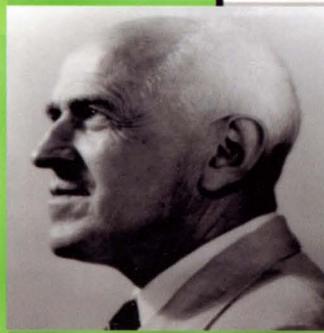
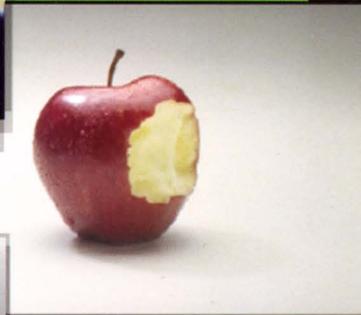


CRYONICS

JAN / FEB 2005 A PUBLICATION OF THE ALCOR LIFE EXTENSION FOUNDATION Volume 26:1

ADVANCES & LAGS

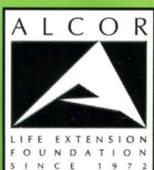
In Acceptance of Biotechnology



*Cryopreservation
Case Report:
Patient A-2063*

*An Interview
with
Tim Reeves*

*Suspension Failures:
Lessons From the Early Years*



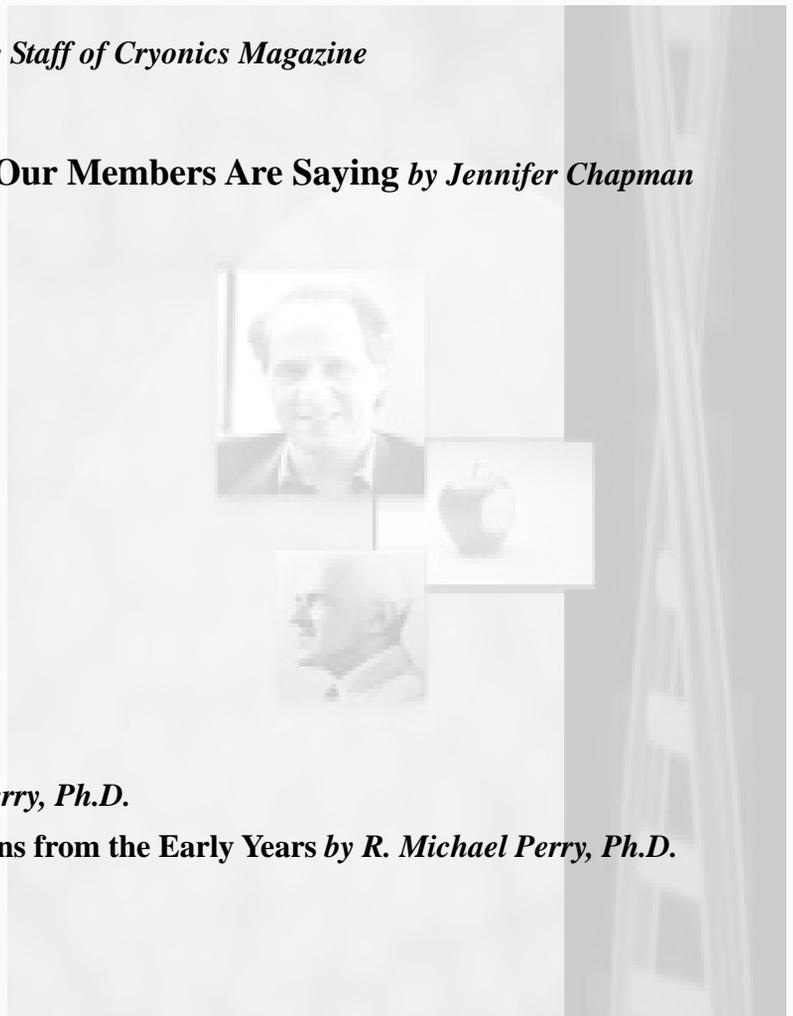
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TO OUR READERS

We understand *Cryonics* magazine is seen as a reflection of our operations and now a full-time staff member is dedicated to its release. To further our understanding of our readers' expectations, we recently conducted a market research survey which revealed many helpful tips for improving the magazine, our readers' main link to the Foundation. The research report told us that our readers want to see more Member profiles and the "human side" of cryonics, more forthright discussion of our strengths and weaknesses as an organization and how we are addressing our weaknesses, more details about the state of research pertaining to cryopreservation, reanimation, and complimentary sciences, and more about our mission and how we strive to succeed. Of course, our readers also want the magazine to be timely and provide up-to-date information.

As we enter a new year, our primary objectives for *Cryonics* magazine include:

- Build confidence in the organization while enabling our readers to clearly understand where we are and where we are heading
- Enable our Members to feel they are a valued part of the organization
- Appeal to a wider audience beyond the cryonics industry

Alcor is committed to releasing six issues of *Cryonics* magazine in 2005, a good pace for keeping our readers informed. As we establish a regular publication schedule, we will start refining the look and content to better meet the needs of our readers. Suggestions are always welcome.

LETTERS TO THE EDITOR

Letters or questions for the Editor are most welcome on all topics, including counterpoint on previously published materials and suggestions as to future content. We especially invite questions about cryopreservation or reanimation that are original and far-reaching. Email your feedback to articles@alcor.org. If you are seeking information about Alcor, consult our website (www.alcor.org).

ALCOR: SEEN BY FEW

Did you know "Alcor" is a star? A star barely within the threshold of human vision, Alcor is located in the Big Dipper's handle. Only with excellent vision can one see Alcor, which is quite close to, but dimmer than, Mizar. The name Alcor, chosen for its symbolism and its historical use as a test for vision and focus, serves as a reminder that the distant dreams seen by few today may become the reality of tomorrow.



Cryonics

is a bi-monthly publication of the
Alcor Life Extension Foundation

Editor
The Alcor Staff

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Volume 26:1

Submissions may be sent via e-mail (articles@alcor.org) in ASCII, Word, or PageMaker format. Mailed submissions should include a PC diskette with the file in any previously mentioned format (although printed text alone will be considered). All submitted media become property of the Alcor Life Extension Foundation unless accompanied by a self-addressed stamped envelope. The Alcor Life Extension Foundation assumes no responsibility for unsolicited manuscripts, photographs, or art. Send all correspondence and submissions to:

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Visit us on the Web at www.alcor.org

HOW TO JOIN ALCOR

Your research is finally complete. You browsed our web site (www.alcor.org), presented your questions to our Membership Services Coordinator (diane@alcor.org), and toured our facility. Now you are ready to establish your membership with Alcor Foundation. Congratulations and welcome!

Upon receipt of your completed application for membership and \$150 application charge, Alcor will send you various membership documents (samples available upon request). After reviewing these documents, you will need to sign them in the presence of two signing witnesses. Perhaps a representative of your local bank can notarize the single document that also requires this official witness. After returning all of your documents to Alcor for approval, you can expect to receive one original copy of each for your personal records.

Most people use life insurance to fund their suspension, although cash prepayment is also acceptable. If you do not already have an insurance policy, Alcor recommends that you apply for one at your earliest convenience, as the underwriting process can last several weeks. Diane Cremeens, Membership Services Coordinator, can provide you with a list of insurance agents who have previously written policies for this purpose. These agents can assist you with satisfying Alcor's various funding requirements, such as naming Alcor as the owner and irrevocable beneficiary of your policy and ensuring that your benefit amount is sufficient.

With your membership documents completed and your funding approved by Alcor, you will be issued emergency identification tags engraved with your personal Suspension Number. This is your confirmation that Alcor will respond, should our emergency technicians ever receive a call on your behalf. Certainly, Alcor hopes that you will not need us anytime soon, but as a member of Alcor you can feel confident that our organization will care for you and your future. Please call 480-905-1906 ext. 132 today to request your application.

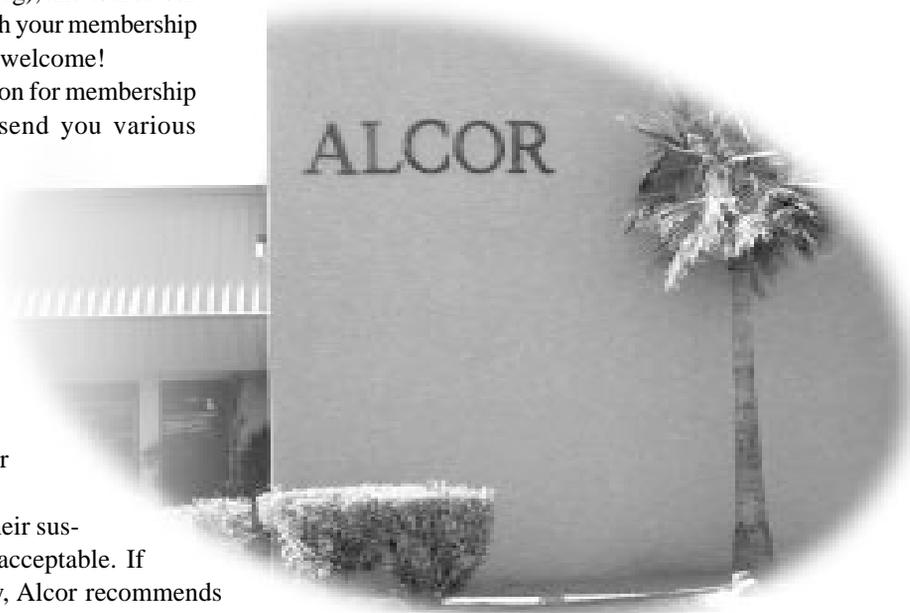
TO ALL ALCOR MEMBERS AND THOSE IN THE SIGN-UP PROCESS

Please! Please! Please! When you move, change phone numbers (work number as well), change e-mail addresses, or undergo any medical procedure where general anesthesia is used, please inform us as far ahead of time as you can.

Too many times we have tried to contact our members and found out the contact information we have is no longer valid. Other times we find out well after the fact that a member has undergone a medical procedure with life threatening potential.

Help us to serve you better! Keep in touch!

| | |



Alcor Membership Status

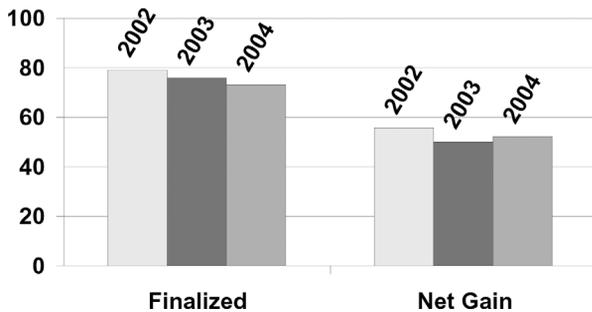
Alcor has 721 Suspension Members (including 114 Life Members) and 67 patients in suspension. These numbers are broken down by country below.

Country	Membership Status			Country	Membership Status		
	Members	Applicants	Subscribers		Members	Applicants	Subscribers
Argentina	0	0	1	Netherlands	1	4	1
Australia	8	2	3	Russia	0	0	2
Austria	0	0	1	South Africa	0	0	1
Canada	20	10	11	Spain	0	5	0
France	0	0	1	Sweden	0	0	1
Germany	3	2	2	Switzerland	0	0	2
Italy	1	3	3	Taiwan	0	0	1
Japan	0	1	1	U.K.	16	12	9
Lebanon	0	0	1	U.S.A.	669	116	482
Mexico	1	1	1				
Monaco	2	0	0	TOTALS	721	156	524

ANNUAL MEMBERSHIP GROWTH

Over the course of 2004, Alcor experienced a 7.9% growth rate. 73 memberships were approved this year, which is on par with 2002 (79) and 2003 (76). The net gain of new members has also remained steady over the last several years:

3-year Glance



As of February 1, 2005, Alcor is responsible for 721 Members (114 Life Members). The expectation is that we will reach 800 by the end of 2005. With the new suspension minimums becoming effective as of January 1, 2005, we had a large influx of new applicants before the end of the year and we are diligently working with them to help complete the membership process.

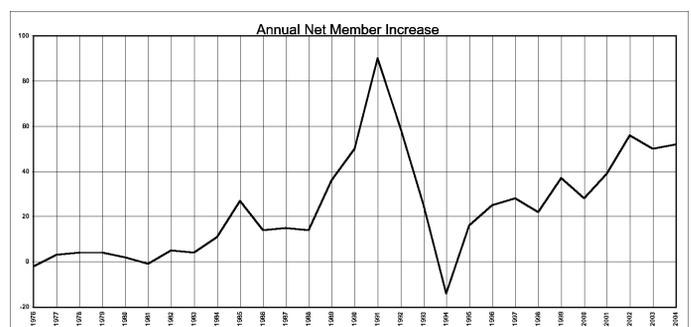
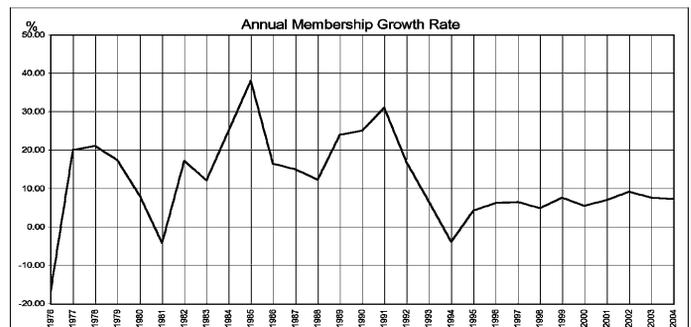
So, how did our 2004 new Members hear about us? Current Alcor Members are the primary source, along with the internet, magazine and newspaper articles, various books, and television programs. Our collaboration with WalshCOMM, a professional public relations firm here in Phoenix, is generating more interest through local and international media and increased community involvement. We are also continuing to offer free tours of our facility to the public.

An average of 50 info packs were sent per month in 2004 as compared to 87 per month in 2003. Info packs are free and can be requested on our website (see Info Requests page). They include a 100-page book titled *Alcor Life Extension Foundation: An Introduction* by Jerry B. Lemler, a flier about vitrification, a brochure explaining how to become a member, and an application for membership. We also include a promotional booklet and various inserts announcing new programs and advancements within the organization. If you know someone who may be receptive to learning more about cryonics and Alcor, request a free information package for them or see page 13 for information about our free monthly newsletter and gift subscriptions to

Cryonics magazine.

In 2004, Alcor also initiated an automated email campaign to generate interest amongst individuals seeking information about Alcor. These emails explain how to join as a member, the benefits of Alcor's program, the costs associated with being a Member, how Alcor responds in an emergency, etc. Currently these emails are targeted at info pack recipients and applicants in an effort to increase the rate of converting info pack recipients into applicants and applicants into members. There are also a number of issues our members would benefit from receiving reminders about through the year, such as the importance of notifying Alcor of general health status changes, surgeries, and changes to contact information.

A number of beneficial changes to the website were initiated last year, as well, and Alcor's Website Working Group plans to write an article explaining its new and improved features for an upcoming issue of *Cryonics* magazine. Visit the website: www.alcor.org for tons of information about Alcor and cryonics, plus a listing of photos and job opportunities presently available.





CEO Report

By Joseph A. Waynick

Just about every Alcor member is aware of the firestorm of publicity and legal wrangling that surrounded the Ted Williams cryopreservation. Now that there is a court order in place allowing Alcor to release certain documents pertaining to his case, we are able to more fully disclose our thoughts on the event.

The entire affair revolved around Alcor's long-standing policy of protecting patient confidentiality when requested to do so, either by the member or by relatives making a Third Party Anatomical Gift. Members have come to rely on Alcor to stand firm in its defense of patient confidentiality no matter what the cost. The fact that they almost unanimously supported Alcor management through the entire ugly affair testifies to how seriously the membership takes the confidentiality issue.

Yet, after having the benefit of a front row seat in the Williams family dispute, I am not convinced that unconditional confidentiality

"Absolute secrecy about cryopreservation arrangements is not only impossible; it is destructive to the organization."

is such a great idea. Without question Alcor will continue to defend the rights of our members and patients. But unconditional confidentiality on demand is a thing of the past. In today's information driven society, is such anonymity even possible, let alone desirable? I do not think so.

If we are to achieve mainstream acceptance then the option of cryopreservation must be seen for what it is, that is to say, it is at least as normal, rational, and desirable as burial or cremation, and actually far more so because of the incredible potential it offers! Why keep it a secret? Let's examine some of the more common reasons.

Social And Professional Concerns

Many members choose to keep their cryopreservation arrangements confidential because of social pressures from friends and family. They do not want to be forced to "justify" their decision. At one time or another, most cryonicists experience disapproving looks, subtle and sometimes not so subtle ridicule, or even outright hostility. You may believe that you live in the land of the free, but if your choices are considered too far out of what is considered the "norm," you may discover you are not quite as free as you thought.

I continually ask naysayers how they justify their total destruction when today's medical technology can do a reasonable job of placing them into biostasis, and at least give them the

possibility of being resuscitated at a later date. I point out how a person will cling to life with every fiber of his or her being to avoid experiencing what is commonly called "death." Yet once that fateful moment arrives, our millennia of deathist programming kicks in to misguide us into believing we are suddenly out of options. So we just throw in the towel.

Do the capitulators ever stop to think that were it not for that small segment of society that dares to look beyond what is conventionally thought to be impossible and see other possibilities, that no human progress would ever take place? Complacency and acceptance of the human condition has never driven the species. It is the unrelenting desire to be more than what we are that propels the human race toward the future. Nevertheless, who does society look upon with favor and acceptance; the capitulators or the drivers?

When it comes to cryopreservation arrangements, are we ready to publicly endure rejection by those we know and love in order to stand on our principles? Are we more concerned about the impact of our choice on those who do not choose cryopreservation for themselves; like our spouses and children? Where we are willing to endure whatever hardship befalls us, we may not be so willing to subject our loved ones to the same fate.

There are also professional pressures against cryonicists, especially for those who work in the medical field. Careers can be ruined for merely being associated with cryonics. Are cryonicists prepared to jeopardize their livelihoods because of prejudices held by influential members of their professional community?

Ducking behind the veil of confidentiality seems to solve this little dilemma. But who is left to publicly extol the merits of the science of cryonics? It leaves an even smaller group struggling against conventional wisdom in their bid for legitimacy. No wonder after nearly 40 years there are still only about 1,000 card carrying (bracelet and/or pendant wearing) cryonicists. And many of those are incognito.

Religious Objections

Some of the most powerful objections to cryonics come from fundamentalist Christians. Those objections stem from questions such as "What happens to the soul during cryopreservation?" and "Doesn't God alone hold the keys to life and death?"

These questions suggest that cryonics is attempting to replace religion. Nothing could be further from the truth. Cryonics is simply another life saving technique much like organ transplantation was during its early stages. The moral and religious

outcry of today about cryonics is reminiscent of similar outcries expressed at the notion of human beings walking around with someone else's organs inside.

Today, organ transplantation is a commonly accepted medical practice among religious and secular communities alike. This general acceptance proves that societal opposition to great advances in medical technology is transitional and tends to diminish once the life-saving benefits become apparent.

Still, the hesitation to go public with ones' cryopreservation arrangements because of resistance from the religious community is strong.

Financial Concerns

Believe it or not, the cost of performing a cryopreservation is regularly cited as the reason confidentiality is requested. Some members do not want others to know that they have made funding arrangements for as much as \$150,000 for their cryopreservation. Ethicists will allege that it is selfish to spend such a large sum for cryopreservation when it should be left to the surviving family.

If one of these same ethicists suddenly needed open heart surgery and he or she had \$150,000 in the bank, there would be no hesitation to withdraw every penny to pay for the procedure. "But

"Without question Alcor will continue to defend the rights of our members and patients. But unconditional confidentiality on demand is a thing of the past..."

surgery is covered by medical insurance!" you say. Yes, that is true; just like cryopreservation

procedures are covered by life insurance. When you consider the out-of-pocket costs of about \$100.00 per month, cryopreservation is well within reach of most families and individuals. The average person spends much more than that on hobbies and entertainment each month.

True, a surviving family would stand to gain financially if the death benefit of a life insurance policy were left to them instead of paying for a cryopreservation. But you can use that same argument against paying large sums for experimental AIDS treatments that have no more chance of success than cryonics.

Furthermore, on this basis we must never consider purchasing a boat, expensive car, a large home, or any number of other big-ticket items. The money could always be put to "better" use, could it not, by leaving it to the family after you die when you can no longer spend it on yourself?

In any case, guilt-driven members will hide their arrangements from public examination because they choose to take extraordinary measures to save their lives rather than capitulate. But there are good reasons to consider alternatives.

The Case Against Confidentiality

Absolute secrecy about cryopreservation arrangements is not only impossible, it is destructive to the organization. It is cultish,

and though our operations are fully above-board, it gives the appearance of impropriety. Not only is it an unfair representation of what we really are, it is dangerous for Alcor.

Much of the negative publicity surrounding the Ted Williams case stemmed from a lack of information about his arrangements and a general lack of communication between Alcor and the media. Under the spotlight of national scrutiny it certainly did not help our cause by withdrawing into the facility and locking out the press.

On the opposite end of the scale, Alcor recently went to court to defend the cryopreservation arrangements of one of our Florida members. We prevailed in that difficult case largely because of the openness of his arrangements. He had a trust and will that clearly revealed his wishes. All of his friends and family knew of his wishes. He had signed Relatives' Affidavits in his file. His actions prior to his pronouncement were consistent with his desire for cryopreservation. And when his disposition was challenged, the judge clearly saw the strength of his convictions and ruled in his favor.

Admittedly, this patient did not receive an optimal cryopreservation due to delays caused by the opposition. But he most likely would not have received a suspension at all were it not for his openness.

Regardless of the confidentiality wishes of a patient, courts can always intervene and order the release of documents as was seen in the Ted Williams case. Alcor must always comply with such orders, so absolute confidentiality can never be guaranteed. It is also unfair to the rest of the membership and especially to existing patients for Alcor to expend resources fighting legal battles to uphold unreasonable demands for absolute confidentiality.

This does not suggest that Alcor will stop defending against equally unreasonable requests for patient information. The landmark ruling handed down in the Ted Williams case has established important guidelines for Alcor to follow in similar cases in the future.

Finally, members who are open about their arrangements help us put a human face on our operations. Instead of being patient number A-9999 stenciled on a pod casing, you are a real human being. Someone to be cared for and looked after for as long as necessary until you can be restored to good health.

Where Do We Go From Here?

Alcor has already taken steps to add much needed flexibility to the confidentiality commitment for new signups. There is no longer a guaranteed right to absolute confidentiality written into the Cryonic Suspension Agreement.

For existing members, I strongly encourage all of you to modify Attachment I to your Cryonic Suspension Agreement to authorize Alcor to release information about your cryopreservation if it seems especially important to do so. It would be of tremendous help to the organization and it just may forestall our involvement in another bitter family feud.

| | |

Pet Scans Detect Risk For Alzheimer's. Using brain imaging, researchers at Columbia University Medical Center (CUMC) have found clear differences in brain function between healthy people who carry a genetic risk factor for Alzheimer's disease and those who lack the factor. Because researchers believe that Alzheimer's disease starts changing the brain years before any symptoms appear, the disease may be most amenable to treatment in these pre-clinical stages. If so, detecting the early changes will be crucial for future therapies. People who carry the genetic risk factor, the epsilon-4 allele of the Apolipoprotein (APOE) gene, have higher risk of developing the disease than non-carriers and usually show symptoms earlier. (*Science Daily* 11/11/04) <http://www.sciencedaily.com/releases/2004/11/041121215722.htm> [MP].

UN Ditches Cloning Ban. Members of the United Nations on Nov. 19 abandoned the battle to outlaw human cloning and said they would settle for a non-binding declaration instead. The move marks the end of a protracted, three-year debate in the United Nations about whether to draw up a treaty that would prohibit countries from cloning human embryos. Since last year, the UN legal committee has been at loggerheads over two competing resolutions. One, proposed by Costa Rica and supported by the United States, calls for a blanket ban on reproductive cloning to make babies and therapeutic cloning for medical research. The opposing resolution, proposed by Belgium, calls for a ban on reproductive cloning only. Those backing this proposal argue that cloning for research should be allowed because it could yield stem cells vital for curing disease. (*news@nature.com* 11/22/04) <http://www.nature.com/news/2004/041122/full/041122-2.html> [MP].

Waterloo Recoveries versus Multiple Organ Failure. Waterloo's battlefield is reigniting the debate about whether modern medicine is always good for you, according to University College London (UCL) scientists who are launching a study of why some critically ill patients recover and others die from multiple organ failure—the number one killer of patients in intensive care. Of the 52 privates in the 13th Light Dragoons wounded by sabre, gunfire, and cannon injuries at Waterloo, only two subsequently died. UCL's Prof. Mervyn Singer says: "Despite the non-existence of antibiotics, blood transfusions, life-support machines and other paraphernalia of modern intensive care, most of these soldiers recovered, often from life-threatening injuries. Yet with all our technical advances in medicine, mortality rates from conditions such as sepsis (bacterial infection of the bloodstream) haven't improved dramatically over the past century. The question is whether our present understanding of

underlying pathology in medicine is leading us down the wrong path, and whether our current interventions may even be injurious to the healing process." (UCL Online 11/23/04) <http://www.ucl.ac.uk/media/archive/archive-release/?waterloo> [MP].

Crystals to Help Battle Deadly Diseases. A groundbreaking technique developed at The University of Manchester, U.K., which uses crystals to map 'invisible' parts of molecules, is set to revolutionize drug discovery. The technique, which involves sending beams of neutrons through crystals at just a few degrees above 'absolute zero', will for the first time allow scientists to see complete structures of protein molecules, right down to the last atom. Once a pharmaceutical company has this information, it is able to tailor drugs to target specific proteins, e.g. interfering with the function of such proteins in infectious agents like tuberculosis - enabling the production of more effective medicines. (U. of Manchester Press Release 11/23/04) http://www.eurekalert.org/pub_releases/2004-11/uom-uom112304.php [MP].

Stem Cells Help Woman Walk Again. A south Korean woman paralyzed for 20 years is walking again after scientists say they repaired her damaged spine using stem cells derived from umbilical cord blood. Hwang Mi-Soon, 37, had been bedridden since damaging her back in an accident two decades ago. Last November her eyes glistened with tears as she walked again with the help of a walking frame at a press conference where South Korean researchers went public for the first time with the results of their stem-cell therapy. They said it was the world's first published case in which a patient with spinal cord injuries had been successfully treated with stem cells from umbilical cord blood. Though they cautioned that more research was needed and verification from international experts was required, the South Korean researchers said Hwang's case could signal a leap forward in the treatment of spinal cord injuries. The use of stem cells from cord blood could also point to a way to side-step the ethical dispute over the controversial use of embryos in embryonic stem-cell research. (*news.com.au* 11/28/04) http://www.heraldsun.news.com.au/common/story_page/0,5478,11525141%255E1702,00.html [MP].

Nanoscale Assembler Proposal. The main impediment to molecular manufacturing today is the lack of an experimental procedure for routinely and precisely building objects, atom by atom, at the molecular scale. The key to this is molecular positional assembly, or mechanosynthesis — the formation of covalent chemical bonds using precisely applied mechanical forces. After a brief description of the various diamond surfaces,

Robert Freitas describes a specific dimer placement tool that has been extensively investigated for diamond mechanosynthesis using various computational methods. This tool appears to be stable in isolation, and should be able to deposit carbon dimers on a diamond C(110) surface as required, during room temperature operation. Next, he presents a preliminary proposal for a four-step experimental process by which this dimer placement tool, along with its associated macroscale handle structure, could be fabricated using presently-available bulk-chemistry techniques. His new tool fabrication process is the subject of the first (provisional) patent ever written on diamond mechanosynthesis, filed in February 2004. If a practical dimer placement tool can be built in this manner, extensions should open up the entire field of molecular machine manufacturing to practical laboratory experimentation. (Freitas Online Lecture Update 11/29/04) <http://www.molecularassembler.com/Papers/PathDiamMolMfg.htm> [NGN 12/31/04; MP].

Screensaver Tackles Spam Websites. Net users are getting the chance to fight back against spam websites. Internet portal Lycos has made a screensaver that endlessly requests data from sites that sell the goods and services mentioned in spam e-mail. Users do not have to be registered users of Lycos to download and use the tool. While working, the screensaver shows the websites that are being bothered with requests for data. Lycos hopes it will make the monthly bandwidth bills of spammers soar by keeping their servers running flat out. The net firm estimates that if enough people sign up and download the tool, spammers could end up paying to send out terabytes of data. The screensaver is due to be launched across Europe on 1 December and before now has only been trialled in Sweden. Despite the soft launch, Malte Pollmann, spokesman for Lycos Europe, said the tool had been downloaded more than 20,000 times in the last four days. (*BBC News* 11/29/04) <http://news.bbc.co.uk/1/hi/technology/4051553.stm> [MP].

Artificial Cells Take Shape. Bacterium-sized 'protein factories' are a step along the road to synthetic life. Primitive cells similar to bacteria have been created by US researchers. These synthetic cells are not truly alive because they cannot replicate or evolve. But they can churn out proteins for days and could be useful for drug production, as well as advancing the quest to build artificial life from scratch. (*nature.com* 12/6/04) <http://www.nature.com/news/2004/041206/full/041206-2.html> [NGN 12/31/04].

Carbon Nanotubes for Implantable Biosensors. Protein-encapsulated single-walled carbon nanotubes that alter their fluorescence in the presence of specific biomolecules could generate many new types of implantable biological sensors, say researchers from the University of Illinois at Urbana-Champaign who developed the encapsulation technique. (*A2ZNano* 12/13/04) <http://www.azonano.com/news.asp?newsID=439> [NGN 12/31/04].

Cheap LCD As DNA Microscope. Dutch researcher Johan Hoogboom has developed a technique for making LCDs (liquid

crystal displays) without the need for cleanrooms. This technique is simpler and cheaper than current methods and is based entirely upon the self-ordering of molecules on a surface. Furthermore, the chemist has shown that these LCDs can be used to make DNA visible to the naked eye. (*Science Daily* 12/27/04) <http://www.sciencedaily.com/releases/2004/12/041219154236.htm> [MP].

Just How Old Can He Go? Ray Kurzweil began his dinner with a pill. "A starch blocker," he explained, "one of my 250 supplements a day." The risk of encountering starchy food seemed slight indeed at the vegetarian restaurant in Manhattan he had selected, where the fare was heavy with kale, seaweed, tofu, steamed broccoli and bean sprouts. But Mr. Kurzweil, a renowned inventor and computer scientist, has strong views on dietary matters. His regimen for longevity is not everyone's cup of tea (preferably green tea, Mr. Kurzweil advises, which contains extra antioxidants to reduce the risk of heart disease and cancer). And most people would scoff at his notion that emerging trends in medicine, biotechnology and nanotechnology open a realistic path to immortality - the central claim of a new book by Mr. Kurzweil and Dr. Terry Grossman, a physician and founder of a longevity clinic in Denver. (*GoUpstate* 12/27/04) <http://www.goupstate.com/apps/pbcs.dll/article?AID=/20041227/ZNYT05/412270340/1027/OPINION> [NGN 12/31/04].

Magnesium May Reverse Middle-Age Memory Loss. Magnesium helps build bones, make proteins, release energy stored in muscles and regulate body temperature. In the cover story of the Dec. 2 issue of *Neuron*, MIT researchers report a possible new role for magnesium: helping maintain memory function in middle age and beyond. (*Science Daily* 12/27/04) <http://www.sciencedaily.com/releases/2004/12/041219164941.htm> [MP].

DNA Translation Machine. Chemists at New York University have developed a device that allows for the translation of DNA sequences, thereby serving as a factory for assembling the building blocks of new materials. The invention, described in the latest issue of *Science* magazine, has the potential to develop new synthetic fibers, advance the encryption of information, and improve DNA-based computation. Developed by NYU Chemistry graduate student Shiping Liao and Professor Nadrian C. Seeman, the device emulates the process by which RNA replicas of DNA sequences are translated to create protein sequences. However, the signals that control the nanomechanical tool are DNA rather than RNA. The dimensions of the machine are approximately 110 x 30 x 2 nm. (*Science Daily* 12/27/04) <http://www.sciencedaily.com/releases/2004/12/041219170901.htm> [MP].

Coated Nanotubes Make Biosensors. A good sensor should be able to sense extremely small changes and should be able to transmit this information about its environment consistently. Researchers working to make sensors that indicate a given

chemical or biological agent after sensing only a few or even a single molecule of that substance are turning to the minuscule tools of nanotechnology. Researchers from the University of Illinois at Urbana-Champaign are using carbon nanotubes to sense single molecules and are tapping the way carbon nanotubes give off near-infrared light in order to read what the sensors have detected. (TRN 12/29/04) http://www.trnmag.com/Stories/2004/122904/Coated_nanotubes_make_biosensors_Brief_122904.html [NGN 12/31/04].

California Sets Fines for Spyware. The makers of computer programs that secretly spy on what people do with their home PCs could face hefty fines in California. From 1 January, a new law is being introduced to protect computer users from software known as spyware. The legislation, which was approved by Governor Arnold Schwarzenegger, is designed to safeguard people from hackers and help protect their personal information. Spyware is considered by computer experts to be one of the biggest nuisance and security threats facing PC users in the coming year. The software buries itself in computers and can collect a wide range of information. At its worst, it has the ability to hijack personal data, like passwords, login details and credit card numbers. The programs are so sophisticated they change frequently and become impossible to eradicate. (*BBC News* 1/1/05) <http://news.bbc.co.uk/1/hi/technology/4132143.stm> [MP].

Human Stem Cells Trigger Immune Attack. Most human embryonic stem cell lines, including those available to federally funded researchers in the United States, may be useless for therapeutic applications. The body's immune defenses would probably attack the cells, say US researchers. Exposure to molecules from animals might have made human stem cells unacceptable. The current stem cell lines have little clinical value, but that is "not an issue for pursuing basic research", says James Battey, chairman of the National Institutes of Health's stem cell task force. In fact, these lines will help to develop animal-free conditions for growing and maintaining human embryonic stem cells and minimizing safety concerns, he says. (*news@nature.com* 1/24/05) <http://www.nature.com/news/2005/050124/full/050124-1.html> [MP].

Nanotechnology Detects Human DNA Mutations. Researchers at Nanosphere, Inc. have reported unprecedented benefits in the company's technology for the medical analysis of human DNA. Nanosphere's nanoparticle-based technology allows for rapid, highly-sensitive and specific Single Nucleotide Polymorphism (SNP) genotyping, which is the direct detection of a particular gene and the extent to which it is normal or mutated. (*Azonano* 1/26/05) <http://www.azonano.com/news.asp?newsID=481> [NGN 2/3/05].

Nanotubes Crank Out Hydrogen. Pure hydrogen fuel is non-polluting. Current methods of extracting hydrogen, however, use energy derived from sources that pollute. Finding ways to

use the sun's energy to split water to extract hydrogen would make for a truly clean energy source. Several research efforts are using materials engineered at the molecular scale to tap the sun as an energy source to extract hydrogen from water. Researchers from Pennsylvania State University have constructed a material made from titanium dioxide nanotubes that is 97 percent efficient at harvesting the ultraviolet portion of the sun's light and 6.8 percent efficient at extracting hydrogen from water. (*Fuel Cell Today* 1/27/05) <http://www.fuelcelltoday.com/FuelCellToday/IndustryInformation/IndustryInformationExternal/NewsDisplayArticle/0,1602,5504,00.html> [NGN 2/3/05].

Wisconsin Scientists Grow Critical Nerve Cells. After years of trial and error, scientists have coaxed human embryonic stem cells to become spinal motor neurons, critical nervous system pathways that relay messages from the brain to the rest of the body. The new findings, reported Jan. 30, 2005, in the journal *Nature Biotechnology* by scientists from the University of Wisconsin-Madison, are important because they provide critical guideposts for scientists trying to repair damaged or diseased nervous systems. Motor neurons transmit messages from the brain and spinal cord, dictating almost every movement in the body from the wiggling of a toe to the rolling of an eyeball. The new development could one day help victims of spinal-cord injuries or pave the way for novel treatments of degenerative diseases such as amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease. With healthy cells grown in the lab, scientists could, in theory, replace dying motor neurons to restore function and alleviate the symptoms of disease or injury. (University of Wisconsin-Madison 1/30/05) http://www.eurekalert.org/pub_releases/2005-01/uow-wsg012605.php [MP].

Nanotech Takes Aim at Transistors. US scientists have made nano-scale devices they claim could one day replace current transistor technology. The tiny devices, "crossbar latches," are made up of a combination of crossed-over platinum wires with stearic acid molecules set at their junctions. The Hewlett Packard researchers said they could potentially do a better job than present transistors, dramatically improving the performance of computers. The HP team reports its findings in the *Journal of Applied Physics*. (*BBC News* 2/1/05) <http://news.bbc.co.uk/1/hi/sci/tech/4226305.stm> [NGN 2/3/05].

Less Money for Nano but Record Number of Rounds. The amount of money invested by venture capitalists in U.S. companies commercializing nanotechnology fell a precipitous 35 percent last year (2004). However, the number of companies receiving funding increased 32 percent, to the highest level *Small Times* has tracked in data going back to 1995. (*Smalltimes* 2/2/05) http://www.smalltimes.com/document_display.cfm?document_id=8744 [NGN 2/3/05].



CryoPreservation Case Report:

The Cryopreservation of Patient A-2063

by Tanya Jones

The initial contact for this March 2004 case began at 12:15 (MST), with Hugh Hixon taking the emergency call. A non-member was in the hospital and dying. The gentleman was suffering from terminal cancer and had a subdural hematoma, the result of recent brain surgery. He was suffering from sepsis and pneumonia when Alcor received the call.

Though the patient was under heavy sedation when Alcor was contacted about his condition, he had previously communicated his desire to be cryopreserved to several witnesses, including his attorney. By the time Alcor was directly involved, the patient was in an agonal decline, his lungs were filled with fluid, and he had been intubated. As a result, he was unable to speak with us directly, and subsequent conversations were held between Alcor personnel, the immediate family and his attorney.

Because this individual had previously spoken with Alcor about arranging an anatomical gift, we had a file already in place. Financial arrangements had been made in advance, with Alcor

being made the partial beneficiary of an existing life insurance policy; but we were missing the legal paperwork. Paperwork was faxed to the hospital for execution by the patient's next of kin, all of whom had witnessed his statements about his choice for cryonics as his method for disposition.

Over the course of the next eight hours, the case proceeded administratively. In addition to faxing the contracts, we faxed a copy of our emergency stabilization instructions to the hospital staff. Alcor's Medical Advisor, Dr. Steve Harris and I spoke with the patient's physicians and arranged for the emergency instructions to pass through the hospital's approval process, whereby the administration of post-mortem medications was authorized and the appropriate orders were placed in the patient's medical chart. Though a transport team was expected to be on site, these precautions seemed sensible under the circumstances.

We placed our southern California team on alert, as they were closest to the patient's location. We notified our local and southern California Funeral Directors, and we contacted our local volunteers about the impending case. By 16:35, the operating room was prepared for the cryoprotection, the southern California team was preparing their deployment, and arrangements had been made for me to fly to California. Formal deployment was awaiting the signatures of the next of kin on an application and the provision of standby funding. By 21:00 (PST) that same evening, the minimum administrative elements were in place and the team was ready to drive to the hospital to begin on-site preparations.

We were expecting good cooperation from the hospital, and we received it. Shortly after the team arrived and the team leader met with the patient and his family, arrangements were made for prompt release and stabilization. Because the patient had been on life support for so long, it was anticipated that his condition would rapidly decline once life support was removed. As a result, we made certain that everything was ready before the patient was extubated.

In this case, preparations included having the physician on-hand for immediate pronouncement, ensuring ice and the preliminary medications (Heparin and Streptokinase) were all available for prompt administration, locating a suitable space for the application of the rest of the stabilization protocol, and speaking with hospital security to ensure a private escort out of the facility. Overall, these arrangements took about an hour to complete because the

Time	Event	Hours, post-legal death
12:15	Initial Alcor contact (MST)	-9.38
22:38	Cardiac arrest occurs (PST)	-0.17
22:39	Pronouncement of legal death	0
22:40	Medications started	0.17
22:41	Surface cooling started	0.33
22:41	Cardiopulmonary support started	0.33
23:35	Transport started	0.95
0:17	Medications complete	1.37
0:17	Cardiopulmonary support complete	1.37
7:04	Transport complete (MST)	9.56
9:00	Neuro washout started	11.37
9:46	Neuro cryoprotection started	11.47
10:40	Body washout started	12.17
10:49	Body cryoprotection started	12.33
15:05	Body cryoprotection complete	17.43
20:00	Neuro cryoprotection complete	22.37
20:17	Neuro cooling started	22.65
0:00	Body cooling started (from -32°C)	26.35
	Neuro cooling complete	140
	Body cooling complete	370

Table 1: Significant Events

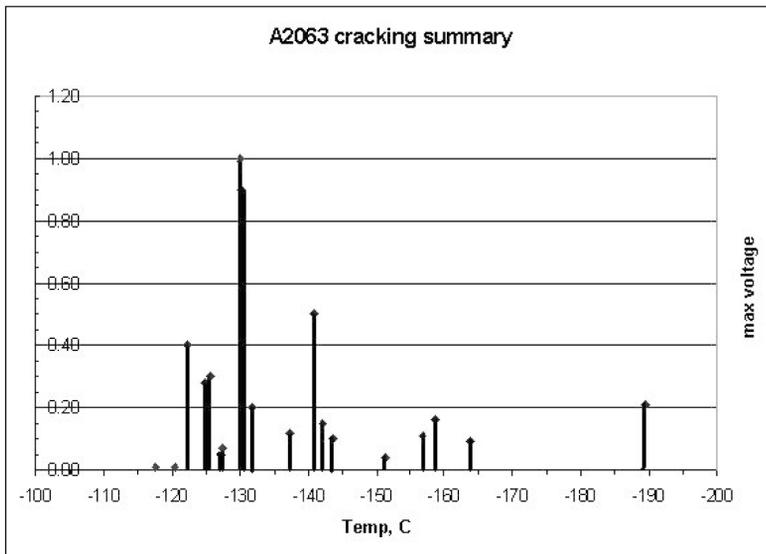


Figure 1: Acoustic Event Summary

patient's wishes were so well known to his caregivers and because communication with the hospital earlier in the day had gone smoothly.

Prior to being removed from life support, the patient's pulse was 118 beats per minute and his blood pressure was a low 75/55. His fingers were mottled and feet cold, he took few spontaneous breaths, and his arms bore bruises from old IV placements. He was surrounded by family and friends. At 22:28, he was extubated; by 22:30, he was off oxygen support; and his suctioning tube was removed. All IV drips were discontinued, and there was an immediate change in his vital statistics.

Stabilization and Transport

As expected, the patient's heart stopped beating quickly. From extubation to the cessation of heartbeat and breathing, eleven minutes passed. The patient's physician was on-hand and pronounced immediately. A short minute later, the hospital staff was administering the approved stabilization medications, packing the patient's head in ice, and beginning cardiopulmonary support to circulate the first batch of meds.

Bedside cardiopulmonary support continued for five minutes, and then the patient was turned over to Alcor personnel. We transferred to a vacant patient room on an empty floor below and were allowed to continue the stabilization there, where it wouldn't disturb any other patients.

Chest compressions and the introduction of the remaining stabilization medications were initiated at 23:00. Our first temperature reading was taken five minutes later and was 35.4°C. Seventeen minutes passed, and all but one of the large volume medications had been administered in full and circulated. Security was contacted to provide us with an escort to the loading dock, and some of the team members began cleaning the space.

By 23:30, the patient was being loaded into the southern California vehicle; and the team split up, with two team members taking the patient and the used portion of the transport kit to Alcor and the rest heading home. At 23:59, transport was paused to administer the final large volume medication, with cardiopulmonary support being continued until 00:10. More ice was added to the bath, and the patient's temperature had dropped to 31.6°C. At this point, it was discovered that blood had backed into the mannitol bag, because the IV line stopcock hadn't been closed. It was then properly secured, and the contents of the bag held, in case a blood sample could later be extracted. With the stop for the final medication and a single stop for gas, the drive to Scottsdale took about seven hours; and the patient was transferred to operating room personnel, without incident, at 07:04.

Cryoprotection

Taking five minutes to unload, the patient was on the operating table by 07:10. By this time, his temperature had dropped to 10.4°C. Burr hole drilling was started within five minutes, after shaving the head and disinfecting the scalp, and was completed by 07:29.

Hours, post-legal death	Temp, Celsius	max voltage
2.86	-117.70	0.01
65.87	-120.50	0.01
67.98	-122.20	0.40
71.31	-124.90	0.28
72.23	-125.60	0.30
73.21	-127.20	0.05
73.50	-127.40	0.07
75.78	-130.00	1.00
75.89	-130.30	0.90
77.58	-131.80	0.20
81.32	-137.36	0.12
84.32	-140.90	0.50
84.32	-140.90	0.17
84.26	-142.20	0.15
87.26	-143.60	0.10
95.60	-151.30	0.04
101.49	-156.70	0.11
102.98	-158.70	0.16
108.44	-163.80	0.09
136.77	-189.50	0.21

Figure 2: Acoustic Cracking Events

This patient had chosen the neuro-vitrification with whole-body cryoprotection option for preservation, which involved two separate surgeries, the first requiring cannulation of the arteries and veins in the neck and neuro-separation and the second requiring cannulation of femoral artery and veins. B2C was used as the cryoprotectant for the brain and glycerol was used for the body.

Preliminary carotid incisions were made on the left side at 07:38. While the surgery continued, the cryoprotective perfusion circuits were still being prepared; the last small bubbles in the neuro circuit were removed at 07:46. Six minutes later, the surgeons completed dissecting the carotid sheath and were isolating the artery, a process that was completed by 07:58. Incision on the right side began at 08:03; and isolation on this side was completed by 08:23. Subsequent cannulation of all vessels required an additional fifteen minutes.

Neuro-perfusion was begun at 09:00, after the head was removed and placed inside the cephalon enclosure. We saw good flow from the left side, but the right jugular showed little venous return. Flow eventually picked up somewhat, but the reason for the obstruction was not determined. Less than twenty minutes later, we noted some swelling of the brain. We attempted to moderate the swelling by slowing perfusion and allowing more time for the cryoprotectant to equilibrate across the hemispheres.

The left hemisphere reached terminal concentrations at 15:00, but the right hemisphere had only obtained 59.4% of the concentration needed to vitrify. We continued the neuro perfusion for another five hours before stopping because of toxicity concerns, lowered uptake curves, and staff exhaustion. Final uptake concentration on the left jugular side was 117% of the concentration necessary to vitrify, and the concentration on the

right had climbed to 74%. This was the longest neuro-perfusion we've ever done.

At 09:19, preparation for surgery on the trunk was started. Femoral cannulation was used. By 10:38, cannulation was complete and the circuit was ready. Washout on the trunk began two minutes later. Once the washout began, time was taken to clamp off the vessels at the stump of the neck. On whole, this worked well to contain the seepage of cryoprotectant. Perfusion on the trunk went better than that of the head, and a step-wise ramp was used during the introduction of the cryoprotectant. Perfusion of the trunk was completed at 15:05 after reaching the terminal concentration of 8 Molar glycerol.

Cooldown and Transfer

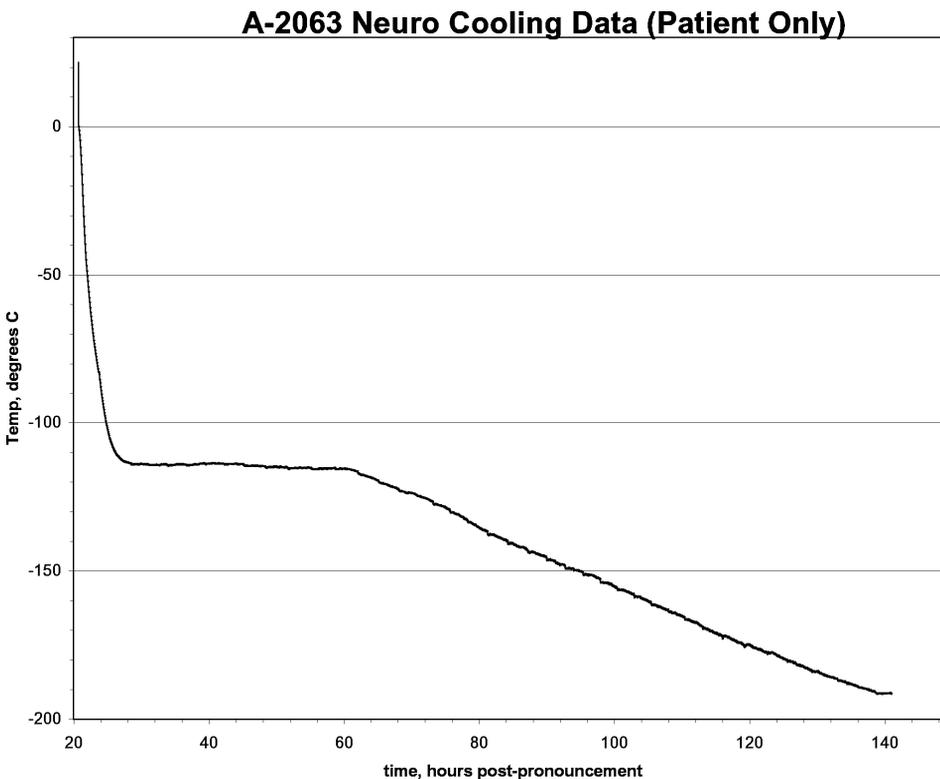
Temperature descents occurred at the standard rate of 1°C per hour.

The head and the trunk were cooled separately, largely because the trunk would require more time to cool due to it being of significantly more mass. The trunk was cooled manually until the automated system was done with the neuro cooldown. Transfer to the automated system occurred while the patient was at -32°C. The cooling to dry ice temperatures for the trunk was done using the Silicone Oil system, which is no longer in use today, having been replaced with a liquid nitrogen vapor cooling system.

We saw twenty acoustic events during the neuro cooling phase. The first registered at 62.86 hours after pronouncement at -117.7°C. Typical though this cracking temperature was, it was considerably above the reported glass transition temperature of the B2C perfusate (-124°C), which is where such acoustic events would be expected to occur. On the whole, the number of acoustic events was typical, but a more uncharacteristic observation is that the first several cracks were quite small. The most energetic acoustic events were at 1.0 and 0.9 volts, high for B2C but low compared to larger glycerol cracks, which register at amplitudes of greater than 3V.

Our acoustic monitoring system crashed during the neuro temperature interval of 191.3-191.4°C. During this time, the system was still taking note of acoustic events, but it lost the date and time associations. There was only one event recorded during this interval, but it registered noise across all four channels, indicating it was actual noise and not the patient fracturing.

Both transfers to the maintenance dewars for long-term care proceeded without incident.



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REGULAR TECHNICAL UPDATES...

“The northern California transport team recruiting meeting was held as planned. It was not as well-attended as the southern California meeting, but still provided a valuable opportunity for local members to meet our CEO. We still hope that some new volunteers will step forward to participate in transport activities.”

- Excerpt from November 13, 2004 Alcor News

“As a result of a lack of cryoprotections done in the two recent straight-frozen cases, where only a limited amount of supplies were used, the operating room received something of a shakedown to ensure a higher state of readiness.”

- Excerpt from December 10, 2004 Alcor News

UPDATES ON ADMINISTRATIVE MATTERS...

“Our new Transport Coordinator, William Voice, formally joined the staff this past Monday. Already, he's becoming familiar with cryonics operations and is enthusiastically diving into the development of upgraded training materials and standard operating procedures.”

- Excerpt from January 12, 2005 Alcor News

“As of January 1, 2005, U.S. and Canadian members are no longer required to fund emergency-based standby coverage via credit card authorization or prepayment (does not include elective standby). Instead, each member contributes \$10 per month to a pooled Standby Fund that will cover standby costs for any member in a near-death situation.”

- Excerpt from February 9, 2005 Alcor News



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Advances and Lags in Acceptance of Biotechnology



by Natasha Vita-More

Technological advances are being used to extend the human life span. Mixing technology with biology often causes emotions to rise, resulting in a social divide between those who want biotechnology and those who do not. Drawing selectively on the theories of William Ogburn and Ray Kurzweil it is argued that, regardless of the tendency to lag based on a specific technology or practiced morality, culture does catch up. Ogburn's theory of cultural lag applies and misapplies to biotechnology as a social driver of change, and Ray Kurzweil's view on accelerated technology as an inexorable process moving biotechnology forward is also pertinent. Herein, applying aspects of the materialistic theory to the issues of biotechnology helps to provide a plausible, though not complete, explanation of social change.

Biotechnology

In 1952, the first sex change operation on Christine Jorgensen was performed. In 1969, Dr. Denton A. Cooley surgically replaced the biological heart with an artificial heart. In 1978, Louise Brown, the first "test tube" baby, was born at the same time in history when over 5,000 women had applied for the new infertility treatment. (Vita-More 1997)

Historically, society has been fascinated with fertility and life extension—from early fertility symbols, such as the prehistoric Venus of Willendorf, dating back to c. 30,000 - 25,000 BC (Jung 1964) to early prosthetic nasal reconstructions written in 600 BC. (Parker 1994)

Today magazine sales soar and television program ratings increase when headlines feature the latest news on reproductive techniques or living longer and healthier lives. *The New York Times Magazine* 1997 cover story, "What Technology Is Doing to Us" (Heard 1997), revealed some of the future plans of biotechnology, such as genetic

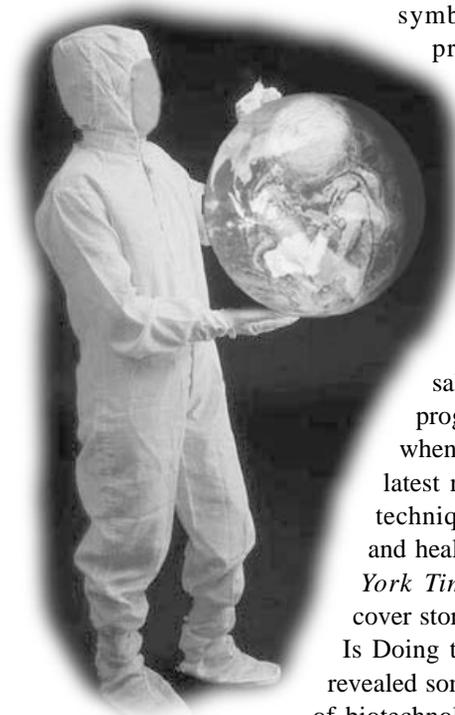
engineering for locating bad genes and synthetic body parts that can replace worn out organs and limbs. The news about technology and life extension became so popular in the late 1990s that many magazines, such as *Newsweek*, announced the latest biotechnologies on their covers. At the dawn of the 21st Century, *Wired* claimed that humans were on the verge of getting a major makeover. (Alexander 2000) But it was not just the technological enthusiasts who have been interested in improving and altering the biology of human life. Most of the tireless work and effort is found in the many groups of disabled who ardently fight for their voice to be heard.

Whether individual ethics will immobilize the social landscape or if technology will soar ahead impervious to social opinion is one of the questions we face today. Sporadic, yet consecutive events, such as development of the birth control pill, in-vitro fertilization, and stem cell cloning, push the science of technology further ahead into the realms of biotechnology for creating, improving, and saving lives. Yet, a large percentage of the American population, and the world, are concerned about the use of biotechnology. The theory of cultural lag (Ogburn 1964) indicates that society cannot keep up with technological innovation and, by and large, will lag behind consequential technological advances.

Cultural Lag - Applying Ogburn's theory

According to William Fielding Ogburn, American theoretical sociologist (Fisher 2001), there is a cultural lag between innovative technological events and society's understanding and acceptance of such events. Ogburn's theory of "cultural lag" can be applied when considering the slow social adaptation to the use of biotechnology for infertility and life extension. While the biotechnology for infertility was brought to the public in 1978, in 2004 advanced developments, such as chromosomal transfer, are not accepted by the mainstream majority and are at times unreliable, and even dangerous. Social concern is brought about by anti-biotech sentiment, a belief that technology is going too far and science is trespassing on the moral code of what it means to be human.

Organizations such as Greenpeace, the Foundation for Economic Trends, and the Council for Responsible Genetics joined forces in 1999 to develop an advertising campaign as a concerted effort to halt biotechnological progress. "We approach the gravest moral, social and ecological crises in history," (*New York Times* 1999) was just one of the many advertising texts placed in the *New York Times*. While it is evident that Ogburn was partially correct in his theory of cultural lag, there are segments of society



that act as innovative constituents of biotechnology, pushing it further ahead into the future. Progressive organizations such as the Extropy Institute and the Alcor Life Extension Foundation work toward developing social awareness about the positive uses of biotechnology. Companies such as Advanced Cell Technologies and the thousands of infertility clinics throughout the world are strong advocates of individual innovation leading the way ahead, steering technological progress.

If industry were the first sector to adapt to change, as Ogburn suggests, then there would be little interest in and development of economic growth and resources for funding, research, and development of biotechnology which is brought about by individual interests and efforts. Since people are needed to invent, develop, and fund technology, there must be a steering party or parties taking on this role. These individuals may not represent the social majority, but they are a crucial part of culture, and it is



“Historically, society has been fascinated with fertility and life extension – from early fertility symbols, such as the prehistoric Venus of Willendorf, dating back to c. 30,000 - 25,000 BC...”

because of them that ideas are brought to fruition, affecting social structures and economic growth. Further, it is mistaken to group all of society as chattel following behind change because society is far too complex to pigeonhole. People adapt to change at different times and at different rates according to the economics of their community, as well as their cultural habits and religious and political worldviews.

Material Factors Determine Society’s Ability to Adapt

Biotechnologies such as the birth control pill, the IUV, and in-vitro fertilization affect the family unit, and therefore affect society. As such, people’s ideas and beliefs develop as a consequence of, and/or a reaction to, the material factors of biotechnology. With the overwhelming media attention and coverage of the unraveling of DNA, cosmetic surgery, and other more “natural” ways to extend life, society has changed its opinion of what a 50 year-old should and can look like. Marvels like Tippi Hedren and Sean Connery have set a precedent on “youthfulness” and society is following suit. As such, it is evident that the business community has altered people’s thinking and their values. But not so fast! Society is accepting cosmetic surgery

and youthful makeovers, but radical biotechnology such as genetic engineering and therapeutic stem cell cloning lack funding, political, and social acceptance.

Kurzweil’s Accelerated Ideas

Ray Kurzweil, inventor and strategic futurist, has a theory concerning the accelerated rate of progress. While Ogburn’s theory positions society firmly in the past and resistant to change, Kurzweil encourages society to move alongside accelerated change while leaving little, if any, time to adapt. Rather than focusing on cultural lag as a necessary component for articulating an understanding of social change, Kurzweil sees beyond cultural lag by using a time/spatial precedent. “The law of Accelerating Returns: As order exponentially increases, time exponentially speeds up (that is, the time interval between salient events grows shorter as time passes.)” (Kurzweil 1999)

According to Kurzweil this process is undeniable and society will catch up because of the exponential acceleration of technology. Kurzweil’s theory of social change, as depicted in the acceleration theory of the Singularity reflects the fact that the world’s knowledge base is growing in material abundance. “We now live in an era of great material abundance.... Circa 2003, we have the opportunity to continue to contribute to our civilization’s exponentially growing knowledge base—incidentally, a unique attribute of our species—well past our child-rearing days.” (Kurzweil 1999)

An important part of his argument is that technological advances are used for further accelerating technological change (e.g., software used to design better computers and chips). Such views on acceleration, abundance, and growing knowledge filter neatly into the social driver of technology in pushing society forward, along with the continued expansion of biotechnology. “I view our current knowledge as a bridge to the full flowering of the biotechnology revolution.” (Kurzweil 2003)

Culture Catches Up

From the early applications of technology to improve the human body, as suggested in early rhinoplasty (i.e., prosthetic nasal reconstructions written in 600 BC (Parker 1994)), the use of technology throughout consequent centuries for improving and extending human life continues to move forward. Even though just a few decades ago the first heart transplant was considered “unnatural,” in 2004 heart transplant and heart implant surgery was performed on a daily basis, resulting in a medical revolution of not enough supply for the demand. “Approximately 300,000 people lose their lives to congestive heart failure every year in the United States. Only 70,000 Americans could benefit from a heart transplant. Even fewer, 2,000 Americans per year, receive a heart that could save their lives. While an increase in organ donors may help this problem, the demand is still too high for the supply. It seems that until another viable solution, perhaps the

Abiocor artificial heart, becomes available, many in need of a heart transplant will not receive one.” (Stucky 2002)

This one example of the need for more machine hearts exemplifies how our human nature changes according to our needs and the availability of technology. The lag time for cultural acceptance is minor compared to the overall need for people to have a new heart, and accepting it as a new but natural process for saving a life.

Mechanistic drivers affecting social change often create a cultural lag, but not always. Those who do not accept biotechnology, due to religious, ethical or cultural reasons, fight ardently against its uses, such as applying embryo cells for reproductive or therapeutic purposes. So much so, that the Bioethics Council was appointed by President Bush in 2002 to watch over us. Regardless, the biotechnology of cell cloning is advancing, however slowly, in the United States, and rapidly in South Korea (Goodenough 2004) and elsewhere around the globe, where human embryonic cells are claimed to have been cloned without legal restriction. If the economics of either embryonic or stem cell cloning excels to a point where it is a worldwide market, then there will be a tremendous split in society of those who accept the social change and those who do not. Whether it is due to a moral or ethical cultural lag or economic cultural lag is not certain. Economics and culture seem to be quite different, and the potential for cultural lag in this regard is substantial. Material factors affect people’s ability to adapt to change and as such, the organization and utilization of biotechnology would close the gap in cultural lag.

Kurzweil suggests that accelerating technology propels society forward rapidly while an individual’s adaptation to biotechnology can and does change society, bottom up. An example in which social change followed quickly behind technological change is evident in the development, marketing, and use of the AOL software application designed to deliver e-mail. The cultural succession from snail mail to e-mail was surprisingly rapid. Another example is the use of laser eye surgery. It was not long after this technology was developed that culture accepted it as a norm.

Materialistic theories are helpful in understanding what drives social change, but they are not complete guides. As we look into

<p>“Technology moves forward and the social institution lags behind in varying degrees.”</p> <p>William F. Ogburn</p>	<p>the future, we are also looking back at the past. The human heart is an</p>
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example of how a technology, a biological modification, seemingly unnatural, in just a few decades has become a natural, ordinary process that people, regardless of their moral beliefs or religious affiliations, do accept as natural.

The good thing about cultural lag is that it is not stagnant; however gradually it moves about, it does have some movement. A more complete understanding of materialism would be to look at the characteristics of cultural lag and the disposition of cultural acceleration and how they differ in varied cultures, how long is a

lag, and the speed and depth of accelerating change. To explain this, we would have to explain other drivers of social change; or simply take two steps forward, and a no steps back.

| | |

Natasha Vita-More, MS, a Member of Alcor since 1991, is a trend strategist and futurist. Ms. Vita-More is President of Extropy Institute, founder of Transhumanist Arts & Culture and is the designer of “Primo Posthuman”, the future body prototype which has received international recognition. Ms. Vita-More will be speaking at the upcoming “Building Energy 2005 Conference” in Boston on March 15 – 17. For more information visit: <http://www.natasha.cc>

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Suspension Failures: Lessons from the Early Years

by R. Michael Perry, Ph.D.

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[**Note:** *This article mainly concerns failures in early cryonics organizations that are unrelated to the Alcor Life Extension Foundation.*]

In highlighting the history of any movement, one expects to find the good, the bad, and the outrageous: heroism, stupidity, perseverance, malfeasance, setbacks, suffering, and triumph. Cryonics is no exception, and if you are looking for a darker side you will not be disappointed. In fact a fair amount of early cryonics history is tragic, shocking, and gruesome. This is for the simple reason that patients can and have thawed out. It was not easy to get people frozen and keep them that way, particularly when cryonics organizations were first starting up and people didn't know just what they were getting into. A body that is not kept frozen is not a pleasant thing, even by non-cryonics standards, and the early failures were many.

Nevertheless these disasters need to be documented, if for no other reason than to make it less likely that such mistakes will happen again. The subject is complex and difficult to approach, and only a brief summary is possible. I will concentrate most on what happened — who was thawed, where, and when. Other issues such as who was at fault have their place but are not the main focus here. Another important issue is whether a suspension was viable in the sense of offering a realistic hope of eventual reanimation. Some of the early cases were done under adverse circumstances such as only after a long period of storage at above-freezing temperature. A suspension that was not viable from the start could not “fail” in the same sense as one that was viable, something which must temper our judgment on what happened. The issue of viability is another of those difficult matters that cannot be adequately addressed here, important though it is. (Critics of cryonics, of course, may doubt that any suspension even today could be “viable.”) It should be kept in mind too that accurate information on suspension failures is often hard to come by. I have talked with most of the people who were involved and have studied records, but more research is needed. What follows is the best reconstruction I am able to make of basic events, and I believe the dates are accurate within a year or two at worst.

There were three public organizations in the early days (starting in the 1960s) that handled or sponsored freezings and patient storage. Cryo-Care Equipment Corporation in Phoenix, Arizona (not the same as a more recent organization with similar name) was headed by Ed Hope and, unlike the others, built their own capsules, horizontal units on wheels for easy transport. Cryonics Society of New York (CSNY), New York City area, was headed by Curtis Henderson (and incidentally has the distinction of coining the term *cryonics*). Finally, there was Cryonics Society of California (CSC), Los Angeles area, a West-Coast imitator of CSNY that was headed by Robert Nelson, which actually did the first human freezing under cryonics-controlled (non-mortuary) conditions. Strictly speaking, CSNY and CSC, both non-profits, did not do freezings and patient storage directly, but handled these operations through sister for-profit organizations: Cryospan for CSNY and Cryonic Interment for CSC. (Late in CSC's life its cryonics services were handled through another company, General Fluidics.)

Cryo-Care did not use cryoprotectants or perfusion with their patients but only did straight freezes to liquid nitrogen temperature. These freezings were advertised as being for cosmetic purposes rather than eventual reanimation,¹ though the cryonics issue

did naturally arise. Their first case, in April 1966, was the first instance of a human being frozen with at least some thought of the *c r y o n i c s*

premise of eventual reanimation, though conditions were adverse and prospects discouraging, as was admitted. The patient, a still-unidentified, middle-aged woman from the Los Angeles area, was placed in liquid nitrogen some two months after being embalmed and stored at slightly above-freezing temperature in a mortuary refrigerator.² Within a year she was thawed and buried

“One important lesson to be drawn... is that cryonic suspensions should only be maintained by those who have a strong personal interest in being cryopreserved themselves and have made arrangements.”



Some of the lost patients. *Left to right, top to bottom:* Marie Phelps-Sweet (Mrs. Russ Van Norden), Louis Nisco, Stephen Mandell, Ann DeBlasio, Mildred Harris, Genevieve de la Poterie.



Happier time. Suspended at CSNY in January 1969, Ann DeBlasio was stored in dry ice for a few months then transferred to an upright capsule which was filled with liquid nitrogen. Here Ann's capsule is consecrated by the family priest, Father Saverio C. Mattei, just after the transfer took place on Aug. 15, 1969. (The priest stands on a platform with the capsule extending below his feet.) The capsule was stored by the New York group until 1971, then moved to a facility privately maintained by husband Nicholas, with eventually tragic consequences.

by relatives.³ But Cryo-Care would also store a person suspended elsewhere, as they did with James Bedford, who was frozen in January 1967 by Nelson's newly-formed organization and transferred by relatives. (Frozen quickly after death without embalming, with at least a crude attempt at cryoprotection by injections of perfusate and external heart massage, Bedford is often regarded as the first true cryonics case. Bedford also is still frozen today, unlike all the others frozen before 1974.)

Cryo-Care president Ed Hope was a wigmaker whose main interest in human freezing was financial. After some two years in the freezing business he saw it wasn't going to turn a profit and opted out, turning any remaining patients over to other organizations or to relatives. One individual who had been briefly

stored by him was Eva Schulman who was autopsied prior to being frozen early in 1968, and whose son hauled her around in a truck for a time, on dry ice. (Dry ice—solid carbon dioxide—is a far colder coolant than water ice but considerably warmer than liquid nitrogen which is commonly used for long-term storage of cryogenic specimens.) She was soon turned over to a mortuary by the son and buried. Another of his patients, Louis Nisco, was frozen in September 1967 after some damaging delay, and ended up at CSC because they offered the lowest storage rates. A third patient was Donald Kester, Sr., who committed suicide in July 1968. He was thawed and buried by his son a year or so later.⁴

Robert Nelson meanwhile had frozen Bedford, who was promptly turned over to relatives, this being the reason he escaped eventual thawing (though relatives generally made poor prospects for long-term patient maintenance; Bedford's case was exceptional. His very devoted son stored him at a succession of locations over some two decades before transferring both his care and custody to Alcor,⁵ where he remains today.) Over the next year and a half Nelson froze three others: Marie Phelps-Sweet, Helen Kline, and Russ Stanley, who were kept in dry ice at a mortuary.

By March 1969 the mortician who assisted Nelson, Joseph Klockgether, was very uncomfortable having the three bodies in dry ice on his premises, and Nisco's capsule from Cryo-Care was on hand. So he and Nelson had the capsule cut open, removed Nisco and an interior support, then put Nisco and the other three back inside. I was told some were put in head first, some feet first, and "it was like putting together a Chinese puzzle." The placement took most of a night. The bodies were not deliberately thawed but must have suffered substantial warming, though according to Klockgether they were still frozen.⁶ Then a welder resealed the capsule, which required a wait of several more hours, and it was refilled with liquid nitrogen. It remained at the mortuary another 14 months, tended by Klockgether, who refilled it periodically. This caused increasing problems, however, because of the liquid nitrogen delivery trucks which showed up frequently (a very unusual occurrence at a mortuary).

Nelson meanwhile purchased an underground vault at a cemetery in Chatsworth, a suburb on the northwest side of Los Angeles. The lid of the vault could be opened for placement of human cryogenic capsules; a smaller hatch allowed more limited access for periodic maintenance, including refilling with liquid nitrogen. Both the earlier-style, horizontal capsules and the later uprights could be accommodated. On May 15, 1970, the horizontal Nisco capsule with the four inside was lowered into the vault.⁷ Nelson, in a court document, stated that despite the fact that funds to maintain the capsule were no longer being supplied by relatives, he maintained it "for an additional one-and-a-half years"⁸. It appears then that he quietly let the four bodies thaw, not later than around the end of 1971.

CSNY froze their first patient, Steven Mandell, in July 1968. His capsule, a horizontal, Cryo-Care unit like Nisco's, was eventually removed by his mother, who wanted to pay lower rates,

and sent to Nelson. Their next, Andrew Mihok in November 1968, only remained frozen (at dry ice temperature) for a few hours before relatives changed their minds and had him thawed. Their third freezing was of Ann DeBlasio in January 1969. Eventually (September 1971 is a likely date⁹) she was removed from CSNY

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by her husband, Nicholas, and placed in an underground vault in New Jersey, which Nelson helped set up. C S N Y ' s

fourth and fifth, Paul Hurst (March 1969) and Herman Greenberg (May 1970), would later be returned to a mortician and buried, after the relatives stopped paying for maintenance. Their sixth, Clara Dostal (December 1972), was soon returned to relatives and, after some overtures to Nelson that didn't pan out, also buried. Finally, in April 1974 CSNY suspended Michael Baburka, Sr., who was then stored privately by his son for a few months, before being thawed and, still in his capsule, buried.

CSNY stored their patients above ground and they were reasonably well-cared-for. Moreover, although relatives funded the suspensions, they were also required to furnish the storage capsules, and would receive these capsules back if funding terminated. CSNY did not take direct responsibility for thawing a patient, but physical custody would be transferred first, usually to a relative, a policy that protected against the sort of legal action that would later be brought against CSC.

Robert Nelson meanwhile had frozen two individuals, Mildred Harris (September 1970), and an 8-year-old girl, Genevieve de la Poterie (January 1972). Both were kept on dry ice for awhile. When Steven Mandell arrived (see above), his capsule was opened and these two were placed inside along with the original patient. (Possibly the capsule arrived before the freezing of the little girl.) The capsule was then stored in the Chatsworth crypt with the now-abandoned Nisco capsule. As was generally true with these early capsules, this one had problems with the vacuum insulation; frequent pumping was needed to harden the vacuum and keep the boiloff of liquid nitrogen to a reasonable rate. Evidently the capsule was not checked nearly as often as it should have been. Sometime around mid-1974 it was found to have failed and been without liquid nitrogen for “a long interval.”¹⁰ I would date the termination of its three suspensions from this time (or possibly earlier, if there were earlier failures of this sort), although the capsule was refilled and maintained, according to Nelson's testimony, for several more years¹¹.

In October 1974 Nelson froze a little boy (name withheld) who had died of leukemia. Nelson handled the maintenance at first, then turned the task over to the father, who dealt directly with the liquid nitrogen supplier.¹² When the capsule was opened it was found that, although the body was frozen and in relatively

good shape cosmetically, at some earlier time it had thawed and a large fissure had opened on top of the head (a common occurrence with large tissue masses cryogenically frozen and thawed). The body was placed in a casket and prepared for viewing by the family prior to burial.¹³

In July 1976 Nelson froze a man, Pedro Ledesma, who had died the previous year and been kept by a relative in a mortuary refrigerator. Some ten months elapsed between death and freezing, so clearly the suspension was severely compromised from the start. Ledesma, however, was placed in the capsule in the crypt with the boy, and removed from suspension at the same time. (This capsule stood upright, with a removable lid; the two other, horizontal units were welded shut when in use.)

Nelson's freezing operations ended with the thawing of Ledesma and the boy in April 1979. The local press became interested, and, it was said, forced open the crypt and, though finding no bodies in the areas they were able to access, made much of the general ruin and offensive conditions. “The stench near the crypt is disarming,” wrote one reporter, “strips away all defenses, spins the stomach into a thousand dizzying somersaults.”¹⁴ Nelson defended his actions, however. “I haven't done anything criminal, anything wrong other than a lot of bad decisions. It didn't work. It failed. There was no money. Who can guarantee that you're going to be suspended for 10 or 15 years.”¹⁵

A lawsuit, meanwhile, had been started by children of Mrs. Dostal. They had incurred expenses of over \$2,000 for maintaining their mother on dry ice for what was to be the transfer to Nelson's facility. When this didn't occur they terminated the freezing and demanded reimbursement; Nelson's offer to pay back the greater part in small monthly installments was rejected.¹⁶ At this point relatives of some of the patients that *were* stored in the crypt joined in the suit. In the five-week trial that followed, the court found against Nelson for fraud and against both Klockgether and Nelson for intentional infliction of emotional distress; a fine of nearly a million dollars was assessed.¹⁷ Klockgether's insurance paid his share, amounting to \$400,000. Nelson, who lacked insurance or substantial wealth, was able to

negotiate the judgment based on procedural irregularities, and never paid anything.¹⁸ Some others, however, were peripherally involved and

“Suspension failures once were tragically much the rule but now are quite rare. A failure involving a patient stored at a public facility seems unlikely... cryonics seems to have entered a new era of strength, stability, and continued growth.”

had nothing to do with the loss of the patients, yet paid thousands of dollars in an out-of-court settlement.

In all there were nine frozen people stored—and thawed—at the Chatsworth site. Chatsworth became a byword for disaster in cryonics, and Nelson was excoriated as a liar, cheat, and even mass-murderer by some cryonics advocates, though others viewed

him and his meagerly-funded operation more sympathetically. The kindly Klockgether, hurt by and rejecting the claim he had intentionally caused distress, was seen as mainly a victim of circumstance and did, in fact, provide valuable services in later cryonics cases not connected with Nelson.

Nicholas DeBlasio was living in the vicinity of New York City when his wife Ann died in January 1969. I understand his being a gun-toting policeman helped in prodding reluctant

called in to help clean up, assisted by Joe Allen and others. To reclaim the still-valuable capsule for possible later use, they spent several days scraping out human remains under indescribable conditions.²⁰

It is worth noting that in most of the above cases funding was limited and inadequate; usually relatives were expected to meet the continued expenses of maintenance but didn't. The relatives in turn were not signed up for the procedure themselves.

The last suspension failure of this sort was of Samuel Berkowitz, who was frozen in July 1978 and stored at Trans Time's facility in northern California. I understand that, as the relatives who were funding the suspension (again lacking arrangements themselves) began to lose interest and/or wherewithal, an offer was made to continue the suspension as a neuro (head-only) free of charge, but it was turned down. Instead in October 1983 they had Berkowitz thawed, submerged in formaldehyde, and buried that way.²¹ No attempt was made specifically to preserve the brain.

One important lesson to be drawn from this tale of woe is that cryonic suspensions should only be maintained by those who have a strong personal interest in being cryopreserved themselves and have made arrangements. This includes the financial backers as well as those in charge of daily care. Those who are personally committed generally have superior judgment and realize the

advisability of the neuro option (head-only preservation) in cases where funds are limited. Such people will fight hard to maintain even someone they hardly knew, who is not a relative, as happened at Alcor during the Dora Kent crisis for instance. They are not afraid to take measures others squeamishly shun, when a patient's survival is at stake. Neuroconversions carried out by such people have saved several patients whose funding ran out.²² Not one of the many suspension failures was a neuro.

Of seventeen documented freezings through 1973, all but one ended in failure, while maybe five or six later cases, some of them privately maintained, were later terminated (or were continued under questionable circumstances, such as attempted permafrost interment). In most of these cases, finances were a factor. One notable exception involved a woman frozen in 1990 at Alcor (name withheld), whose will, it was later discovered, stated she did not want to be frozen. Her cryonicist husband fought the case through the (California) courts, arguing that the will, which survived only in photocopy, had been revoked, but the decision went against him, and her body was committed to burial under court order in 1994.²³

If there is a silver lining in this, it is shown in overall trends. Suspension failures once were tragically much the rule but now are quite rare. A failure involving a patient stored at a public facility seems unlikely, except in cases where the patient's last wishes are disputed. (This is a good reason, of course, for those desiring cryopreservation for someone who may have little time



“Cryonics cases in turn have dramatically increased...”

hospital officials to cooperate quickly in her freezing, which was carried out under sponsorship of CSNY. His wife was stored for a time on their New York premises, but Nelson convinced DeBlasio she could be maintained at a self-constructed facility more economically, and helped him set one up, a Chatsworth-style vault on a smaller scale, in a cemetery in Butler, New Jersey. The site, which became operational in September 1971, was tended by DeBlasio himself under an arrangement with CSC which allowed them to claim this East Coast location as an additional facility.¹⁹

In November 1972 CSC froze a middle-aged, California woman (name withheld) who was transferred to the New Jersey site. She and Mrs. DeBlasio were stored for several years in an upright capsule which was checked only at intervals of several weeks. It had a removable lid, and over the years its vacuum evidently softened so the lid became ice-bound and was difficult to break loose when the capsule was opened for periodic refilling with liquid nitrogen. CSC meanwhile folded and DeBlasio continued alone. At some point around 1980 the capsule was handled so roughly in removing the lid that the vacuum jacket was punctured. It was hastily repaired but soon the unattended capsule again lost its vacuum. Its liquid boiled out and the patients thawed and began to decay, attracting the notice of cemetery officials. When informed what had happened the shocked DeBlasio first tried to control the odor by adding dry ice to refreeze the bodies, then gave up. Mike Darwin eventually was

left for making arrangements, to at least obtain that person's informed consent in a clear, documented form.) Cryonics cases in turn have dramatically increased, even though absolute numbers remain small (roughly a dozen cases per year). There are still lessons to be learned, possibly quite painful ones, but cryonics seems to have entered a new era of strength, stability, and continued growth. Let's hope this trend continues.

| | |

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Photo Credits. 1 *Freeze-Wait-Reanimate*, Sep 1967 (Marie Phelps-Sweet); *The Detroit News Magazine*, Jul. 13, 1969, 33 (Louis Nisco); *Cryonics Reports*, Sep 1968, 162 (Stephen Mandell); *Immortality*, Apr 1970, 4 (Ann DeBlasio); *Immortality*, Win 1971, 23 (Mildred Harris); *The Outlook*, Aug. 1971, cover (Genevieve de la Poterie); 2. *Cryonics Reports*, Sep-Oct 1969, 1 (cover), 12-13.





An Interview With

Tim Reeves

Full-Charge Bookkeeper

There have been a number of exciting changes at Alcor over the past year. One of them is the addition of Tim Reeves to the Alcor staff as our full-charge Bookkeeper. Not only is Tim a highly qualified accounting professional, he is also a very interesting person. We were able to corner Tim and ask him a few questions for our readers. Here is what he had to say:

CM: *Tim, tell us a little about your background. How has your education, training, and experience led you to Alcor?*

TR: I discovered at an early age that I had an entrepreneurial attitude and a desire to own my own business some day. Although I originally started my college career in Architectural Drafting, about two years into it I decided that management and accounting was more interesting to me. I had been working for Baskin Robbins since I was in high school and was the General Manager for three stores located in Las Cruces, NM. Just before my senior year, I was becoming very board with school, and I accepted a position in Las Vegas, NV as Operations Director for 26 Baskin Robbins and Dunkin Donuts stores. It was during this time that I really became more interested in the accounting and finance side of the business, rather than the employee management side of it.

In 1996, I moved to Phoenix to become Operations Director and Accounting Manager for a company operating 15 retail gift shops in Northern and Central Arizona. In 2001, my wife and I purchased four of these stores, and we opened our own business on Sept. 1st, 2001. Ultimately, we experienced 10 days of great business prior to the events of 9-11 and we never recovered from that tragedy. We finally closed our doors in January 2003.

My wife and I moved to South Carolina for a short time to help a friend out with his business, before moving back to Phoenix in January 2004. To begin working right away, I signed up with several temporary employment agencies, which is how I first came upon Alcor, since they were looking for a bookkeeper at the time.

CM: *What made you want to be involved with Alcor?*

TR: The thought of working for Alcor intrigued me. As I learned more about Alcor I learned that I lived under the same misconceptions about cryonics as most people. I enjoyed talking with Joe during the interview process about Alcor's history, where it was at now, and what the true goals of cryonicists were.

CM: *How did that first interview go? What were you thinking when it was over?*

TR: I was invited for my first of three interviews in April 2004. I

remember walking up to the building and being a little surprised that the front door was locked. But as I now think about it, as much press as Alcor has received over the past couple of years, it only makes sense to escort each individual into the building.

I don't recall ever being nervous. I do remember hoping that I would have time to ask my own questions about Alcor after Joe finished the interview with me, which I did. Before the interview, I had religious concerns that I brought up to him. As it turned out, his beliefs about how I could reconcile my participation in cryonics as a Christian who believes each person has a soul seemed to coincide with my own. Joe was very informative, and I became very hopeful that Alcor would extend an offer to me, which obviously they eventually did.

I left that interview full of new knowledge about cryonics, and very hopeful that I would have the opportunity to become the newest staff member.

CM: *When did you start with us?*

TR: I believe there were two more interviews before an offer was made to me. My first day at Alcor was Monday, May 3rd, 2004.

CM: *I understand your first project was to convert Alcor's accounting system from Fund based accounting to Department based accounting. Can you tell us a little about that - what kind of progress have you made?*

TR: First, when I started here I was very unfamiliar with Fund Accounting. As a matter of fact, had I known what I was getting myself into I might not have been so excited about taking this job! But in reality, I never turn down a challenge, and the challenge that faced me here was one I could not resist. The hardest part was trying to understand what had been done before and what the goal was. Joe had done an impressive job setting up the main chart of accounts, and as I began to learn the function of each of the funds within Alcor and how they operate, I was able to contribute my understanding and ideas into a functional accounting system that truly meets the financial reporting needs of Alcor. Although we are constantly making changes to the system as we find new ways to improve it, the majority of the work towards this system has been completed. We were able to shorten our chart of accounts by assigning classes to each account rather than having a separate account for each fund's expense. Or, as it had previously been done, each fund had its own accounting program.

The new system is far easier to understand and financial reporting is automatic, which means I can produce up to the

minute statements at anytime. I understand that prior to this new system, much of the information between the funds had to be manually produced since the financial information for each fund was maintained in separate accounting programs. The Board of Directors was often looking at financial statements that were 2-3 months behind. With our new system, Alcor's Board receives financials each month that are current with the actual "happenings" of our organization.

CM: *What other accomplishments have you had so far? I know you have only been here a short time.*

TR: Well, bragging about my accomplishments is not the easiest thing for me to do, but since you ask..

I am in the process of creating a Standard Operating Procedure (SOP) manual for my position. As Alcor continues to grow, I want to be sure that I have created a tool for future bookkeepers as I know there will become a time when I can not handle all the financial responsibilities on my own, and a manual should be in place for each of the tasks that may be assigned to new staff in the accounting department who may be hired to assist me.

I work closely with Joe to seek out expenses that may either be unnecessary or could be reduced. We successfully eliminated a postage machine that was equipped to perform more than we actually needed for a smaller one that costs us about a third of the cost of the old one. I have worked with our insurance broker to lower our automobile insurance on company vehicles, and I was proud to be involved with Joe's efforts in bringing ADP Total Source to offer Alcor's employees benefits such as Health/Dental/Life/Disability Insurance, 401k Plan, and Medical Flex plan.

CM: *What type of projects or ideas do you have that you would like to see accomplished at Alcor that would improve our financial reporting?*

TR: I will continue to find ways of improving efficiency in our accounting department. One thing I don't ever want to happen is for my job to become routine. This is why I like smaller companies. I like the challenges that present themselves to me everyday and, along with challenges, come better ideas to overcome them.

CM: *What about your ultimate career goals? Where do you want to be five years from now?*

TR: Ultimately, I see myself in the position of Treasurer or Chief Financial Officer, and I plan on finishing my accounting degree on a part time basis over the next 2-3 years in order to achieve that goal. Five years from now, I hope to have been able to contribute to the growth of Alcor by managing our cash flow and to become more active in shoring up the financial aspects of its research activities.

CM: *What kind of interests do you have outside of work? What do you like to do?*

TR: I enjoy games of strategy and competition. I currently spend

most of my free time playing pool with friends on two separate pool leagues. I also enjoy flying; something I haven't been able to pursue much over the past two years. I do plan on continuing the goal of receiving my Private Pilot Certificate sometime in the near future.

CM: *Do you ever discuss cryonics with your friends and family? How do they feel about your job at Alcor?*

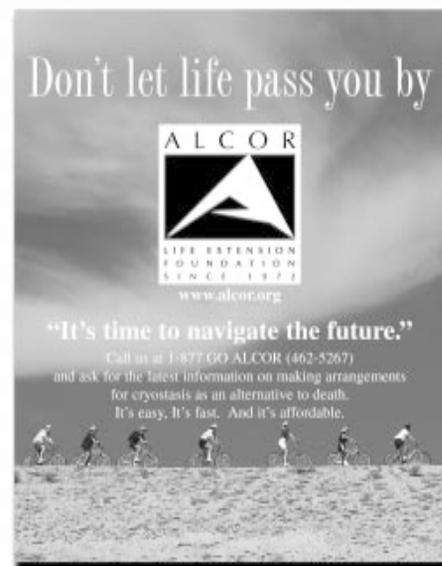
TR: I love talking to my friends about my job. I have a sense of humor about it just like I have heard from many of our members and employees. As I meet new friends, it is always fun to see their reaction when they realize where I work. It has often lead to some long conversations and intensive brain pullers, but I never feel embarrassed to work here.

I was raised in a strong, loving and caring Christian family. I actually talked to my dad prior to accepting the job at Alcor to help me reconcile my religious beliefs with that of cryonics, not to say cryonics is a religion. I knew I couldn't be the bookkeeper for a company I didn't morally, ethically, or religiously support, and I had to have his thoughts on it. My parents have always been supportive of my decisions, and although we may never be able to convince them to become members, they seem interested enough to at least tour the Alcor facilities during their next visit to Phoenix.

CM: *Finally, what do you hope will be your lasting contribution to Alcor?*

TR: I hope to see Alcor here a hundred or even two hundred years from now, if necessary, to achieve the goals of cryonics. If my period of time with Alcor only becomes a fraction of such time, I hope that my contributions as an employee and supporter will have somehow affected the success of this science and this organization.

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COMPREHENSIVE MEMBER STANDBY

Big Changes are Happening: What our Members are Saying

by Jennifer Chapman

Comprehensive Member Standby (CMS) is Alcor's newest advancement towards improved cryopreservations. Under CMS, all Alcor Members in the US and Canada are eligible to receive a Standby at no additional charge at the time of an emergency, regardless of whether a cryopreservation takes place. CMS also offers a \$5,000 reimbursement to any terminally ill Member with a prognosis of 90 days or less who relocates to the greater Phoenix, Arizona area.

We want all of our Members to receive a quality cryopreservation, and we appreciate the feedback our Members have offered about CMS. Below are samples of the questions, comments and opinions we received:

Q. *When I signed up many years ago, Standby was part of the membership. Has this changed?*

A. In the early 1980's, each Member was granted a \$3,000 credit for expenses related to their Standby. At that time, this was a sufficient sum given the available resources and respective costs. However, deploying a Standby today costs in excess of \$15,000 and has been known to cost as much as \$40,000. CMS ensures all eligible Members will receive a fully funded Standby.

Q. *Did Alcor raise the membership dues to cover CMS?*

A. Membership dues have not increased, *nor have we introduced new charges.* CMS represents a restructuring of how our Members pay for Standby, an expense that has existed for many years.

Standby requires separate funding from the financial arrangements made for the cryopreservation process. Under our previous Standby program, each individual Member had to cover his or her own Standby expenses. Most Members who could afford to do so paid for Standby via a credit card. This previous program was cumbersome due to changing credit limits and card expiration dates and also limited the overall quality of our cryopreservation capabilities because many Members did not have enough credit or cash to cover Standby at all.

If a Member was involved in an emergency under our previous program, he or she would have incurred \$10,000-\$30,000 worth of Standby expenses, depending on the circumstances. Under CMS, the Member owes nothing at the time of an emergency – the costs are covered by Alcor. To offset Alcor's expenses, each Member is required to pay \$120 per year (or join the Lifetime Standby program, see below). We think this is a good deal for our Members and enables us to offer significantly better care to our overall membership base.

Q. *I joined as a Life Member so that in my older age I wouldn't have to worry about making payments associated with my Alcor membership. Now Alcor has introduced CMS which requires ongoing payments. Is there a way I can payoff CMS?*

A. We understand your concern. Many Life Members joined the Life Membership program in order to secure cryopreservation arrangements that would not require ongoing payments. We certainly do not want to interfere with such intentions, as they are in everyone's best interests. As a result, we are now offering a Lifetime CMS program, which allows Members to "payoff" their CMS expenses for a relatively small payment. Lifetime CMS payment options include:

\$4,000 lump sum
\$1,500 a year for 3 years
\$100 per month for 5 years

Q. *I have extra life insurance in my policy. Can I opt out of CMS?*

A. With the exception of hardships, the CMS program pertains to all US and Canadian Members. It is still beneficial to have an extra cushion in your policy. You might need the extra funds to take advantage of future cryopreservation options or to protect yourself against unforeseen legal issues. You can also use the excess amount for charter aircraft (see the next page for details about enrolling in the Charter Aircraft Program). Members who have extra life insurance funding or have provided credit cards to fund standby no longer have to rely on those arrangements to cover Standby expenses.

Q. *How do I enroll in CMS?*

A. Enrollment is not required. All Members in the US and Canada should have received a billing statement for the amount owed to cover the first installment.

Q. *I'm a college student. Is the price the same?*

A. College students under age 25 and minors are not charged for CMS.

Q. *I do not live in the US or Canada. What Standby arrangements should I make?*

A. Standby can continue to be covered by credit card authorization or prepayment.

Q. *The additional \$120 a year would not cause an “extreme hardship” case for me. Rather, the \$120 yearly fee is a 30% price increase on top of my current Alcor fees of \$398 a year. In a time period where inflation and yearly salary increases are only a few percent a year, I feel this expense increase is excessive for me. Will Alcor offer members the option of either standard services for around \$400 a year or premium services that include the pre-paid CMS at around \$520 a year?*

A. The purpose of Comprehensive Member Standby is to move towards offering consistent care to all of our Members. By offering the same quality of care to all Members in the U.S. and Canada under the same plan, Alcor is able to greatly enhance the effectiveness of its stabilization process, one of the most critical steps in the cryopreservation procedure. Yes, you are paying more upfront, but compare this to the costs you would incur in the event of an emergency:

Typical out-of-pocket expenses for Standby before CMS:
\$15,000-\$40,000

Out-of-pocket expenses for Standby under CMS:
\$0*

Yearly expenses for Standby under CMS:
\$120

Amount paid for CMS after 20 years:
\$2,400

* Out-of-pocket expenses will apply for an elective Standby.

TYPES OF STANDBY

Level One

Full Standard Standby: It is determined that the member is at high risk of legal death in an immediate or short term time frame (within seven days). A fully equipped team, according to the standards of care existing at the time, will be deployed to the member’s location at the full expense of the CMS fund pool.

Level Two

Intermediate Level Standby: It is determined that the member is at medium risk of legal death in an immediate or short-term time frame (within seven days) and will benefit from a reduced degree of on-site or remote monitoring, consultation, and preparation. This CMS expense will be paid out of the CMS fund pool. Should the member so desire, he or she may upgrade the standby level by pre-funding deployment up to Level One.

Level Three

Elective Standby: The member does not qualify for Level One or Two Standby and Transport coverage and wishes to have a

self-funded standby. The member will pay for this standby, as it is prudently available, at a price to be quoted depending on the level of support requested. Members who choose Elective Standby must do so prior to being admitted to a hospital for elective or low-risk surgery.

Feedback from our Members:

“I see CMS as a big worry taken off the table.” HWB, Washington

“Bravo to all for putting this together. The old ‘charge \$5000 to a credit card’ routine seemed dubious as every time I buy a \$4000 computer with a credit card it becomes a security hassle.” RB, Georgia

“Just a quick note to say that I believe the new program outlined in Alcor’s recent mailings is exactly what I like to see - a continued evolution of services for the membership. Thank you and the others for working on this. Having a consistent program/mechanism is well worth the minimal extra costs.” EH, Nevada

<p>A dime has 118 ridges around the edge.</p> <p>A cat has 32 muscles in each ear.</p> <p>All 50 states are listed across the top of the Lincoln Memorial on the back of the \$5 bill.</p> <p>An ostrich’s eye is bigger than its brain.</p> <p>Babies are born without kneecaps. They do not appear until the child reaches 2 to 6 years of age.</p> <p>Butterflies taste with their feet.</p> <p>If you are an average American, in your whole life you will spend an average of 6 months waiting at red lights.</p> <p>Leonardo Da Vinci invented the scissors.</p> <p>No word in the English language rhymes with the words month, orange, silver or purple.</p> <p>Our eyes are always the same size from birth, but our nose and ears never stop growing.</p> <p>The sentence, “<i>The quick brown fox jumps over the lazy dog</i>” uses every letter in the alphabet.</p> <p>Women blink nearly twice as much as men.</p> <p style="text-align: right;"><small>Source: The Dead Beat</small></p>

MEMBER

NOTES

Out of the Shadows

In February, I attended a mid-week political function along with a few of the Alcor staff that was hosted by the Arizona Tourism Alliance. We got to meet a few of the newer members of the House and Senate, as well as say “Hello” to our own District Representative Michelle Reagan.

At one point during the event, Barry Aarons said he wanted to introduce me to Arizona Governor Janet Napolitano. Barry took me to the Governor’s table and introduced me as the CEO of Alcor. I was greeted with the typical cordial smile and outstretched hand one comes to expect from someone weary of greeting hundreds of people in the course of a single evening.

As I smiled back and shook her hand, she suddenly sat straight up and became especially alert. She said, “Wait a minute. Wasn’t your picture in the New York Times recently?” I replied, “Yes, last Sunday.” She then broke into a broad grin from ear to ear as she vigorously pumped my hand saying, “I do know who you guys are. It’s very nice to meet you. You’re involved in a fascinating business!”



It occurred to me in that moment that when the Governor of the state recognizes a member of our staff and accurately recalls details of an article written about us, we are no longer “under the radar.” It was an amazing experience.

– Joe Waynick, CEO/President

Happy Anniversary!

It was 33 years ago as of February 23rd that Alcor was incorporated and 11 years ago as of February 21st that Alcor made its main move from Riverside, CA to Scottsdale, AZ with the patient dewars loaded onto flatbed trucks.

Getting To Know You

Want to know more of the people involved with Alcor? Look no further than the Member profiles to be showcased in *Cryonics* magazine. Back by popular demand, these candid interviews will help our Members network and become familiar with the types of people involved with cryonics and Alcor today.

Also, we’ll introduce you to more staff members:

Diane Cremeens, who acts as Alcor’s Membership Services Coordinator, has already gotten to know a great deal of our applicants and members and is enthusiastically meeting the daily challenges of managing our hundreds of client accounts. She serves as the liaison between existing Alcor members and the organization by keeping the membership files updated and monitoring membership status issues such as funding. Before coming to Alcor, Diane worked for Community Care Network (CCN), a medical insurance company (1989-1998), and owned her own sewing business, “The Sewing Room” (1998-2004). Diane is active in her community and an avid outdoorswoman.



Newly transitioned into the role of Marketing Director, **Jennifer Chapman** will tell you a little about her experiences working with Alcor’s clients over the years and share her ideas for marketing Alcor’s program and generating interest in Alcor’s fundraising activities. Her primary responsibilities as Marketing Director are to educate the public about Alcor’s program by hosting conferences and media events, coordinating publication of Alcor’s magazine, and developing promotional materials and campaigns. Jennifer is a new University of Phoenix graduate (Business Management) and continues to manage the Membership Department.

Bill Voice started in January 2005 as Alcor’s new Transport Coordinator. Born and raised in Michigan, Bill has been working in emergency medical services since 1986. He has been a paramedic for nearly 20 years and a firefighter for more than 10. He holds a Bachelor degree in Applied Science from Sienna Heights University. He has been an EMS instructor since 1993 and has taught emergency medical protocols to the general public and first responders at both high school and college levels. Bill is responsible for the maintenance of Alcor’s transport capability and is already heavily involved in the training of new and existing transport team members, as well as independent contractors that are being brought on board to expand our emergency response capability.



Special thanks to Suspended Animation, Inc. for hosting Bill Voice during a recent training session!

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Employment Opportunities

Have you ever thought about joining the team here at Alcor central? We have immediate needs for licensed paramedics and emergency medical technicians to join our nationwide Transport Teams. Your participation would be on a contract basis. You will be given cryonics training that will enable you to participate in our rescue and patient transport cases. Licensed professionals do not have to be members to work with us. We welcome your expertise and interest.

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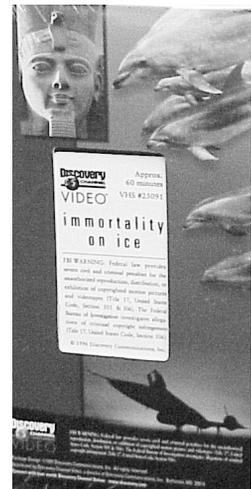
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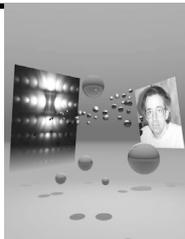
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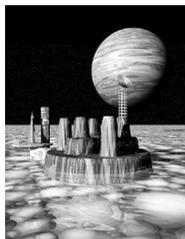
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Cover Art by Tim Hubley!

Over the last several years, Tim Hubley has provided this magazine with some of the most beautiful and creative CGI art we've ever seen. Now Tim is selling matted 8.5" x 11" color ink-jet prints of these images (without all the messy text added in layout).

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