, the mature relationship that they had developed, and that he could at long last pursue a technology he had read and thought about for literally decades. He had read numerous science fiction stories that used the basic premise of cryonics, but to find out that cryonics was a real option and now within his grasp financially is exciting. While he understands that cryonics provides no guarantees of success, as a practicing rationalist, he believes that this is the most intelligent course of action he can take to have a chance to see the year 3000.

The above real world examples show how actual human beings very similar to you, in a variety of financial situations, have been able to fund their cryonics arrangements.

Standby: What Y-O-U Can Do

By Marta Sandberg: Board Member - Cryonics Institute

Hi again everybody,

I know that my analysis of standby success might have come as a shock to you. It certainly made me sit up and notice the first time I complied the statistics. Less than half of all cryonicists will receive a standby.

… now for the good news.

There are things that you can do to improve your chances. And there is quite a lot of helpful material out there for you to use.

Let's start with CI.

Their website has an open-source CI Standby Manual, that you can download as a PDF from *https://www.cryonics.org/images/uploads/misc/Cryonics_Institute_Standby_Manual.pdf* .

UK Cryonics publishes a similar Standby, Cool-down and Perfusion Manual that can be downloaded as a PDF from *http://cryonics-uk.org/download/Call-OutManual-2014%281%29-Apr.pdf* . It is aimed at UK cryonicists, but can easily be adapted to other countries, including people living in the US.

Both of these are hands-on manuals that give practical advice and are aimed at local people and local resources. They contain check-lists and list of medicines, including some very handy appendixes. Both are worthwhile reading, with the UK manual a bit more detailed.

Another resource from CI is their standby kits. These can be bought for around $400 (basic kit) to $4,000 (intermediate kit). For more details click on *https://www.cryonics.org/resources/ci-standby-kits-and-instructions*.

CI also has a page called Cryonic Procedures at *https://www.cryonics.org/ci-landing/procedures* . This explains the various stages of a suspension but, unlike the manuals, does not really tell you how to do it. It does however contain a paragraph on pre-treatments that is interesting.

Alcor also have a number of documents on their website that can be accessed - *https://www.alcor.org/Library/index.html#procedure* gives a whole range of links. The most useful of these might be the Alcor Human Cryopreservation Protocol <*https://www.alcor.org/Library/html/AlcorProtocol.html*>, Field Cryoprotection <*https://www.alcor.org/Library/html/fieldcryoprotection.html*> and Alcor Procedures <*https://www.alcor.org/procedures.html*>. However, all of these tend to be descriptions of what other people will do, rather than giving you the practical tools to arrange your own standby and preparation.

A bit more fossicking brought me to the case report for Roy Schiavello <*https://www.alcor.org/Library/html/casereport9009.html*>. This was a postmortem Australian case and the report contains a detailed memo by Mike Darwin where he instructs the local people, and the local funeral director, how to perfuse Mr Schiavello. Step-by-step. Including what chemicals to use. Of course, this happened in 1990 so there have been significant advances. But it is still useful to give a basic and practical guide of how a perfusion can be achieved when there isn't a standby and perfusion team available.

All of this is worth reading – even if you have a cryonic organization that provides your standby.

When I compiled my analysis, I read over a hundred cases. Case after case impressed on me the importance of how making some simple preparations can improve your chance of a good suspension.

Please remember, cryonics is still DIY. And there is only so much a standby organization can do for you.

Cryonics Institute Membership Statistics:

As of June 2019, the Cryonics Institute has 1,607 members, up 13 from our last report. Of the 1,607 Members, 252 have arrangements for Suspended Animation Standby and Transport.

There are 175 human patients and 172 pet patients in cryopreservation at CI's Michigan facility.

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

CI MEMBERSHIP

JUNE 2019

* New Members = Increase in Membership since last issue

Members	1,607	Pets	172
Assoc. Members	195	DNA/Tissue	289
Patients	175	SA	252

TOTAL **1,977**

Worldwide Cryonics Groups

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SWITZERLAND:
www.cryosuisse.ch

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

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

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

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

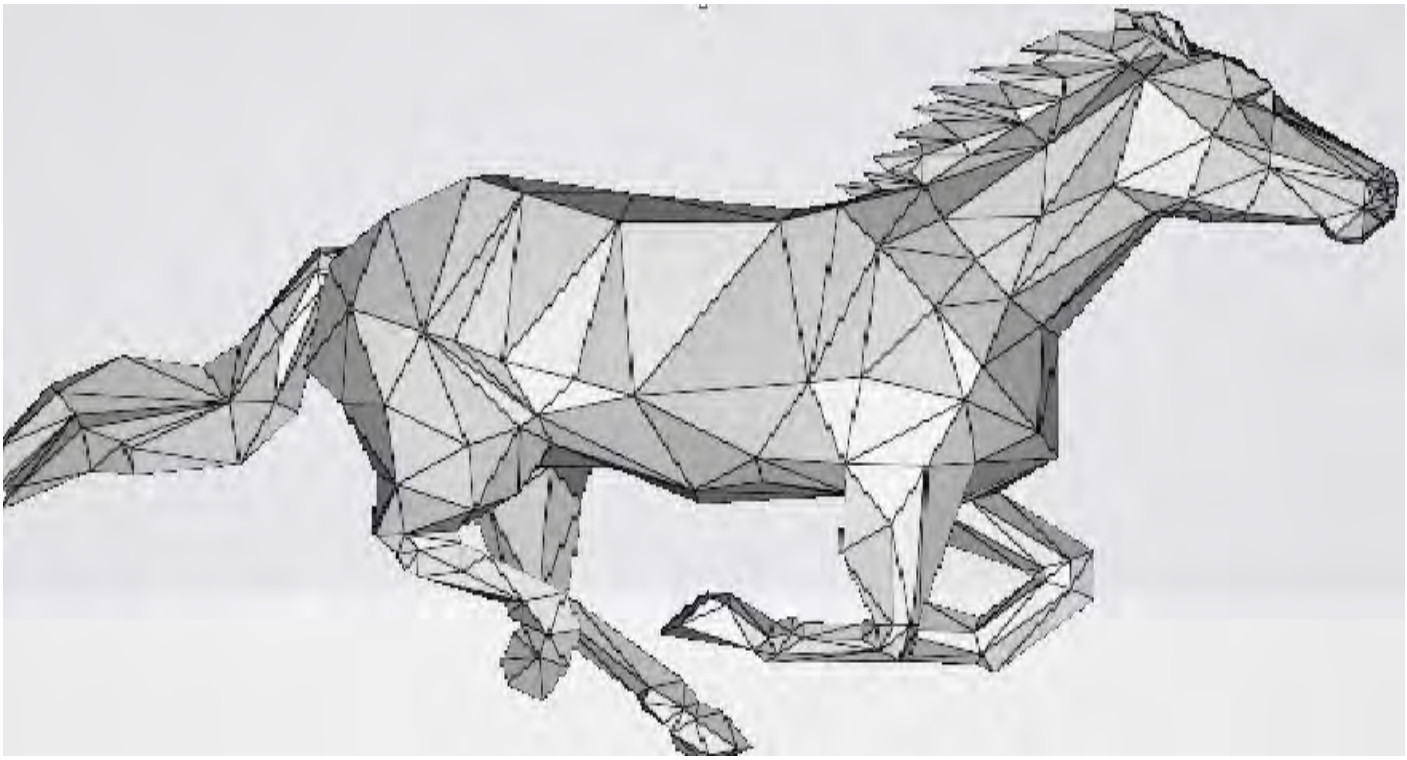
Please note, this list is provided as an information resource only. Inclusion on the list does not constitute an endorsement by Long Life magazine or our affiliated organizations. We urge our readers to use this list as a starting point to research groups that may meet their own individual needs. We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

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

dg@dgmedia-design.com.

Post Time for May 3rd, 2070 Kentucky Derby is 6:46 PM. Will Silver Charm II be a contender?

By Jim Yount



Could Preserved Intestinal Cells from Kentucky Derby Winner Silver Charm someday provide cloning or DNA profile material to produce a new champion?

There is a shelf in the office of the American Cryonics Society (ACS) that displays various pictures and knick-knacks. There can be found pictures of presidents: presidents of the American Cryonics Society and presidents of the United States. On one side of the presidents rests a faux bronze reproduction of a nude reclining woman by sculptor William Gordon Huff beside which is the American flag, and a NASA photo of the Earth from space. The newest trophy is in a tightly-sealed Mason jar. It is well-secured for a good reason. In the jar, suspended in clear epoxy resin, is the ordure of a famous race horse.

2,500 miles away in the bluegrass state, on Old Friends Equine, calmly enjoying his retirement and, I suppose, munching out on that colorful grass and recalling with pleasure his careers at racing and standing at stud is Silver Charm. The thoroughbred's pleasurable senior years are well-deserved. In 1997 the horse won both the Kentucky Derby and the Belmont Stakes, two of the three legs of the triple-crown of thoroughbred racing.

Sample of Preserved Racehorse Fecal Matter in jar at ACS Office – photo by Ben Medlen

It was artist Coleman Larkin, perhaps on a day when he was searching for inspiration, who might have said to himself: "How about I put horse manure in a jar as an art project? Not just any manure, but the droppings from a really famous racehorse?" And so he did.

This author learned of the manure in a jar by reading a brief article in *USA Today.* $200 changed hands; the ordure came in the mail and now sits proudly among other trophies in the office of the American Cryonics Society.

What would a California boy, with the modest ambition to live forever, possibly want with horse pucky? Wellllllll, it's complicated.

Let's talk about horses and mice and thylacines too. Leaving thylacines aside for a minute, what do mice and horses have to do with each other, you might ask? More than is readily apparent. Both are vertebrate mammals. Both are of the magaorder *Boreoeutheria*. One is *Equidae*, the other is *Rodentia*; the two families having diverged between 80 and 100 million years ago. More importantly, both have been cloned. The first horse was cloned in 2003. The first cloned mice were about twenty years before in 1986. Somewhat similar techniques were used for both equines and rodents. The procedure used for both species is one called nuclear transplantation cloning, which is similar to what was described in *Jurassic Park* to produce dinosaur clones. For such cloning experiments the nucleus from a live cell is removed and placed into an egg cell where the nucleus has been previously destroyed. But, and this is a big "But", both the egg cell and the donor live cell are *fresh*.

Now let's talk *thylacine*, aka Tasmanian Tiger. In the year 2008, researchers at the University of Melbourne used ethanol-preserved pouch young to sequence the genome of the Tasmanian Tiger, an animal that has been extinct since the 1940s. It is currently beyond science to reproduce the Tasmanian Tiger from the sequenced genome, but hope remains that such techniques will soon develop. Please consider that this sequencing was done with *not-so-fresh* biological material.

Let's talk horse. Argentine millionaire and polo enthusiast Adolfo Cambiaso is reported to have a whole stable of winning polo ponies produced through cloning. The actual equine cloning was done by Dr. Adrian Mutto using well-developed nuclear transplantation techniques. For Adolfo cloning represented a "fast track" to owning a stable of champion horses.

Texas oil heir Alan Meeker shares Adolfo's enthusiasm for excellent Polo horses. In *60 Minutes*, 3/11/2018 Meeker is quoted as saying: "I did some short math and I realized it would take 50 years and about $100 million to do what I wanted to do. And I thought, 'Well, why don't I just clone a bunch of horses, really, really good horses.' " Meeker created a business to clone horses in 2009.

Let's talk mice feces. Last year *Real Clear Science* reported on an experiment where cells gleaned from mice feces were used in an attempt to clone mice. Mice, men and horses slough off small quantities of intestinal cells through defecation. The mice feces experiment met with only limited success. The experimenters were able to induce post cloning cell-division through to a basic pronucleus stage, but did not progress beyond that. [1] [2]

In thirty to fifty years or so, regardless of which side of the cryostat wall this author is on, it may prove possible to use the DNA in the Silver Charm sample, in some creative way. Perhaps the method will be through cloning, perhaps simply reading and reproducing the DNA sequence, perhaps by use of some as yet undreamed technique. Walla-chango-hocus-pocus (science and magic being indistinguishable at some level) and there, struggling to his feet is cute little Silver Charm II.

Of course, this may never come about. Preserving the Silver Charm sample in epoxy resin would not be our first choice if seeking useable DNA is the goal. This preservation technique is similar to plastination which is familiar to many people as the method used for displaying lifelike bodies in some museums and medical schools. Just the same, there is likely a lot of biological information preserved in our Mason jar.

If the preservation is good enough to clone or read the DNA of Silver Charm, what then?

1– Kamimura, Satoshi, et al. "Generation of Two-Cell Cloned Embryos from Mouse Faecal Cell." *Scientific Reports*, edited by Sayaka Wakayama, Nature, 2018, www.nature.com/articles/s41598-018-33304-2.

2– Pomeroy, Ross. *Scientists Attempt to Clone Mice From Poop*, www.realclearscience.com/quick_and_clear_science/2018/10/11/scientists_attempt_to_clone_mice_from_poop.html.

IMAGE CREDIT: By TheBluZebra (talk) (Uploads) - Own work, CC BY 3.0, https://en.wikipedia.org/w/index.php?curid=14235285

What are the chances a future Silver Charm II can repeat the feat of his famous brother/clone and win the Kentucky Derby? If current racing rules still prevail, there is zero chance of that happening.

The horse breeding and racing fraternity has been very slow (read that stuck-in-quicksand slow) to broaden their progeny registration rules to include modern horse-reproduction techniques. However, if racing fans really want to see the fastest horses run against each other, then there will surely be a future racing venue to provide such an opportunity.

Given all that (and heaven-knows, that is a lot of givens) there seems little chance that Silver Charm II will ever bring to this author the riches a winning race horse now fetch for lucky owners. If science makes such advances, there will be champions a-plenty sprouting from champion horse chips. Until that time, the contribution to the decor of the ACS office from Silver Charm's droppings are just an interesting curiosity.

At age 25, Silver Charm is among the oldest of the retirees at Old Friends Equine. Wikipedia tells us that horses only live 25-30 years. Research into longevity supported by most cryonicists may well extend the life of humans as well as our hoofed friends. Silver Charm may not benefit from such research but colts born today might very well might.

It is heartening to know that Silver Charm himself is being well taken care of in his retirement. He can receive visitors at Old Friends. If you should drop by, bring an apple with you, and with permission of the nice people at the retirement farm, give Silver Charm a treat.

After all that hard work, he deserves at least a nice apple.

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Kamimura, Satoshi, et al. "Generation of Two-Cell Cloned Embryos from Mouse Faecal Cell." *Scientific Reports*, edited by Sayaka Wakayama, Nature, 2018, www.nature.com/articles/s41598-018-33304-2.

Pomeroy, Ross. *Scientists Attempt to Clone Mice From Poop*, www.realclearscience.com/quick_and_clear_science/2018/10/11/scientists_attempt_to_clone_mice_from_poop.html.

"Tasmanian Tiger Genome May Be First Step Toward De-Extinction." *National Geographic*, National Geographic Society, 11 Dec. 2017, news.nationalgeographic.com/2017/12/thylacine-genome-extinct-tasmanian-tiger-cloning-science/.

Looking Back

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

In the "Looking Back" column that many readers enjoy, we normally go back to a previously published article that appeared in this magazine from a decade or two or three ago. In this issue of "Long Life Magazine", we deviate just slightly by using an article written by Dr. Charles Tandy and published by the American Cryonics Society back in mid-1995. One of the many objections one has to be prepared for in discussing cryonics with friends and foes involves the issue of ethics. Is utilizing cryonics "the right thing to do"? For those of us dedicated to the concept, the answer is very obvious and is a resounding "Yes". For those not so sure of its usefulness, the answer is much more "fuzzy". Also, for professionals that may need to be involved in various phases of the cryonics procedure, ethics is more than just a nice sounding phrase in what may be, at times, various esoteric publications in which philosophers "do battle" with each other in a way that most folks could care less about. Licensure boards will always demand that practitioners in any particular field are acting in an "ethical" manner. Any information that helps to underpin the ethical practice of a licensed individual will be of great help in any concerns that might arise about in that individual's participation in what is, for the moment, an unusual practice in today's society. Dr. Tandy's efforts here could well be a big help in such a situation.

Dr. Tandy, it should be noted, is a long time cryonicist who has participated in numerous volumes on cryonics and life extension which may be readily found on the amazon.com website. He has also written other articles on those subjects as well.

A Report Published By The American Cryonics Society, Inc.

01 July 1995

Cryonic-Hibernation In Light Of The Bioethical Principles Of Beauchamp And Childress

Charles Tandy, Ph.D.

PART I

The first part of the present report introduces the reader to the term "cryonic-hibernation." The second part of the report summarizes "the bioethical principles of Beauchamp and Childress," based on their highly respected text. Part three considers "cryonic-hibernation in light of the bioethical principles of Beauchamp and Childress" and arrives at a conclusion or considered judgment in the matter.

Cryonic-hibernation (also known as cibernation or cryonic suspension or cryostasis) is the experimental long-term suspended animation of a patient, human or animal, who is clinically dead or terminally ill, for the purpose of possible future restoration to full life and youthful health. The assumption of the cryonicist is that future biomedicine may be more advanced (better able to reverse damage) than present biomedicine -- and that cryonic-hibernation may serve as a kind of "time machine" to transport the patient to such a future. Thus, cryonic-hibernation may be viewed as a radically conservative biomedical procedure -- as compared to the alternative (e.g., burial or cremation of the patient). To assist in summarizing the conclusion (in part three) of the report, the term "cryonics patient," will be used to mean a terminally ill or clinically dead patient who was competent and freely chose to complete (and did complete) proper financial and related arrangements for the purpose of undergoing the biomedical procedure of cryonic-hibernation.

The present cryonics movement was founded by Robert C.W. Ettinger in the 1960s. The movement to cryonics went slowly until the 1980s. Today, however, it seems clear that the movement will continue even if its founder deanimates (i.e., becomes clinically dead) or cibernates (i.e., is placed in cryonic-hibernation).

PART II

The latest (i.e., fourth) edition of the highly regarded **Principles of Biomedical Ethics** (Oxford University Press) by Tom L. Beauchamp and James F. Childress was published in 1994. According to Beauchamp and Childress, there are at least four sets of factors (i.e., ethical principles or sets of ethical principles) to take into consideration when making an ethical biomedical decision. These four factors are: 1) respect for autonomy; 2) nonmaleficence; 3) beneficence; and, 4) justice. No one factor is necessarily more important than the others, although the reader may note that "respect for autonomy" comes first in the text.

Also note that the first factor is **not** "autonomy" (i.e., self-rule) but "**respect** for autonomy." The principle of respect for autonomy can be used to protect nonautonomous persons from self or others. Indeed, thinking of a person as simply autonomous or nonautonomous is too simple. Yet we can think of a person as competent or not to make a particular (or particular kind of) decision. If the patient is competent, then there is a prima facie obligation to respect the patient's voluntary decision even if the biomedical professionals strongly disagree (e.g., respecting the decision of a Jehovah's Witness to refuse blood transfusions). "A prima facie obligation is binding unless overridden or outweighed by competing moral obligations." (p. 33) Both liberty and competence are essential for autonomous choice or self-rule: "personal rule of the self that is free from both controlling interferences by others and from personal limitations that prevent meaningful choice, such as inadequate understanding." (p. 121)

The second factor is nonmaleficence. There is a prima facie obligation to not inflict evil or harm on the patient. According to some bioethicists, inflicting evil can be either an active or passive decision on the part of the biomedical professional; nonmaleficence thus tends to lead to beneficence. Other bioethicists say that nonmaleficence (as distinguished from beneficence) involves prohibitions rather than benefits. There is a prima facie case for not harming --for not setting back the interests of -- the patient; pain, disability, and death are examples of harms. Harms, even if unintentionally caused, are nevertheless harms -- thus the bioethical norm of "due care." According to the authors' analysis, and contrary to much previous "wisdom," the following distinctions are bioethically **irrelevant**: 1) withholding life-sustaining treatment vs. withdrawing life-sustaining treatment; 2) extraordinary ("heroic") treatment vs. ordinary treatment; and, 3) life-sustaining artificial feeding vs. life-sustaining medical technologies. Rather, the authors call attention to respect for autonomy and quality of life, and to a **relevant** bioethical distinction: optional treatment (either morally neutral or morally supererogatory) **vs.** obligatory treatment (either wrong not to treat or wrong to treat).

Language like "futile procedure" or "pointless treatment" — or, "kill" or "let die" — are bioethically dangerous terms. Rather, the patient and the biomedical professional should dig deeper and consciously articulate the scientific from the ethical and pragmatic factors in the case, rather than ambiguously combining the factors. Respect for autonomy -- for the patient's value system in terms of self-rule -- seems to demand this more clear-headed approach. And the biomedical professional has an obligation to specify alternatives, such as hospice care or increased medication. Moreover, sometimes patients are incorrectly diagnosed as hopeless. The legal right to privacy is one way to defend the moral right to die. "If competent patients have a legal and moral right to refuse treatment that involves health professionals in implementing their decision and bringing about their deaths, we

have reason to suppose they have a similar right to request the assistance of willing physicians to help them control the conditions under which they die." (p. 226)

The third bioethical factor is (the prima facie obligation of) beneficence. If nonmaleficence ("no" to doing bad) tends to lead us to the further principle of beneficence ("yes" to doing good), then "positive beneficence" (providing goods or benefits) tends to extend to further considerations of "utility" or the balancing of goods (benefits) and bads (drawbacks). Typically, both goods and bads result from an action. Yet, utility is constrained by other ethical considerations -- just as utility may constrain the other moral values. So when we attempt to do good, we will wish to consider the net balance of goods (benefits) over bads (costs) as one moral value ("utility") among other moral values. Thus, cost-benefit analysis does not tell us which decision is ethically preferable; it is simply one tool among other ethical tools -- as we attempt to do good. Also, cryonicists, please note that the authors consider it ethically important that "risks" and "uncertainties" be considered as two separate entities for analysis.

If utility seeks the net balance of benefits over costs, then justice, the fourth bioethical factor, seeks a just societal distribution of those benefits and costs. Distributive justice is a prima facie obligation under conditions of scarcity/competition. In the United States, at least, each citizen should have equal access to an adequate (not maximal) "tier one" level of health care -- the market economy would serve as "tier two" in the double-tiered system of health care envisioned by the authors. For today's United States, our bioethical authors believe that their two-tiered system is preferable to a one-tiered system, whether all-government or all-market controlled.

PART III

A review of part two above, as applied to cryonic-hibernation, yields the following results:

If the terminally ill or clinically dead patient was competent and freely chose to undergo the biomedical procedure of cryonic-hibernation, then the bioethical factor, respect for autonomy, produces a prima facie obligation for cryonic-hibernation (and against burial or cremation) of the cryonics patient.

While it is presently unclear as to what extent the biomedical procedure of cryonic-hibernation may inflict damage on the patient, it seems obvious that it inflicts less damage than the alternative (e.g., burial or cremation). Accordingly, the bioethical factor, nonmaleficence, produces a prima facie obligation for cryonic-hibernation (and against burial or cremation) of the cryonics patient.

In terms of the value system of a free and competent cryonicist, cryonic-hibernation is a relative good, not a bad, as compared to burial or cremation. Moreover, in terms of utilitarian concerns, cryonic-hibernation results in no significant population-resources-environmental problems, as accurately articulated by Ettinger decades ago. Moreover, it will be the "quick," not the "deanimated," who will determine if or when a patient's cryonic-hibernation ceases or resuscitation begins. If cryonic-hibernation is relatively "risk-free," it is also a relatively "uncertain" enterprise. The biomedical factor, beneficence, then, produces a prima facie

obligation for cryonic-hibernation (and against burial or cremation) of the cryonics patient.

If the competent and free patient can personally afford cryonic-hibernation and accordingly so arranges, then the fourth bioethical factor, justice, produces a prima facie obligation for cryonic-hibernation (and against burial or cremation) of the cryonics patient. What is less clear is whether American society has a "just" obligation to make available, as appropriate to its citizens, the biomedical procedure of cryonic-hibernation as part of the "free" system of "tier one" health services; this issue will not be explored presently.

Each and every one of the four bioethical factors or principles articulated by Beauchamp and Childress, taken individually, produces a prima facie obligation for cryonic-hibernation (and against burial or cremation) of the cryonics patient.

The above considerations yield the following conclusion: The bioethical principles of Beauchamp and Childress — 1) respect for autonomy; 2) nonmaleficence; 3) beneficence; and, 4) justice — produce congruent, rather than conflicting, prima facie obligations to the cryonics patient. This four-fold congruence means that biomedical professionals have a strong (not weak) and actual (not prima facie, but binding) obligation to help insure cryonic-hibernation of the cryonics patient.

ABSTRACT

Cryonic-Hibernation In Light Of The Bioethical Principles Of Beauchamp And Childress

Charles Tandy, Ph.D.

The first part of the present report introduces the reader to the term "cryonic-hibernation." The second part of the report summarizes "the bioethical principles" of Beauchamp and Childress (B&C) based on their highly respected text. Part three considers "cryonic-hibernation in light of the bioethical principles" of B&C. It is concluded that the bioethical principles of B&C — 1) respect for autonomy; 2) nonmaleficence; 3) beneficence; and, 4) justice — produce congruent, rather than conflicting, prima facie obligations to the cryonics patient. This four-fold congruence means that biomedical professionals have a strong (not weak) and actual (not prima facie, but binding) obligation to help insure cryonic-hibernation of the cryonics patient.

Robert Ettinger: *The Legacy Continues*

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

Robert Ettinger on Drexler Machines

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

As has been mentioned before, Robert Ettinger, as the "father of cryonics" initially offered his thesis of cryonics as a fact along with a basic assumption. The fact was that even in the 1960's it was well known that ultra low temperatures would provide long term storage of individuals who had faced clinical death with essentially no change for centuries and centuries in the condition the person would be after the individual had reached the temperatures involved in cryonics. The assumption involved the belief that future medical science would be up to the task of reviving, repairing, and rejuvenating cryonics patients. As Mr. Ettinger states in the following article, he did this as it seemed obvious to him that the manipulation of matter on the molecular scale, especially with devices that would be under the intelligent control of humans. At the time of his writing The Prospect of Immortality in the early 1960's, Ettinger didn't have the ability to fill in to the last detail how this would be done. But, in the face of the enormous advancement of science that had occurred down through the centuries as well as, in particular, the numerous devices and technologies that had developed since Ettinger's birth in the early twentieth century (jet aircraft, computers, organ transplants, radio, television, etc., etc.), the assumption seemed to be a quite reasonable one to make.

In spite of that, many critics attempted to make cryonics sound like a religion or, even worse, some sort of a cult where "true believers" insisted on something that had no actual basis in reality. The work of Dr. Eric Drexler in bringing to full fruition the field of nanotechnology, the picture changed dramatically. Even Dr. Drexler himself was initially skeptical about cryonics when he first came across the concept. Later, when he began thinking about the ability to develop devices that would work on the atomic and molecular scale, Dr. Drexler concluded that not only were these "crazy cryonicists" right but they knew why they were right, i.e., they knew that the capability to design devices such as those Drexler described in his work would eventually be possible. If that happened, of course, the ability of humans to accomplish great and what would seem at first blush "miraculous" things would become commonplace. The revival, repair, and rejuvenation of cryonics patients would certainly become part of that. When Dr. Eric Drexler brought forth to full fruition the field of nanotechnology, the postulate Ettinger had put forward began to be made more specific and more clear by the probable ability of humans to develop tools that would work be able to manipulate substances at the molecular and atomic level.

In the writing that follows below, coming from the February 1987 edition of this publication, Mr. Ettinger gives an excellent exposition of some of the folks involved in this concept and, in particular, the excellent contribution that Dr. Drexler made to the origination of thinking and research efforts that will, ultimately, lead to making the assumption Robert Ettinger used, an everyday fact.

Drexler Machines

By: R.C.W. Ettinger

A modest proposal (and not in the Swiftian sense):

Let's habitually use the term "Drexler machines" when talking about robots for molecular engineering or nanotechnology.

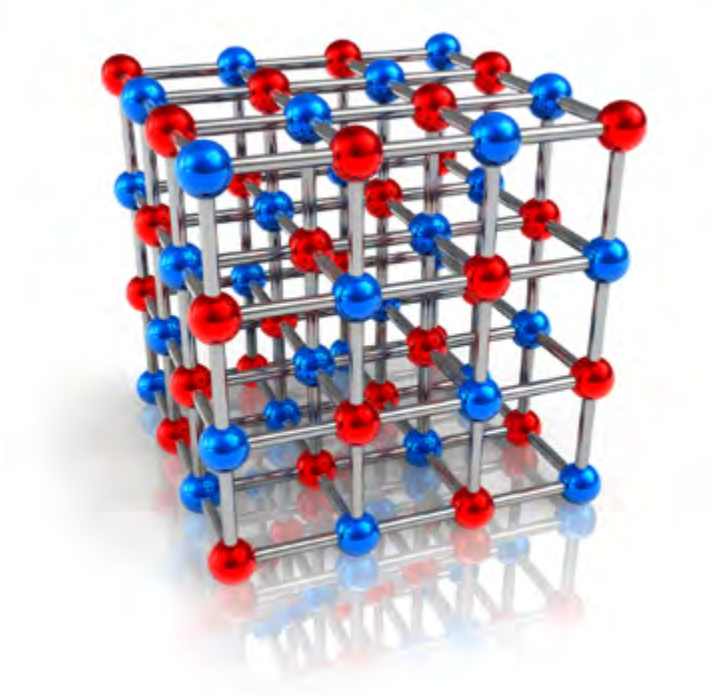
Two good reasons:

First, he rather clearly deserves the distinction.

Second, it serves our purposes, as immortalists, that he receive recognition.

Now let's elaborate a little.

Questions of priority and credit tend to be tricky and touchy, and one could cite several possible reasons for requiring Mr. Drexler to share credit. He was partly anticipated in some of his ideas by many people, notably Richard Feynman, the Nobel laureate physicist, in a 1959 talk, "There's Plenty of Room at the Bottom".



(This was later printed as an article : *Eng. & Sci.*, Caltech, Feb., 1960, 22-36. Also in *Miniaturization*, ed. H.D. Gilbert, Reinhold N.Y., 1961, 282-296).

Conrad Scheiker—familiar to our readers as an indefatigable promoter of and researcher in this work—tends to speak of "Feynman Machines or FMs" to mean computer controlled or teleoperated machines able mechanically to manipulate matter directly on the submicron to nanometer scale.

Mr. Schneiker also mentions several other people as having foreseen various aspects of nanotechnology, including A.R. von Hippel, Ken Shoulders, Freeman Dyson and even myself. (*Ultimate Computing*, work in progress, draft of August 18, 1986).

Now, I hate to bite the hand that pets me, and false modesty is not one of my vices, but I have contributed nothing to nanotech except the assertion that it would obviously arrive one day on the tide of history. In *The Prospect of Immortality* I envisioned that, if necessary, surgeon machines would restore the frozen patients, cell by cell and even molecule by molecule if necessary, and over any required period of time. It seemed obvious to me that manipulation of matter on a molecular scale is possible, since it happens all the time in nature, for example in our physiology, and there is no reason to expect that the evolved natural processes are the only ones possible or even the best. But while I implied (necessarily) that the operating or tool-end parts of the machines would be atomic/molecular scale, I wrote of "giant" surgeon machines, to be conservative, since I had not done calculations on possible miniaturization of control mechanisms or the least size of "intelligent" machines. I also emphasized that "brute force" methods (surgery directed by large control monitors) would probably not be necessary—more elegant methods would likely be devised.

These "more elegant" methods include subminiaturized complex machines whose capabilities may include self-replication and various degrees of "intelligence".

Mr. Drexler, along with his predecessors in portions of the field and his colleagues and successors, have contributed large parts of the essential bridge between a mere assessment of the sweep of history on the one hand, and the actual completed capabilities on the other. He and they have done much of the calculation and other detail work needed to make molecular engineering credible in most working scientists and engineers. This is a magnificent ongoing achievement, and one which will substantially shorten the wait for full capabilities in immortality and cryostasis.

From a political viewpoint, it would suit immortalists better if Prof. Feynman were to be the leader in promoting molecular

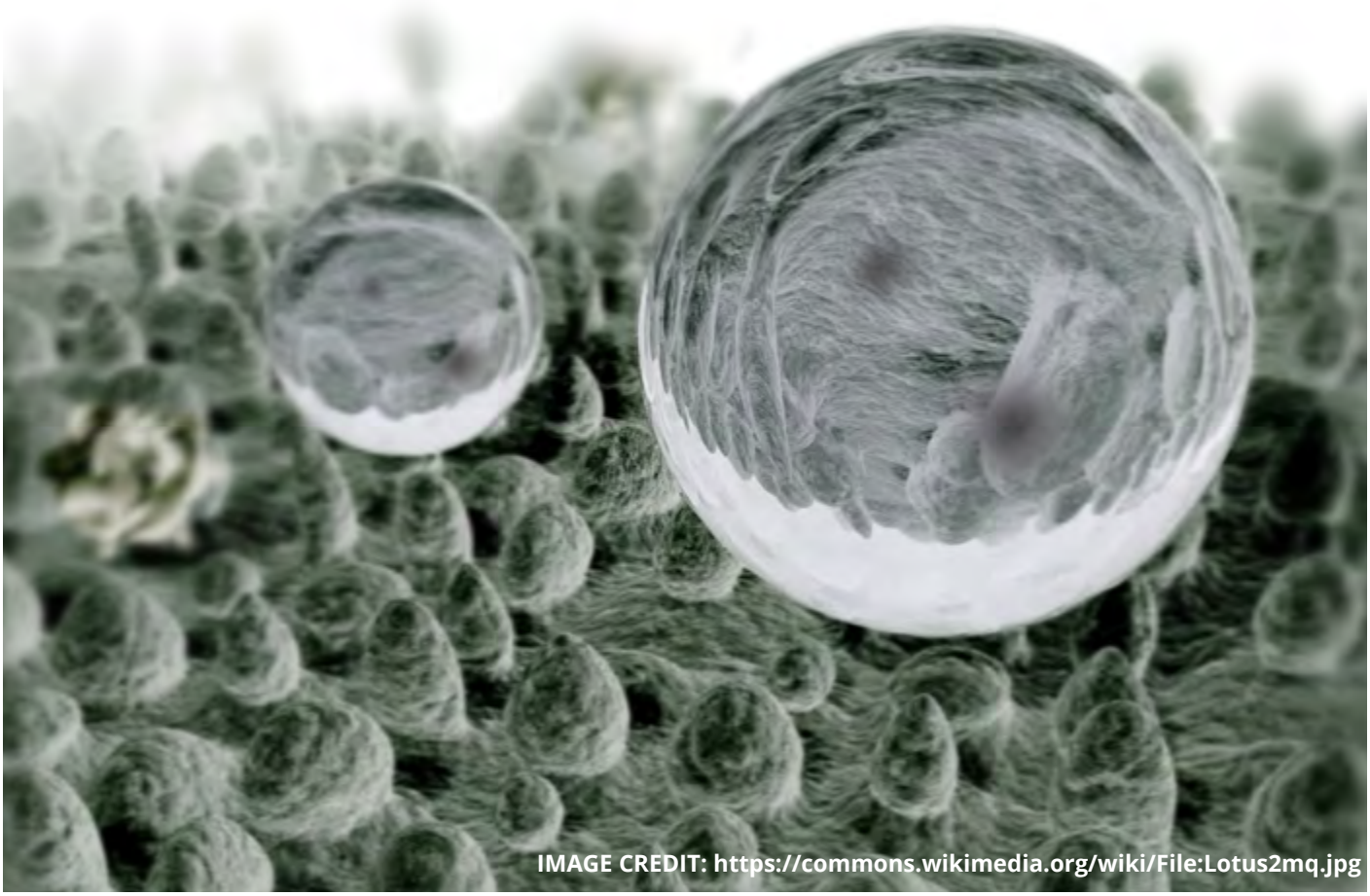
engineering and its cryonics implications; we would like the tallest standard-bearer available. But apparently he figures he has done his bit as prophet of nanotech, and is not interested in Immortalism. Meanwhile, Eric Drexler has written *Engines of Creation* (Doubleday, 1986—expanding on his 1981 paper—see p. 26) and established himself—to my satisfaction, for whatever that may be worth—as the leading spokesman for development of molecular engineering, as well as a leading investigator and synthesize in the field.

He is also one who—despite a cold shoulder in this area from some otherwise sympathetic colleagues—has emphasized the biostasis connection. He has, in fact, gone further than almost any o0ther cryonicist in reasoned optimism about rescue of patients prepared and stored by relatively crude methods.

Simply put, he agrees with my original assertion that destruction is not necessarily irreversible unless the *information* in (and about) the stored patient has been destroyed. No matter how badly damaged one might be, no matter how distorted from functional condition the brain and body, as long as the vital relationships remain visible—even by inference—restoration should eventually be possible. *The atoms simply have to be shoved back to where they were*. ("Simple" by future criteria). Even methods much cruder and more damaging than freezing, such as certain embalming-like procedures, could leave the basic relationships "readable" and thus the patient reparable. And all of this, remember, is not merely asserted, but made extremely plausible by detailed, quantitative arguments as well as subtle and clever analogies.

Perhaps out of courtesy I should add, for newcomers, that several people in cryonics have written about various aspects of the repair problem. Jerome B. White and Thomas Donaldson in particular have made rather specific suggestions. Michael Federowicz has used the term "anabolocyte" as the label for an engineered microorganism to effect repairs.

But in power and detail of analysis and synthesis, combined with various degrees of priority, Mr. Drexler's work seems to me more than any other to qualify as the classic in the field. As immortalists, I think we should do what we can to promote his book and his career.



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the american cryonics society

cryonics society

Reasons to Join ACS

1) We have been in business a long time

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

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

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

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

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

4) ACS Utilizes the Tools of Risk Management

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

5) ACS Sponsors Research

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

6) ACS Maintains its Own Emergency Response

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

7) ACS is a Democratic Society

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

8) ACS Patients have Live-Member Sponsors

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

9) ACS Manages Growth

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

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

10) We Make use of Individual Trusts

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

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

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

Website: americancryonics.org

Email: cryonics@americancryonics.org

Phone: (408) 530-9001 • Toll-free: 1-800-523-2001.

Mail: American Cryonics Society - P.O. Box 1509, Cupertino, CA 95015

The ACS office is located at 510 S. Mathilda Ave. (Mezzetta Bldg), Suite 8, Sunnyvale, CA 94086
Office hours are irregular.
An appointment is required for a personal visit or interview.

Final Thoughts

York W. Porter - Executive Editor

IMAGE CREDIT: Wikimedia Commons

Got a whale of a tale to tell you lads, a whale of a tale or two....

In this day of modern energy resources and easy accessibility to many goods and services with a short trip and/or at the push of a button and/or the click of a computer mouse while shopping on the Internet, it seems incredible that the day existed in which the harvesting of whales was considered a routine part of life. Whaling goes back to antiquity with one archaeological site being found with depictions of whaling that may date as far back as 6000 BC. Other archaeological sources seem to indicate that whaling began no later than 1000 BC. Whichever date is used, it is apparent that whaling was a pursuit of humans for a very, very long time.

There were numerous ways of going about this craft. One way going back through the centuries was the use of small boats to try to "herd" the creatures toward land where they would, hopefully, beach themselves. As the whaling craft progressed, the next step was to use an arrow or harpoon with a buoyant object like a wooden drum or a sealskin inflated with air attached to it. The buoyancy of the object would ultimately fatigue the whale to the point that it could be approached and killed.

While there were many uses for whales down through the centuries, by the 1800's whale oil was used for illumination in homes and industry. In addition the oil was used for lubricating the various types of machinery that were being developed in the Industrial Revolution. The meat the whales provided was used as food by some. Further, a substance found in the mouths of some whales was used for a variety of reasons

ranging from the making of buggy whips to fishing poles and other useful items. The mid-1800's can be thought of as the "golden age" of whaling.

The end wasn't, however, far away. The development of kerosene, which could be commercially produced in large quantities and which was a superior fuel to use for lighting, helped sound the death knell for the "iron men in wooden ships". But, in the meantime, numerous sailors would brave often times brutal conditions in search of the precious biologically based resources offered by Nature.

By 1871, the whaling industry was in a gradual decline but the necessity to earn a living was, then as now, omnipresent for most folks. While whaling went on through many parts of the ocean, one hunting ground for these huge animals was in the Arctic region. The first known trip into this region was by the American whale ship *Superior*.

In 1848 this vessel sailed into the area and the numbers of whales of various kinds readily available for he taking astounded crewmembers. This started a "gold rush" of sorts. As in many situations in the world, however, harvesting of this natural resource was abundant at first and then began to fairly rapidly dwindle off, perhaps through the very aggressive attempt of humans to maximize their profits, even at the expense of the source of those profits. The peak year for the harvest of whales in the Arctic region was in 1852, a scant four years later. No whales were caught in this area 1855 or 1856. The peak number of just over one thousand and seven hundred in 1852 was never approached again with a maximum of only 600 never even being reached after whaling started in the Arctic. One estimate was that the hunting of whales had resulted in a drop in population of over sixty percent in the region.

Nevertheless, as in many time periods and especially during unregulated times for industry, the attempt was kept up to keep things going. Forty whale ships had sailed through the Bering Strait in late June of 1871 in search of prey and the considerable sum of money they hoped they would bring.

In the region of Wainwright, Alaska, in August, an unusual and quite unexpected change in weather conditions resulted in the wind patterns being reversed. Normally the winds in that region at that time of year were from the East and this wind pattern usually resulted in the pack ice being blown out to sea. This year, the wind didn't cooperate and 33 of the ships became trapped in the pack ice that was unusually being blown in the opposite direction. This meant the pack ice was, of course, moving directly towards the whaling ships. Within two weeks, the tremendous forces of Nature had crushed four of these ships.

Fortunately, seven ships had escaped this fate by turning around and heading South as fast as they could. For the rest, disaster loomed as over one thousand and two hundred people remained on board the various sailing vessels with death staring all of them squarely in the face. In the days before modern communications, no one was going to come to the rescue. These people were entirely on their own in a region of the world where temperatures could, in a few weeks ahead in the dead of winter, be 60 degrees below zero.

By mid-September, there was no other choice. Stuck fast by the ice around them, the only reasonable thing to do was to abandon the ships and try to make it south as best as could be done. The fairly small in size whaleboats that each ship had in order to pursue their catch were the only rational way to leave. Relatively narrow across and with a pointed nose at both ends, there were simply no other vessels of salvation. Provisions for about three months were packed on board these small crafts and passengers were added.

Using only muscle power and the small sails these vessels had, the no doubt deeply worried and frightened folks on board gradually began to make their way South. Not all of them were sailors themselves as it wasn't unheard of for some family members, mainly those of the ship's Captain, to be on board these ships. At least four women, three children, and one baby were among the folks onboard. Many whaling voyages would last three to five years and this lengthy time was a big motivation for those like the Captains to have their family members with them if they could. (One whaling voyage lasted eleven years!!)

And the trip to open water by these desperate people wasn't a piece of cake by any means. At times the ice was built up to the point that the whaleboats had to be dragged over the ice by hand due to the shallowness of the water. Unlike trips by automobile today, for example, there were no "rest areas" as well as no service stations and restaurants and/or hotels along the way to act as points of refuge from the dangers of the journey. Nights for some had to be spent at best in tents on the ice itself. It was succeed or die in the attempt. There was simply no middle ground. Life and death literally lay in the balance based on their actions and their willingness to continue onward in spite of the odds against them.

Finally, after days and days of struggle and the covering of 70

miles in conditions that to most of us would seem incredible to face, the seven ships that had escaped earlier were now a source of refuge for the horde of humans looking for any sort of help in their desperate circumstances. As several hundred of the crewmembers were from Hawaii, the next stop for the survivors was Honolulu. The return to civilization was, I'm sure, deeply appreciated by all involved. The great news was that all of the persons on board the whaling ships survived, whether sailors or civilians. Not a single life was lost among the over one thousand two hundred individuals involved.

The bad news, at least to those in the whaling industry, was that the cost of the ships that were lost, coupled with another disaster only five years later in which more ships were also lost hurt the industry financially in a way in which it wasn't possible to fully recover. In the second instance, on top of things, not everyone in that disaster five years later did survive.

To further complicate the whaling industries troubles, by just after the turn of the century, prices for whale oil had dropped to a fraction of their previous level. To add insult to injury, the man made product of spring steel had begun to take the place of whale and other naturally based materials in the production of the numerous items that formerly had depended on whales for raw materials. Those things were, of course, in the future and were the farthest thing from the minds of the many survivors back in 1871. The main thing was that they were alive. All other considerations paled by comparison.

Nowadays, of course, in many maritime disasters, the availability of modern telecommunications means "the Coast Guard to the rescue". While there are, sadly, still some fatalities in the sailing industry where even the outstanding personnel and resources of the Coast Guard aren't sufficient, these days even amateur mariners with radios and cell phones are able to call on assistance due to the technology developed down through the years.

In a similar way to the folks facing disaster in 1871 or in other maritime disasters, each of us is facing our own personal disaster. At present, there is no escaping the fact that clinical death will, barring some sort of magnificent advancement in nanotechnological and/or medical interventions, be the fate of each of us no matter how much every one of us might wish otherwise. Like the folks faced with the life-or-death situation in 1871, we can either throw up our hands and simply quietly and unresistingly accept our fate or we can, like they did, "grab an oar" and try to see what we can do to survive. Like the telecommunications mentioned previously, which have been such a great help in saving victims of accidents on waterways and oceans, another technology has developed by which one may, figurative speaking, "call for help". That technology is cryonics. Don't delay in taking advantage of it. If the whalers of the late 1870's had not prepared as best they could, over one thousand people would have perished in one fell swoop. By some foresight on their part, along with some determination and effort, they managed to save themselves from the fate of oblivion due to this terrible situation. You can do the same as regards your personal life. As has been exhorted in this column before, join up with us today! You'll be very, very glad you did!

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24355 Sorrentino Court, Clinton Township, MI 48035-3239