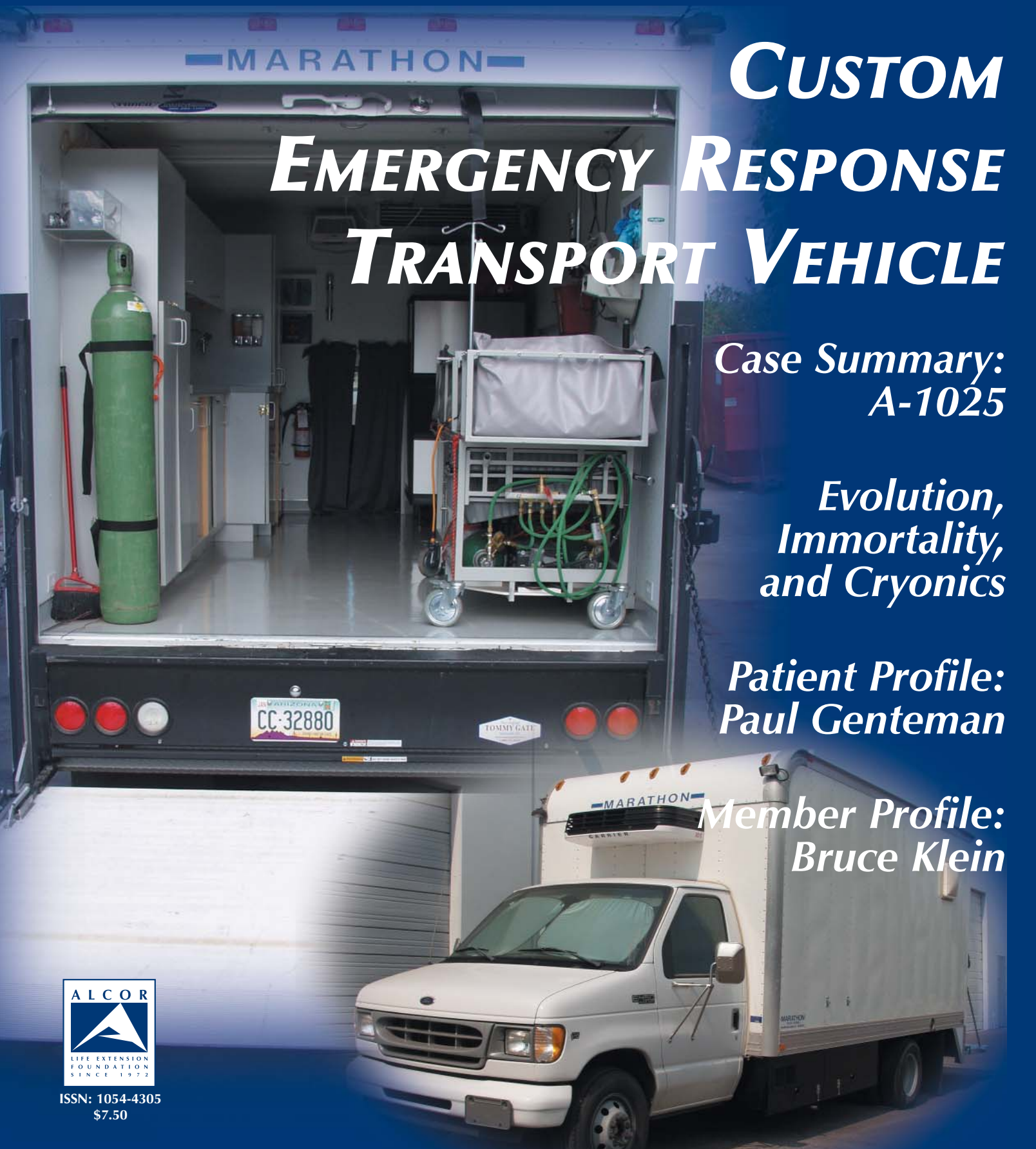
CRYONICS

September/October 2005 A Publication of the ALCOR LIFE EXTENSION FOUNDATION Volume 26:5



Custom Emergency Response Transport Vehicle

Case Summary: A-1025

Evolution, Immortality, and Cryonics

Patient Profile: Paul Genteman

Member Profile: Bruce Klein

ALCOR LIFE EXTENSION FOUNDATION SINCE 1972

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What is cryopreservation?

Cryopreservation (cryonics) is the ultra low temperature preservation (biostasis or cryostasis) of patients who cannot be maintained in a normal, living state by present day medical practice. The goal is to move these patients into the future (with as little further damage as possible) to a time when cell and tissue repair technology far beyond today s capabilities are readily available, and where a more comprehensive evaluation of these patients chances can be made, where restoration to full function and health may be a realistic possibility. In principle, this is no different from bringing a seriously ill person out of the jungle and to a modern hospital. Applied to cryotransport, the concept is that the only way out of the jungle is to travel forward in time. The modern hospitals we need can be reached only by traveling decades into the future.

As human knowledge and medical technology continue to expand, people who today are considered hopeless will be easily restored to health. Throughout history, this has been the hallmark of medical progress. Rapidly evolving control of biological and molecular structures promises to soon permit the synthesis of medical devices far smaller than living cells. Through molecular repairs, these devices should be able to eliminate virtually all of today s diseases and allow us to intervene in the aging process, ultimately curing and eliminating it. These technologies will also allow us to attempt the repair and recovery of patients waiting in cryostasis. The challenge for us today is to devise techniques that will give these patients the best chances for survival. ▲

How do I find out more?

The best sources of detailed introductory information about Alcor and cryonic suspension are our website (www.alcor.org) and our free information package. Our free information package can be requested on the website *(see "Free Information" section)* and includes:

- A 100 page introductory book (a $10.00 value)
- A 30 minute DVD documentary *The Limitless Future*
- A fully illustrated color brochure
- A sample of our magazine
- An application for membership and brochure explaining how to join

...and more!

Your ***FREE*** package should arrive in about 2 weeks.

The complete package will be sent free in the U.S., Canada, and the United Kingdom. In all other countries, the package will not include the book and sample magazine due to shipping limitations.

For those considering Alcor Membership...

Cryonics is published six times a year by the Alcor Life Extension Foundation. The magazine is an important benefit of membership and is mailed to all members. Read about the latest findings from cryonics experts, keep up with happenings at Alcor Central, and learn about special events and conferences in cryonics and related fields.

Alcor's toll free number for membership inquiries or donations is 1 877 GO ALCOR. For other services, call (480) 905 1906. For inquiries and member services, contact Membership Services Coordinator Diane Cremeens at diane@alcor.org.

Don't miss a single issue of *Cryonics* - BECOME A MEMBER TODAY!

Cover photo of actual Transport Vehicle used today by Alcor.

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COVER STORY

FEATURES

UPDATES

ALCOR
LIFE EXTENSION FOUNDATION
SINCE 1972

To Our Readers

How many times have you wondered how quickly Alcor can rescue you if you are unexpectedly pronounced? And even if Alcor arrives quickly enough, will there be a long delay in treatment because you do not live in Arizona? It is no secret that cryonic suspension is a speculative life support technology. Even under ideal conditions, Alcor s efforts to preserve human life in a state that will be viable and treatable by future medicine are not guaranteed to succeed. Many of us want to narrow the gap between ideal cryopreservation cases and Alcor's actual response capabilities. Now is the time to take note of a critical step taken in that all important direction: Alcor's customized Emergency Response Transport Vehicle featured on page 14 of this issue.

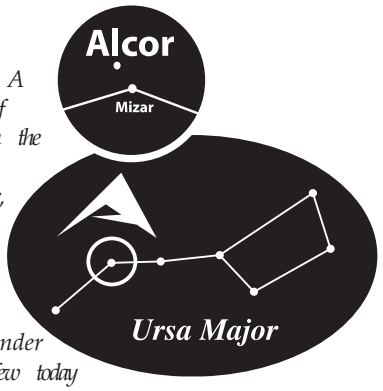
Although this first of its kind vehicle is stationed in Arizona for use in a 1,000 mile radius, the implications are profound. No more relying solely on hospitals or mortuaries to aid in field operations. No more limited access to medications and supplies during remote procedures. No more sending team members away from the patient's location to obtain supplies, like ice. It is an exciting upgrade, and after months of planning and hard work its deployment has elevated Alcor's patient care ability to a level never before achieved in cryonics. These are the kinds of upgrades Alcor s Leadership Team is helping make possible, and you can join us in our quest for better cryopreservations by completing the Pledge Form on page 21.

Everyone at Alcor knows our patients are real people who lived full lives with cherished memories. To show a glimpse of our appreciation for those who have entrusted us with their futures, we want to share a little about their past. See our Patient Profile of Paul Genteman starting on page 18 and watch for this feature in future issues.

We want to hear from you!
articles@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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Submissions may be sent via e mail to **articles@alcor.org** in ASCII, Word or PDF format. Mailed submissions should include a PC disk 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:

Cryonics
Alcor Life Extension Foundation
7895 East Acoma Drive, Suite 110
Scottsdale, AZ 85260

How To Join Alcor

Your research is finally complete. You browsed our web site (www.alcor.org), presented your questions to our Membership Coordinator, and toured our facility. Now you are ready to establish your membership with the 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. At least one document requires the services of a notary public. 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 cryopreservation, 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 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 Cryopreservation 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 you can feel confident that our organization will care for you and your future to the best of our ability. Please call (877) 462 5267, ext. 132 today to request your application. ▲

Alcor Membership Status

As of September 1, 2005, Alcor has 773 Cryopreservation Members (including 111 Life Members) and 69 cryopreservation patients. These numbers are broken down by country. See accompanying graph. ▸▸▸

Attention All Members and Applicants

Please! Please! Please! When you move, change phone numbers (work numbers as well), change e mail addresses, or plan to 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!

Country	Members	Applicants	Subscribers
Argentina	0	0	1
Australia	8	2	0
Austria	0	0	1
Canada	29	4	7
France	0	0	1
Germany	2	1	2
Ireland	0	0	0
Italy	0	2	2
Japan	0	0	1
Mexico	2	0	1
Monaco	2	0	0
Netherlands	3	0	1
Spain	0	1	0
Sweden	0	0	1
Switzerland	1	0	2
Taiwan	0	0	0
Thailand	1	0	0
U.K.	17	8	2
USA	708	41	133
Total	**773**	**59**	**155**

Bruce J. Klein with fellow Immortality Institute Director (and wife), Susan Fonseca Klein

An Interview With

Bruce J. Klein

Alcor Member

Living in Bethesda, MD, with his wife, Susan Fonseca Klein, Bruce J. Klein is co founder of two biotech companies and chair of the nonprofit Immortality Institute. Founded in 2002 with the mission to overcome involuntary death, the Institute has grown to more than 2,000 members. In 2004, its first book, *The Scientific Conquest of Death* including essays from Ray Kurzweil, Marvin Minsky and Michael West was published. The Institute hosts its first conference in Atlanta on November 5, 2005.

Contact Bruce: bjk@imminst.org
Homepage: www.imminst.org/bjklein

CM: *Tell us about your first exposure to the topic of cryonics.*

BJK: In 1995, while at the University of Georgia working towards a Finance degree, I found the Internet. Via the net, I came to know the ideas of Robert Ettinger and Eric Drexler. Ettinger's book, *The Prospect of Immortality* (1964), laid out a workable path to cryonics and focused on the social, economic and ethical challenges presented by freezing humans. Drexler's book, *Engines of Creation* (1986), discussed cryonics in brief, but more importantly focused on tools which will eventually make cryonics reanimation possible nanotechnology.

During these college years, I also found myself searching for an explanation for what happens after death. All religions left me lacking. But while reading such works as Francis Crick's *Astonishing Hypothesis*, it became clear to me that humans are the result of evolution and that death, without a backup such as cryonics, means obliteration forever.

Furthermore, I came to the conclusion that the nothingness we don't remember before birth is what happens after death. That if our bodies, our brains, our life were to end, then our consciousness would be lost forever. Internalized thoroughly, this is a deeply chilling thought. Without an alternative to what appears to be endless obliteration, death, it's no wonder why religion has been successful in assuaging most humans to believe metaphysical ideologies, whereas the more rational alternative of science and materialism has a smaller adherence.

Happily, we live in a time of transition. We're in the early stages of an immortality revolution. There looms before us an alternative to death and obliteration by way of life extension technologies to include artificial intelligence, biotechnology, cryonics, and nanotechnology. So where perhaps currently less than five percent of the world's population thinks that living forever is possible now, in fewer than four decades most everyone will take for granted that life can be lived in good health forever.

CM: *When did you join Alcor and what motivated you to become a member?*

BJK: I've wanted to signup for cryonics for nearly ten years, but only in the past few years have I attained the level of resources needed to comfortably maintain a membership with Alcor and fund the requisite life insurance policy. I'm signed up as a head only neuro. I think that the neuro procedure provides for the most optimal circumstances in which to save more neural information.

CM: *How does your membership impact your life plans or lifestyle?*

BJK: On June 23, 2004, I came to know firsthand the indifferent nature of this world. At the age of 49, my mother was killed in a car accident. Through lack of foresight on my part, my mom was not signed up for cryonics. I've now signed up my dad. After receiving the call about mom's accident and death, my first action was to contact the Cryonics Institute as they are usually more accepting of last minute signups. Unfortunately, even after making arrangements with CI and convincing most of my family and the hospital of my desires for cryonics, I was unable to convince my dad. While at mom's bedside, he lamented that she would have wanted to be buried next to her own mother (who died earlier of

cancer). So now, buried under Alabama dirt, inside a beautifully crafted magnolia coffin, lays my mom a few feet away from her mother.

While, my family says that mom has gone to a better place, I find this difficult to believe. As stated earlier, for lack of cryonics preservation, I think that my mom (her brain and thus identity) has been lost forever to decay and entropy. Yet, I'm not one to dwell on the irreversible. I think my energies can best be utilized by focusing on projects to make a real difference in saving lives now.

While my mother was an important person in my life, there are many more mothers who can be saved. For example, 100,000 people die each day from the effect of aging. If we can push forward aging research by just one year, more than 30 million people will gain the chance to live forever.

CM: *Have you met a lot of other Alcor members?*

BJK: After my mother's death, I resolved to take more action. The best way to do this, I thought, was to make a film with life extension experts and scientists. So, two months after her death, with leadership support from the Immortality Institute and partial financial support from Alcor and a number of other life extension organizations and individuals (see full list here: www.imminst.org/film), I drove to more than 15 states and interviewed more than 80 different individuals to create a documentary film called *Exploring Life Extension.* First screening of the film will be at Immortality Institute's Life Extension Conference in Atlanta on November 5, 2005.

CM: *What areas of Alcor's program would you like to see developed over the next 5 10 years?*

BJK: I applaud Alcor's current work to sustain a focused marketing campaign. I especially enjoy the new 30 minute DVD including interviews with the two leading cryobiologists, Dr. Brian Wowk and Dr. Greg Fahy. While current Alcor membership growth rates hover around historical averages, 6 to 8 percent per year, I predict current marketing efforts, utilizing the inexpensive medium of DVD, should increase membership growth nearer to 10 percent. Such growth should ensure Alcor's position as the premier provider and help thus speed the day when we shall reanimate cryopreserved members.

CM: *What kind of lasting contribution would you like to make to cryonics?*

BJK: Similar in focus to my current film project, but much larger in scope, I look to create a documentary film to be shown in most theaters across the world by 2010. The film should improve perceptions about cryonics and life extension. This shift in sentiment should make it easier for scientists to attain funding in order to save more lives.

CM: *What could Alcor do to benefit its members?*

BJK: I echo one suggestion made by previously profiled member, John De Goes. An investment in moving the cryonics application process online by creating user accounts would benefit Alcor and members by streamlining the process. Members could then update their address, payment information, etc. instantly.

CM: *What would you like to say to other members reading this interview?*

BJK: Sign up your family before it's too late. I found out the hard way from my mother's death that procrastination is unacceptable to a brutally indifferent universe. If one wants to survive and to keep their loved ones alive, they must take smart proactive steps as early as possible in order to preserve, extend and ultimately save lives.

Also, consider attending Immortality Institute's first Life Extension Conference to be held in Atlanta on November 5, 2005. There will be a number of longevity and cryonics luminaries speaking such as Dr. Aubrey de Grey, Ben Best, Rudi Hoffman, Dr. Ralph Merkle, Dr. Max More and Dr. Brian Wowk www.imminst.org/conference.

If you wish to receive a free 20 minute DVD preview of Immortality Institute's first film, *Exploring Life Extension,* send your physical mailing address to bjk@imminst.org. ▲

Chairman of the Board Report

By Michael Riskin, Ph.D., CPA

When the editor of *Cryonics* requested that I write an article for this issue, I gave considerable thought to the theme I might use. And then it came to me, like a BGO (A Blinding Glimpse of the Obvious) that I would write about the year to date 2005, a year of many Alcor firsts, both good and not so good. Here they are, in no particular order.

To start on a positive note, the Comprehensive Member Standby (CMS) program, after a great deal of study and discussion, was implemented and employed for the very first time. In summary, CMS in action dispatches an Alcor standby and transport team to the site of a member in need. Now, you may ask what is different about that? Didn't Alcor always provide standby and transport service to its funded membership. The answer of course is "yes". But the difference is the manner in which it was funded. Prior to CMS, a member had to separately plan for the standby and rescue expense since it was covered to a maximum of $3,000.00 of expenses under the existing, basic funding agreement. The state of the art technology that has developed at Alcor over the years has meant that the costs of standby and transportation have escalated to the point where it could run up to $35,000 and more, depending on length of time and other factors such as the member's geographical location.

Using the transport vehicle, Alcor can now not only perform remote patient stabilization within a 1000 mile radius but also provide care while the patient is being transported back to Alcor, thus saving precious time.

That meant that one or more financial preparations had to be made, often during the last precious moments, when the time should be better spent by the member or the members' family / caretakers attending to the immediacy of critical member care. And sufficient financial arrangements were not always easy or even possible, due to the member s own financial situation at time of need. This entailed the use of credit cards, wire transfers, mailing of certified checks, or the member pre funding a standby account, to have a significant amount of money in place to ensure the very best standard of care.

Now, for a monthly sum of $10, every Alcor member is entitled to, and will get, standby and transportation. The member response has been overwhelmingly positive, and it has proven its worth in 2005 after six months of membership.

On a negative note, Alcor has experienced its first ever funds embezzlement. The theft was made by Alcor's ex bookkeeper who confessed to the crime after being arrested and forged Alcor authorized signature(s) on checks and other documents.

The total theft was a large amount of money, approximately $180,000.00, and of course attempts are being made to get restitution in a variety of ways. The only piece of mitigating news, if one can be found in such a situation, is that the sum, while large, represents a small enough percentage of our resources to be described as "not material" by Alcor's independent Certified Public Accountants who commenced a complete review of our books and records. And, out of this will come a new set of stronger internal controls to protect us against similar events in the future.

Also instituted at the beginning of the year was a new pricing structure both for neurosuspension and whole body cryopreservation members. It has been approximately ten years since the last price increase took place. The new pricing reflects the higher costs associated with the significant improvements in cryopreservation that have been instituted this year, after many years of associated research.

Our membership continues to grow at an even greater rate than many previous years, even considering the price increase. And of course, all existing members as of 12.31.04 were grandfathered into the old pricing structure. As a side note, all long term member storage funding is separately maintained and managed by the Patient Care Trust. In turn, unlike other cryonics organizations, Alcor carries those funds as a debt on its books, to be used only for long term care and eventual reanimation. The calculation for this liability as carried on Alcor's books uses the current increased minimum funding requirements as

its basis, and the actual Patient Care Trust assets continue to exceed that liability.

Speaking of cryopreservation improvements, this year also marks the first time that a whole body vitrification procedure (essentially producing cells that are suspended in a glass like state) was utilized on a member. It utilizes a preservation solution, that Alcor licenses from 21st Century Medicine called M22, along with newly instituted procedures in Alcor's operating room. Previously, if a whole body member wished to get the advantages of vitrification, it was accomplished only by vitrifying their brain, which had to be isolated from the rest of the body for it to work. The rest of the body was then cryopreserved in the manner existing at the time, which did not include vitrification. Now, a neuro vitrification is possible, while a substantial portion of the rest of the body also achieves vitrification, without requiring cephalic isolation.

The year 2005 also marks the first time that an Alcor senior research scientist holds the credentials of both MD and PhD. His name is Dr. Sergey Sheleg, who has already initiated research activities into further improving the effectiveness of whole body vitrification. One of his planned research activities is to cryopreserve, freeze, and re warm a small mammalian brain, probably rat, and then use specialized computer technology he has brought to us to test for metabolic activity. The necessary equipment has been ordered and may be in place by the time you are reading this.

Alcor, in 2005, upon completion of the facility expansion project, will for the first time, have dual operating room capability. This means that we can successfully manage two procedures simultaneously, a large advantage with an ever growing member population base.

Finally, Alcor deployed its first completely customized emergency transport vehicle in response to the needs of a patient in San Antonio, Texas. The transport vehicle has many useful features which improve patient care and safety for Alcor personnel. A built in ice machine and custom birch cabinets stocked with supplies will save team members the trouble of leaving the site of a standby to get ice or other supplies. The generator allows the various appliances (such as refrigerators) in the vehicle to operate both while in motion and while parked. The sink aids in infection control and also made it possible to include a faucet based eyewash station for emergencies, which adds to the safety precautions available to personnel. The mounted mobile rescue cart allows for field cardiopulmonary support, a key component of a successful cryopreservation.

Using the transport vehicle, Alcor can now not only perform remote patient stabilization within a 1000 mile radius but also provide care while the patient is being transported back to Alcor, thus saving precious time and reducing deterioration of tissue. It will also decrease Alcor's reliance on local funeral directors and hospital staff. The full details of the transport vehicle's capabilities are discussed on page 14 of this issue. It is a particularly exciting first for the entire cryonics industry, and eventually such customized vehicles can be strategically deployed across the country and world to aid regional teams in local stabilization procedures.

Much of the above technical advances and research staffing have been made possible by the ongoing generosity of the Alcor membership. It is an example of the concept of "Help Alcor Help You" since annual membership dues alone are not sufficient for us to accomplish everything we hope to accomplish.

Here's hoping for a wonderful year in the rest of 2005 and beyond for all *Cryonics* readership.

Michael Riskin

Michael Riskin, Ph.D., CPA

TechNews

by R. Michael Perry, Ph.D.

Nanotubes Produce 10GHz Chip Speeds. UC Irvine scientists in The Henry Samueli School of Engineering have demonstrated for the first time that carbon nanotubes can route electrical signals on a chip faster than traditional copper or aluminum wires, at speeds of up to 10 GHz. The breakthrough could lead to faster and more efficient computers, and improved wireless network and cellular phone systems, adding to the growing enthusiasm about nanotechnology's revolutionary potential.

ScienceDaily 6/10/05
http://www.sciencedaily.com/releases/2005/06/050609230603.htm

Hard Drives for "Terabyte Lives." As hunger for storage grows unabated, hard drive makers are continuing to push storage capacity up, while keeping physical size down. This week Seagate announced a slew of hard drives which it says are for people who want a "terabyte lifestyle." Among them is the first 2.5 inch 160Gb hard drive which uses what is called perpendicular recording to fit much more data for every square inch. It also said it was producing a specially "ruggedised" drive for cars. Its 20Gb and 40Gb hard drives for cars have been designed to withstand temperatures from minus 30 to plus 80°C, as well as vibrations. Cars, digital video recorders, notebook computers, portable media players, mobile telephony, and gaming are all pushing at the storage capacity door.

BBC News 6/11/05
http://news.bbc.co.uk/1/hi/technology/4080182.stm

Brush Up on Your Nanotechnology. The world's smallest brushes, with bristles more than a thousand times finer than a human hair, have been created by researchers in the US. The brushes can be used for sweeping up nano dust, painting microstructures and even cleaning up pollutants in water. The bristles' secret is carbon nanotubes, tiny straw like molecules just 30 billionths of a meter across.

BBC News 6/12/05
http://news.bbc.co.uk/1/hi/sci/tech/4085214.stm

Digital Bacteria To Advance Biomedical Research. Scientists at the University of Chicago and Argonne National Laboratory have constructed a computer simulation that allows them to study the relationship between biochemical fluctuations within a single cell and the cell's behavior as it interacts with other cells and its environment. The simulation, called AgentCell, has possible applications in cancer research, drug development and combating bioterrorism. Other simulations of biological systems are limited to the molecular level, the single cell level or the level of bacterial populations. AgentCell can simultaneously simulate activity on all three scales, something its creators believe no other software can do.

ScienceDaily 6/12/05
http://www.sciencedaily.com/releases/2005/06/050605182909.htm

Enhancing the Innate Immune System to Protect against Alzheimer's. The human body has its own defense against brain aging: the innate immune system, which helps to clean the brain of amyloid beta waste products. However, UCLA researchers discovered that some patients with Alzheimer's disease have an immune defect making it difficult to clean away these wastes. This may lead to over saturation of the brain with amyloid beta, which forms amyloid plaques, the definitive hallmark of Alzheimer's disease. Published in the June 10 issue of the *Journal of Alzheimer's Disease*, the findings could lead to a new approach in diagnosing and treating Alzheimer's disease by helping to diagnose and correct this immune defect.

Science Daily 6/13/05
http://www.sciencedaily.com/releases/2005/06/050612112041.htm

When Alzheimer's Strikes

Alzheimer's disease is one ailment especially dreaded by cryonicists, because of the horrific damage it does to the most important of our organs, the brain, before it finally kills its victim. And it is very common in the elderly those who are not felled by some other terminal illness. Some recent research suggests, however, that memory loss associated with Alzheimer's may be reversed, if the disease has not progressed too far.

http://news.minnesota.publicradio.org/features/2005/07/14_bensonl_alz

Study Suggests Fat, Smoking Accelerate Aging. Scientists have produced the first direct evidence that fat accelerates aging, possibly speeding the unraveling of crucial genetic structures inside cells that wither with age. A team of researchers from the United States and Britain found that the more a person weighs, the older their cells appear on a molecular level, with obesity adding the equivalent of nearly nine years of age to a person's body. Tim Spector and colleagues at the University of Medicine and Dentistry of New Jersey studied 1,122 women ages 18 to 76, including 119 who were obese. They found a direct relationship between body weight and telomere length,

with telomere length decreasing with increasing body weight. In addition, the researchers found that the higher levels of a hormone in the blood produced by fat cells called leptin, the shorter the telomeres. The researchers found a similar relationship with smoking, with the length of telomeres shortening with the number of cigarettes the smokers in the group smoked.

Washington Post 6/13/05
http://www.azcentral.com/health/diet/articles/0613fatandaging ON.html

TELOMERES AND AGING

Every time a cell divides, telomeres the caps at the ends of chromosomes shorten. In the natural aging process, telomeres eventually get so short that cells can no longer divide, and then they die. Not all deleterious effects of aging result from telomere shortening, however; the importance of telomere shortening in aging is still under investigation.

Good Friends, Rather Than Close Family Ties, Help Lengthen Life in Elderly. A research study reported in the *Journal of Epidemiology and Community Health* aims to assess how economic, social, behavioral and environmental factors affect the health and wellbeing of people aged 70 and upwards. The study draws on data from the Australian Longitudinal Study of Aging (ALSA), which began in 1992 in Adelaide, South Australia. In total, almost 1,500 people were asked how much personal and phone contact they had with their various social networks, including children, relatives, friends, and confidants. Survival was monitored over 10 years. The research team also considered the impact of other factors likely to influence survival rates, such as socioeconomic status, health, and lifestyle. Close contact with children and relatives had little impact on survival rates over the 10 years. But a strong network of friends and confidants significantly improved the chances of survival over that period.

ScienceDaily 6/16/05
http://www.sciencedaily.com/releases/2005/06/050616062301.htm

Non Invasive MRI Technique Distinguishes Alzheimer's from Frontotemporal Dementia. A non invasive magnetic resonance imaging (MRI) technique called arterial spin labeling is just as accurate as invasive scanning techniques in distinguishing Alzheimer's disease from frontotemporal dementia (FTD) in the brains of elderly people, according to a new study at the San Francisco VA Medical Center (SFVAMC). The study, led by Norbert Schuff, PhD, a Principal Investigator at SFVAMC, used arterial spin labeling to measure perfusion, or blood flow, in the areas of the brain affected by the two diseases. "Blood flow indicates brain activation," said Dr. Schuff. "So the area with less blood flow is the area affected by disease." In the study, arterial spin labeling successfully distinguished between Alzheimer's patients, FTD patients, and people without dementia.

ScienceDaily 6/18/05
http://www.sciencedaily.com/releases/2005/06/050618160238.htm

Tight Glucose Control Halves Cardiovascular Disease in Diabetes. A significantly lower risk of heart disease amounting to about a 50 percent reduction in cardiovascular disease (CVD) events can now be added to the list of proven long term benefits of tight glucose control in people with type 1 diabetes. Researchers announced this finding June 12 at the annual scientific meeting of the American Diabetes Association after analyzing CVD events such as heart attack, stroke, and angina in patients who took part in the Diabetes Control and Complications Trial years ago.

Science Daily 6/18/05
http://www.sciencedaily.com/releases/2005/06/050617235638.htm

Prosthetic Arm Boasts Sense of Touch. What was once just fiction is becoming reality. Artificial limbs are getting closer to the real thing. At the Rehabilitation Institute of Chicago on June 22, the latest marriage between man and metal was unveiled. Researchers say they have the first person in history to ever have felt with his prosthetic hand. Jesse Sullivan does the thinking, and his new bionic arm follows his command. It literally responds to his thoughts the way a natural arm would. This is the latest in what is known as a myoelectric prosthesis.

abc7chicago.com 6/22/05
http://abclocal.go.com/wls/health/062205_hs_bionic.html

BIONICS NOW

Myoelectric prosthesis is a gateway to bionics or person machine hybrids. In the present case the brain is to remain fully the natural product (though that restriction could be relaxed in the future to allow certain brain enhancements). So here we see one way in which missing body parts could be replaced and the person remain functional and, in all important respects, the "same" person. Not the only way, of course we hope that eventually natural parts can be regrown but the progress to date, though modest by cryonics standards, does tend to vindicate the position that head only preservation is enough to save lives.

Microbes Can Produce Miniature Electrical Wires. Researchers at the University of Massachusetts, Amherst

have discovered a tiny biological structure that is highly electrically conductive. This breakthrough helps describe how microorganisms can clean up groundwater and produce electricity from renewable resources. It may also have applications in the emerging field of nanotechnology, which develops advanced materials and devices in extremely small dimensions. The findings of microbiologist Derek R. Lovley's research team are published in the June 23 issue of *Nature*. Researchers found that the conductive structures, known as "microbial nanowires," are produced by a novel microorganism known as Geobacter. The nanowires are incredibly fine, only 3 5 nanometers in width (20,000 times finer than a human hair), but quite durable and more than a thousand times long as they are wide.

Science Daily 6/24/05

http://www.sciencedaily.com/releases/2005/06/050622232529.htm

"Laser Tweezers" Reveal Microscopic Mechanical Properties of Blood Clots. For the first time ever, using "laser tweezers," the mechanical properties of an individual fiber in a blood clot have been determined by researchers at the University of Pennsylvania School of Medicine. Their work, led by John W. Weisel, PhD, provides a basis for understanding how the elasticity of the whole clot arises. Clots are a three dimensional network of fibrin fibers, stabilized by another protein called factor XIIIa. A blood clot needs to have the right degree of stiffness and plasticity to stem the flow of blood when tissue is damaged, yet be digestible enough by enzymes in the blood so that it does not block blood flow and cause heart attacks and strokes. "Once we understand the origin of the mechanical properties, it will be possible to modulate those properties," explains Weisel. "If we can change a certain parameter perhaps we can make a clot that's more or less stiff."

Science Daily 6/26/05

http://www.sciencedaily.com/releases/2005/06/050624101743.htm

Laser Tweezers

Laser tweezers are an example of how to use light to physically manipulate objects at microscopic scale. The theory is based on energy considerations of particles in polarized fields of intense light. These considerations show that the particles can be levitated and moved around by the use of these focused beams of light.
http://www.enel.ucalgary.ca/~potter/ENEL579/projectpage.html

Nanoscale Monitoring of Cell Topography and Activity. Researchers at the Georgia Institute of Technology and the Vienna University of Technology have developed a modular system that combines chemical and biological sensing tools capable of providing simultaneous, nano level resolution information on cell topography and biological activity. The tools integrate micro and nanoscale electrodes into the tips of an atomic force microscope. A veritable Swiss army knife of sensors, this patented technique is currently being tested to combine other sensing methods and give scientists a more holistic view of cellular activities. The research is published in Vol 44 (2005) of the chemistry journal *Angewandte Chemie*.

Science Daily 6/30/05

http://www.sciencedaily.com/releases/2005/06/050630063042.htm

Imagine This

The mysteries of aging and terminal diseases may be unraveled much more quickly if we can look inside the cell and see what is going on in detail. We all hope we can "catch the wave" of advancing medical progress and not have to go into cryonic suspension at all. Progress like this is making it more likely that we can, though it remains to be seen how much will happen over the next 1 3 decades when many of us will need it.

Scientists Shed New Light on Aging Process. Scientists in Hong Kong have shed new light on why cell repair is less efficient in older people after a breakthrough discovery on premature aging, a rare genetic disease that affects one in four million babies. Premature aging, or Hutchinson Gilford Progeria Syndrome (progeria), is obvious in the appearance of a child before it is a year old. Although their mental faculties are normal, they stop growing, lose body fat and suffer from wrinkled skin and hair loss. Like old people, they suffer stiff joints and a buildup of plaque in arteries which can lead to heart disease and stroke. Most die of cardiovascular diseases before they are 20. In 2003, a team of scientists in the United States found that progeria was caused by mutation in a protein called Lamin A, which lines the nucleus in human cells. A team at the University of Hong Kong, led by Zhou Zhongjun, took the research a step further in 2004 and found that mutated Lamin A actually disrupted the repair process in cells, thus resulting in accelerated aging. The study was published in the July issue of the *Nature Medicine* journal. Zhou said the team came by their findings after comparing skin cells taken from two progeria sufferers, normal humans, progeria mice and normal mice. While damaged DNA was quickly repaired in the healthy human and mice cell samples, the samples taken from the progeria humans and mice had difficulty repairing damaged DNA.

MSNBC 6/30/05

http://msnbc.msn.com/id/8414781/

Imagine This Too

Disrupting the Lamin A protein in tumor cells ought to "infect" them with progeria and thus bring about their early deaths, resulting in a treatment for cancer. What about taking the opposite tack and trying to cure progeria itself? And if you could do that, what about the normal elderly? Does normal aging eventually cause Lamin A in the system to turn bad, and is this what is seen as people reach their eighties and nineties? If so, curing progeria might lead directly to increases in maximum life and healthspan.

Antioxidant Rich Diets Reduce Rodent Stroke Damage. Your mother was right. Eat your fruits and veggies they're good for you! And if that's not reason enough, a new study suggests antioxidant rich fruits and vegetables may limit brain damage from stroke and other neurological disorders. The study, conducted by researchers at the University of South Florida (USF) College of Medicine, James A. Haley Veterans' Hospital and the National Institute on Drug Abuse, is posted online and will be published in the May issue of the journal *Experimental Neurology*. USF/VA neuroscientist Paula Bickford, PhD, and colleagues found that rats fed diets enriched with blueberries, spinach or an algae known as spirulina experienced less brain cell loss and improved recovery of movement following a stroke. The study builds upon previous USF/VA research showing that diets enriched with blueberries, spinach or spirulina reversed normal age related declines in memory and learning in old rats.

ScienceDaily 7/1/05

http://www.sciencedaily.com/releases/2005/07/050701065550.htm

Spirulina

Spirulina is the trade name for Arthrospira platensis (previously known as Spirulina platensis), a single celled organism with a coil shape. It is a species of cyanobacteria, popularly known as a blue green alga. It is a source of some B vitamins and other nutrients and is widely used as a dietary supplement in powder or tablet form.

http://en.wikipedia.org/wiki/Spirulina

Evolutionary Leap In Eliminating Need For Glasses. The need for reading glasses or bifocals as we age may begin fading from sight with the latest generation of intraocular lenses. Doctors at UT Southwestern Medical Center are among the first to receive the ReSTOR lens, a new surgically implanted lens that can allow patients who have trouble seeing at arm s length to see near, intermediate and far distances without glasses or contacts. "It's a huge evolutionary step," said Dr. James McCulley, professor and chairman of ophthalmology. "We all want a glasses free and contact lens free society and we are very rapidly moving toward that." The lens's introduction in May came as Medicare announced revisions to some of its payment guidelines, allowing patients covered for cataract surgery to choose the new lens at an added fee. Previous payment rules did not allow the patient to choose this lens, which curtailed interest since the intraocular lenses are particularly beneficial to that age group.

ScienceDaily 7/1/05

http://www.sciencedaily.com/releases/2005/06/050630061450.htm

Treating Presbyopia with New Lens Implant

Presbyopia, the inability to focus on objects at different distances, eventually affects everyone, usually at mid forties. The natural lens inside the eye loses its ability to change shape and shift focus from distant objects to near objects. Until recently, reading glasses or bifocals had been required to see near objects or alternatively, distance vision had to be restored with corrective lenses in those who were naturally near sighted. The newly developed ReSTOR intraocular (implanted) lens is the latest in a series of technological innovations intended to address this problem and eliminate the need for external, corrective lenses (glasses or contacts). The new lens works by, in effect, presenting the brain's visual system with a superposition of images in varying strength with varying amounts of focusing. In dim light, when the pupil expands, the focusing is mainly on distant objects. In bright light when the pupil contracts the focusing is about equal on distant and near objects with a small pupil also, however, the depth of field increases (the "pinhole" effect) which tends to improve accommodation at all distances. The upshot: in a recent experimental study, 80% of test subjects reported no need for glasses or contacts with the new type implant versus 41% for the best competitor.

http://webeye.ophth.uiowa.edu/eyeforum/restor.htm

Cryopreservation Case Summary:

The Cryopreservation of Patient A 1025

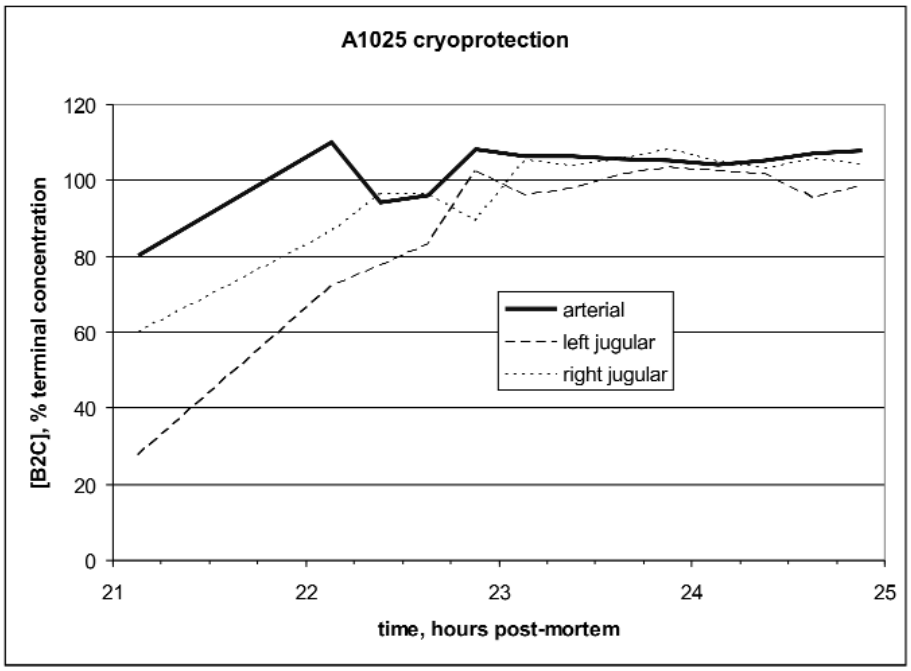
By Tanya Jones, Director of Technical Operations

Note: *This case was completed several years ago, but it was not reported in the magazine. We are including it now to ensure reporting is done on all cases.*

Background

Patient A 1025 first signed up for cryonics in March 1977, when Alcor was still known as the Alcor Society for Solid State Hypothermia. In a personal statement dated a few months later, he affirmed that he had "been interested in cryonics for several years. I know the techniques are experimental at this time, but my faith is in the future." His file contains archival documents from Alcor and the now defunct Cryonics Society of California.

Born in 1914, this patient was 88 years old when he died in 2003. Details on the circumstances of pronouncement are sketchy, but we believed he collapsed at his home in the Los Angeles area and remained undiscovered for at least two days, long enough for pressure wounds to form. The patient was taken to the emergency room by ambulance, where he was pronounced at 22:52 PST. He experienced cardiac arrest during an attempt to re hydrate him. Myocardial infarction brought on by coronary artery disease contributed to his death on March 1, 2003. Heparin was administered by an emergency room physician and manual chest compressions were used to circulate it.



Several things complicated this case, including that much of the transport staff were attending a training session in Mayer, Arizona, and regional team members were performing a standby for another Alcor member in the southern California area.

Stabilization and Transport

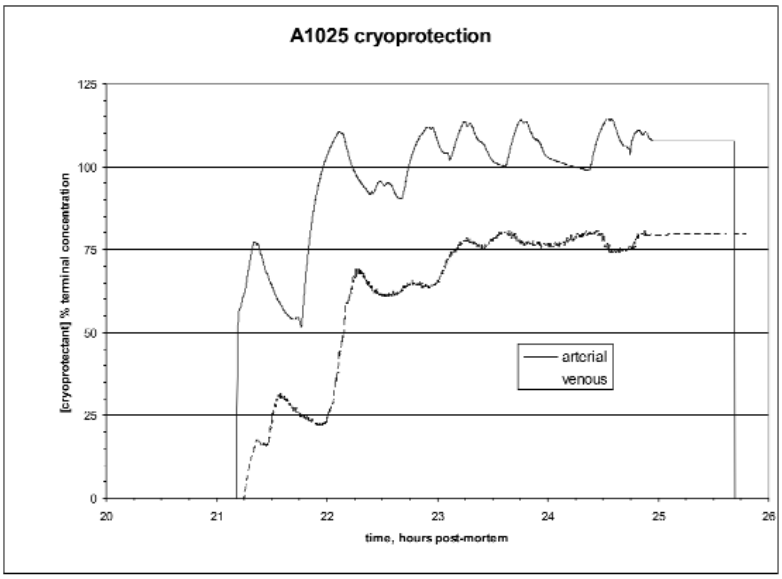
A delay in transferring custody to Alcor occurred in the emergency room, when the friend who had assisted with admitting A 1025 to the hospital left and was still needed to sign release forms. Once the release was finally arranged more than two hours later, the patient was transported to Critical Care Research (CCR) for blood washout.

When he arrived at 04:40 on March 2, 2003, the patient had been packed in crushed ice, and his nasopharyngeal temperature was 22°C. The transport team reported that the medications provided by CCR were administered, but no notes exist on the time of administration. Large volume medications, like tromethamine and mannitol, were introduced by CCR personnel. CCR generously provided these medications, because of the on going standby for another Alcor member in that region.

During the washout, clotting was observed, and one carotid swelled from the beginning. The washout was completed by 07:00; and the patient's temperature had been reduced to 7.3°C.

By 07:30, the patient was packed and ready for transport, but the paperwork for departing the state had not been obtained. Several hours of delay resulted, and there were also problems obtaining the death certificate, as the emergency room physician who pronounced was unwilling to sign. CCR personnel tracked down the patient's primary physician and arranged for his signature.

Once the paperwork was secured, the patient was allowed to be removed to Arizona. Transit time to Alcor was five hours, and the patient arrived at 17:35 MST.



Cryoprotection

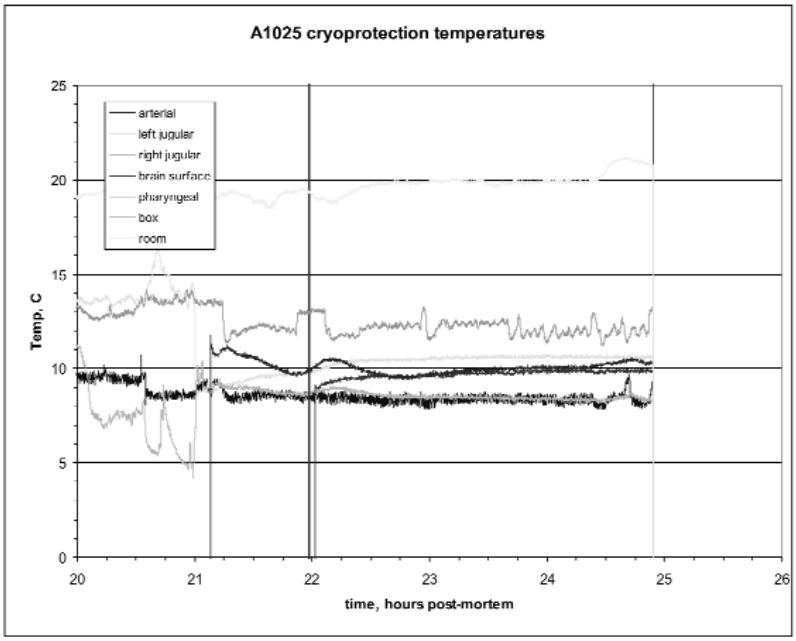
The surgeon brought in to perform the open heart procedure was not on site when the patient arrived; she was also not well informed about the situation, as she was expecting another patient entirely. Few notes have been placed in the patient's file on the events that happened at Alcor between the patient's arrival and the start of the cryoprotection.

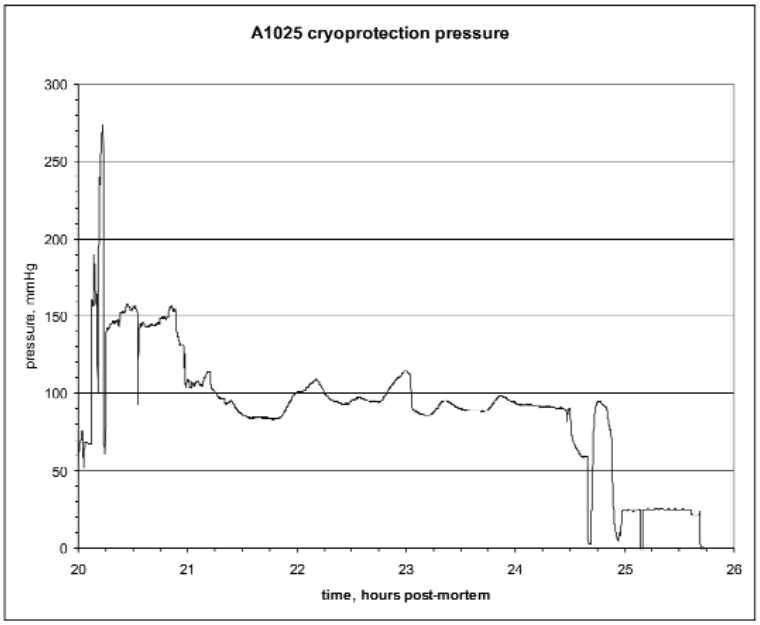
Operating room notes begin at 20:24, when the cryoprotective perfusion was underway. Eight liters of B2C cryoprotectant was used; and 8.55 liters of effluent were produced. The patient had very low flow rates throughout the procedure. Though signs of perfusion existed, the patient did not perfuse well. Significant swelling of both hemispheres of the brain was observed. At the end of the perfusion, a clot was removed from one of the carotids.

Cryoprotection was concluded at 00:44 on March 3, 2003, with refractometry readings from the left jugular indicating the target cryoprotectant concentrations were achieved on that side. On the right side, though the concentration was held above the target for almost an hour, it dropped slightly prior to the conclusion of the procedure. Edema was the primary reason for the cessation of perfusion at that time.

Cooling

The patient entered the initial cooling stage at 01:08 on March 3. His temperature was rapidly reduced





to 110°C, and it was subsequently held there for several days.

Due to sequential cryopreservation procedures, neither the primary cool down nor acoustic monitoring equipment were initially available. A second cool down computer was assembled and ready when this patient entered that stage of the procedure, but no acoustic monitoring was done until the patient was at 114°C. Once a previous patient was through the entire cooling stage, this patient was transferred to the primary systems and cooled to liquid nitrogen temperature at the standard 1°C per hour rate.

The second stage cooling was initiated on March 10 at 16:21 and concluded at 00:21 on March 14. The patient was transferred to long term patient care on March 17. ▲

Custom Emergency Response Transport Vehicle

By Tanya Jones, Director of Technical Operations

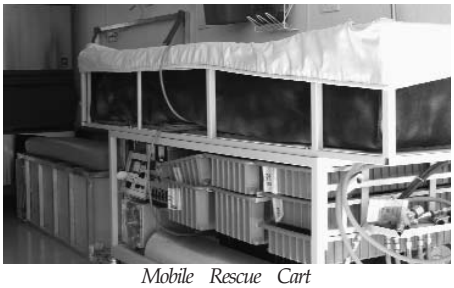
For the past couple years, Alcor's local response capability has been hindered by our lack of a transport vehicle. Performing field stabilizations was dependent upon local funeral directors and hospitals or hospices that were sympathetic to our patients needs. Even under the most ideal of circumstances, slight delays were introduced to each case as we moved each patient from the home, hospice or hospital to a cooperating funeral home for the application of the stabilization protocol. These delays are frustrating for the transport teams and impact the quality of care we can provide to our patients, and avoiding these delays was the primary motivation in restoring the capability we once had.

The Old, the Interim, and the New

Between 1986 and late 2002, Alcor used a reconditioned ambulance to provide local stabilization and transport for members. Our old ambulance had been outfitted to accommodate stabilization procedures that included the application of surface cooling and the administration of medications and cardiopulmonary support. In its early stabilizations and transports, Alcor used a van loaned by Jerry Leaf, but the van was involved in an accident during the move from Fullerton, California, to a newly constructed building in Riverside. When that happened, Jerry became reluctant to use his vehicle in this capacity.

Alcor s old ambulance decommissioned in 2002

Alcor purchased a 1974 Ford ambulance and paid $5,000 for it in 1986. A lift gate was added, because the weight of patients in ice baths presented a substantial risk for team members to injure themselves during loading and unloading. Mounting bars were added to accommodate the Mobile Advanced Life Support System (the precursor to our existing Mobile Rescue Cart).



Mobile Rescue Cart

Though it was nice to have a dedicated vehicle for local transport procedures, the old ambulance was known for failing to start when it was needed. Its electrical system failed during the Dick Jones case in 1989, and it continued to occasionally fail until it was used for the last time in 2002 during the stabilization and transport of A 1235. After that, Charles Platt decommissioned the old vehicle and instructed James Sikes to outfit Alcor's SUV as a transport vehicle. James added an inverter and batteries to allow for on board power and the use of spray cooling devices and other stabilization equipment. But given the lifting problems and lack of room to work on patients, this was considered an interim solution. In order to facilitate the development of a new, fully functional vehicle, the Board

The Mobile Rescue Cart

Alcor's local response capability hinges on the transport vehicle and the mobile rescue cart (MRC). The primary purpose of the MRC is to allow for field cardiopulmonary support through mechanical means and through extracorporeal perfusion. There have been numerous designs over the years, with improvements over the original designs including:

- Stronger and more durable steel frame with all components secured to the frame and within the profile of the cart, including the perfusion circuit
- Larger interior dimensions in the ice bath within the same exterior size
- Ability to shorten the ice bath from 7'1" extension to about 6' (allowing for easy elevator access)
- Increased oxygen carrying capacity (from 1,256 liters to 7,000 liters)
- A more conventional 12/110 volt power system
- Reversal of patient orientation to aid transport vehicle support

Overall, the MRC has been one of the most useful pieces of stabilization equipment in Alcor's arsenal. We expect to redesign the MRC once more in 2006, incorporating lessons learned with the previous version and improving its compatibility with our new transport vehicle.

of Directors authorized $25,000 for the purchase of a vehicle and $25,000 for the necessary structural improvements to facilitate its deployment in transports.

Empty shell for Alcor s new transport vehicle before it was customized for Alcor s needs

Later that year, Charles purchased a Ford E350 box truck. As an empty shell, the vehicle obviously needed a lot of work to make it useful during stabilization procedures. When I returned to Alcor in September 2003, work on the vehicle had begun, but the project had barely started.

A local contractor, Tim Carney, was retained to implement necessary upgrades. Tim completed the wiring for 12 Volts DC and 120 Volt AC and installed an air conditioner, ventilation fans, and a waste tank. He also insulated the sides of the vehicle. Hugh Hixon arranged for the installation of a lift gate to facilitate the use of our mobile rescue cart (MRC, see box on pg. 14). In 2004, Cindy Felix had an alarm and a Lojack system installed. She also began preparing the floor prior to the installation of laminate flooring, but this aspect was ultimately completed by volunteer Bruce Cohen after her resignation.

Ice machine

Development Plan

With the decommissioning of the old ambulance, Alcor was left with no local transport capability beyond the use of the transport kits. Though stabilization procedures can still be performed successfully using the kits, it nevertheless represented an unsatisfactory reduction in our scope of care. Being unable to transport the patient ourselves increased our reliance on local funeral directors. Our having to dig through the kits for supplies and equipment sometimes limited our ability to efficiently perform stabilizations.

My vision for the new vehicle was slightly different from others', but I felt it was based on years of experience with the old ambulance, with many hours spent driving to and from patients' homes. Working in the back of the old vehicle was difficult, as there was not enough room for more than one or two people to perform necessary tasks once the patient was inside. We had ice chests piled in the back for carrying ice and cooled medications, and this represented a safety hazard during sudden starts and stops or sharp turns.

Sink for infection control

Planning included investigating ways to eliminate problems we had with the old vehicle. I wanted to eliminate our need to send transport personnel away on errands to acquire essential supplies, like ice. More than once, we sent a team member off on an errand, only to have the patient experience cardiac arrest and leave our team short handed in the critical moments following pronouncement.

A generator was necessary to operate the various appliances in the vehicle both while in motion and while parked, because the power draw would be too large for the vehicle's battery. By choosing a gasoline powered generator, we planned to connect to the vehicle's gas tank to facilitate continuous operation and monitoring via the gas gauge. The generator and batteries needed to handle the electrical requirements for all the equipment, which included an ice machine, refrigerators, analytical equipment, HEPA filtration and lighting.

Generator for operating various appliances in the vehicle

For personnel safety, we wanted to have a sink in the vehicle. Proper hand washing is one of the more reliable methods for controlling the transmission of infection; and with many of our patients having an infectious status, we needed to make it easy to follow universal precautions and to make hand washing readily available. This portion of the planning had to include fixtures, water supply, pumps, filtration and plumbing. Having a sink also made it possible to include a faucet based eyewash station for emergencies, which added to the safety precautions available to personnel.

The MRC and its mount were essentially the only pieces we kept from the old vehicle. We had to devise a method for mounting it to the new vehicle's frame, which was well suited to the old ambulance, but not so well to the new box frame. After many months of planning, the project was approved in December 2004, and implementation began immediately.

Implementation

Armed with a plan that included details on suppliers and costs, a large number of orders were placed in January 2005. We ordered most of the appliances and much of the plumbing, but the first steps were to get the floor installed and the cabinets built.

The flooring chosen for the vehicle was the same as is used in the operating room: Medintech. It has withstood the cryoprotective perfusions and all the traffic of tours in the facility, and we believed it would also hold up well in field procedures. Single seams and a cove base of four inches were used. Once it was installed, I added seven coats of sealant to protect the floor against foot traffic and heavy equipment.

Custom birch cabinets and Medintech flooring

We made the decision to have custom cabinets built because space in the cab was so tight. We had the dimensions of the MRC and other equipment, and we had a general sense of the space needed by the team. We found a carpenter who agreed to build the cabinets for us, but by the time the project was approved by management, he was committed to other, larger projects and would not be available again until April. A three month delay was too long, so we went looking for another.

It did not take long before we found one to do the work, and at a substantially lower rate. The cabinets were constructed from birch and sided with a grey laminate. All told, the cabinets would hold 85.8 cubic feet of supplies and equipment, not counting what would be placed on the countertops or mounted on the walls, which is six times the capacity of the remote kits. The vehicle also carries two refrigerators, one for the supplies and samples relevant to the patient and one for use by the staff.

Because most transport teams will have at least four team members, appropriate seating (including seat belts) was required in the back. A bench seat was added to supplement the two forward cabin seats. Shoulder harness seat belts were installed for two, which allows for the easy monitoring of a patient during transit.

As mentioned above, a water tank was required to supply both the ice machine and sink with fresh water. A rectangular water tank with a 55 gallon capacity was selected, because it fit underneath the bench seat and building a frame for it was simple.

The electrical system was the biggest challenge with implementation. Calling around to electricians in the area yielded no one willing to assist us with the vehicle. We found another local contractor to build the mounts for the electrical system prior to installation, and he did a lovely job constructing metal compartments underneath the vehicle. We were becoming frustrated with the search for an electrician, until Steve Van Sickle had the idea to start calling electrical engineers. Shortly thereafter, he found one who was willing to install the generator, inverter, and batteries; to plumb the generator to the fuel tank; and to generally relieve us of all internal need to work on the power system. With the completion of the electrical system, we were done with the final largest piece of the project.

Five gallons of water is necessary to make 40 pounds of ice, which in turn means that 25 gallons of water is required to make the 200 pounds of ice needed to cool a patient during transport. With the re circulating and filtration of the plumbing system, little water will be lost throughout the course of a case, assuming the tank is filled prior to departure from Alcor.

Final detailing included caulking all the holes we made in the floor; mounting safety equipment (fire extinguishers and smoke/carbon monoxide detector); hanging the surgical light; installing HEPA filtration; and mounting the personal protective equipment for the staff.

Safety equipment

Surgical lights

When I originally drafted this article, the main tasks pending included finishing the stocking of the vehicle for stabilizations and transports and writing the documentation needed to train personnel on the vehicle's

expanded capabilities; but a case arose in San Antonio, Texas, for which we stocked and deployed the vehicle for the first time. Documentation still needs to be developed, but the vehicle has now been tested in the field. Aside from electrical system issues, where a short caused the generator to behave erratically, the vehicle performed to its specifications. That case will be detailed in the Nov/Dec issue of *Cryonics* magazine.

Outside of Alcor s new emergency transport vehicle

We hope to use the vehicle in all cases where adequate notice of a patient's need is provided to allow us to drive the vehicle to the patient's location; and we plan for training of regional personnel on use and maintenance procedures for the vehicle to begin with the southern California training session in September.

Deployment

We estimate that the vehicle will have about a 1,000 mile radius. It provides sufficient improvements to patient care that we feel it will be worth the twenty or so hours of driving time to commit to that area. This gives a perimeter bounded by San Francisco, California; Salt Lake City, Utah; Denver, Colorado; San Antonio, Texas; and, of course, Arizona. Patients stabilized at the extreme range of the vehicle will likely be flown to Scottsdale for cryoprotection, depending on the availability of transport paperwork and flights.

With the new vehicle, transport personnel are able to apply surface cooling; perform cardiopulmonary support (manual and mechanical); maintain airway support; administer medications; perform femoral cut downs (or supervise cooperating Funeral Directors providing this service); and perfuse a patient with the washout solution, all within the confines of the vehicle. We will do more direct patient monitoring, in the form of respiratory effectiveness, blood chemistries, and blood washout success; and we can use this information during a transport to ensure that the patient's metabolism is supported to the best of our ability. This monitoring will be especially important in cases where the patient is driven to Scottsdale for cryoprotection, because it affords the opportunity to adjust things like the patient's pH while en route.

We will need to expand our regional support to include people who are comfortable driving a box truck long distances, as no one on the transport team is looking forward to a long drive following a standby and stabilization. Since the patient will be monitored during the entire drive, we will need three people (two drivers and one transport team member) to accompany the patient.

Conclusion

The new transport vehicle represents a large leap in the stabilization technology at Alcor's disposal. We are pleased with how well the original plan was implemented, and though there were a few surprises along the way, things have come together successfully.

I would like to thank all the people who worked so hard to help bring this project to its exciting conclusion, including: Hugh Hixon, Steve Van Sickle, Bruce Cohen, Bill Voice, Charles Platt, Tim Carney, and Cindy Felix. I am optimistic that the vehicle will meet its design specifications in practice, and that the quality of patient care will improve significantly in cases where the vehicle can be deployed.

Members in southern and northern California and Arizona can expect to see the vehicle as part of the regional CryoFeasts currently planned. Additional tours of the vehicle can be arranged, so those members who wish to see this capability up close in Scottsdale should contact our administrative assistant, D'Bora Tarrant at (877) 462 5267, ext. 101 for an appointment. ▲

Inside of transport vehicle, showing MRC, oxygen tank, and ice machine in far right corner

Remembering Paul Genteman

By R. Michael Perry

Paul Genteman

On January 3, 1995, the Alcor Life Extension Foundation placed former Director Paul Genteman into cryonic suspension. Paul was 47 years old and, along with his wife, Maureen, had been actively involved in cryonics since the mid 1970's, when Alcor was a far smaller organization than today. In addition, he had been on the first Alcor/Cryovita susension team with Jerry Leaf (also now in cryonic suspension at Alcor) and had served as Secretary, Vice President, and Chairman of Alcor's Board of Directors.

Paul was born January 25, 1947, in Chicago, Illinois. In 1967, he went with a high school buddy to Toronto, Ontario, Canada as a "conscientious objector" to the Vietnam War and lived there for several years. There in 1971, he met and married Maureen, then returned to Chicago. He was drafted and served in the Army from 1972 74, spending time in Korea before returning to the States and getting his discharge at Ft. Knox, Kentucky. He and his wife then journeyed to California, where they met Fred and Linda Chamberlain and became active in cryonics and Alcor, fitting this around his profession of computer programming.

In May 1979, the Gentemans flew back to Toronto for a brief visit. A short quotation from Paul's letter to Fred and Linda Chamberlain shows a little of the sparkling wit and other qualities admired by those who knew him:

> "Our trip was a flaming success in all respects. The first day was what is known as 'brisk ; which is to say after our morning jog we had to spend 20 minutes in front of a Shick blow dryer with our mouths open to melt the frost off our alveoli. This was enough sub Arctic 'local color' for 2 LA softies, so I arranged to get the weather straightened out, and it was sunny and warm the rest of our stay.
>
> We had a lot of whirlwind visiting with all our old friends and relatives, took the obligatory 1400 foot ride to the top of the CN tower [Canada's National Tower, 'the world's tallest building,'] saw the new zoo (where they package and sell, no kiddin', zoopoo as fertilizer that's what I call getting your s t together, for cash), the new library (the most gorgeous and luxuriant I've ever seen), and only managed to lock my keys in the rental car once (from which I coat hangered the door open in about 16 seconds don't ever get an Omni if you're interested in security). To top it off, the pilot got it right the first time, both going and coming."

In 1995, Fred and Linda had this to say in tribute: "When we first met you over 20 years before your suspension, you frequently wore a black flag (set in gold) around your neck. You considered yourself to be an anarchist. You had a delightful sense of humor, valued freedom and life, and became one of the most well liked of all twentieth century cryonicists." Personally I found Paul to be kind, thoughtful and lively, with long term interests that went well beyond simply extending his or anybody's life. He was a member of the Society for Venturism, which seeks to address issues such as whether cryonics has a "spiritual" dimension and how an immortal community might or should be structured.

How did Paul come to be under Alcor's care? He was in Phoenix, Arizona, for scheduled intestinal surgery in late December 1994. The surgery, to treat his chronic problem of Crohn's disease, appeared to go well and recuperation was proceeding normally. When I saw him a day or so after his surgery he was not bedridden and seemed much his old, witty, articulate self. It seemed unlikely he would soon be needing our alternative to "end of life" services, which we are hoping instead will be "end of death." Unfortunately, complications from sepsis developed and Paul rather suddenly expired. Though unexpected, his deanimation was followed by a rapid response from the nearby Alcor Transport Team, and the suspension (a neuro) proceeded swiftly.

Alcor's former president, Steve Bridge, summed up the feelings of many of us in a CryoNet posting shortly after Paul's suspension:

> "Paul Genteman was one of the most respected and well liked people in cryonics. His fairness and even temperament (not the most common characteristics among cryonicists) were always welcome. You always knew Paul would tell you the truth, but without rancor or intent to hurt.
>
> We at Alcor want to express our deepest sympathy to Paul's family and to others who loved him. The world will be a poorer place without him. It is still good to remember that, unlike most of the two million other Americans who die each year, Paul Genteman had the intelligence and foresight to sign up for cryonic suspension. If this grand experiment works, the world will get another chance to know him." ▲

Sources: *CryoCare* Report 4 (July 1995; several articles); *Cryonics* 2Q 1995 (several articles); Cryonet message #3653 posted by Steve Bridge Jan. 8, 1995, http://keithlynch.net/cryonet/36/53.html; Alcor archives; personal recollections; Hugh Hixon.

Evolution, Immortality, and Cryonics

By Thomas Donaldson, Ph.D.

It is an interesting fact that biologists have a good theory of how lifespans evolved, even without any means to change lifespans ourselves. The basic theory came from the thinking of GC Williams, who published an article in *Evolution* (11(1957) 398 411). Later biological theorists have expanded on his theory and its implications: see JM Emlen *Ecology* (51(4) (1970) 588 601) and WD Hamilton, *Journal of Theoretical Biology* (12(1966) 12 45). The problem of finding an evolutionary explanation for aging has actually turned out to be far easier than finding an evolutionary explanation for reproduction.

Emlen and Hamilton expanded on Williams' theory by using statistics and other mathematical tools. However Williams' theory comes from a simple premise. Suppose we had a species which showed no aging at all. This does not mean that they would not die, but unlike species that age, their death rate would remain constant regardless of their age, and their life table would look like a descending exponential curve: e^(x). This means that any gene which shows itself late in the life of such animals would act upon only a few of those who remain living despite all the accidents and strains of life, while genes showing themselves early in life would become much more prominent.

Over time this would mean that genes which prolonged life would act much less powerfully than others that might temporarily strengthen the survival ability of younger animals at the cost of weakening their survival ability when they became old. Most such animals would not even live long enough to become old, so that weakening would never show itself, and they would do much better than animals without that gene while they were young and living. *Result:* evolution would select lots of those young acting genes, and those which only showed up in older animals would disappear. This species would end up showing aging, *increasing* their probability of death as they grew older. Their life tables would look like those in Figure A: at a certain point in their lives, far more of them would die off than random deaths could explain.

Does this tell us that we must inevitably show aging? No, it does not at all. Until about 200 years ago, most people failed to live beyond 50. Now we see many living to much higher ages. This means that any genes for longer life acting between 50 and 100 years will show themselves, and evolution will select for *longer* rather than shorter lives. In fact, one can see increased lifespan as the cause of the present interest in much longer lifespan: if few people lived long enough to show aging, then we would all be far more interested in dealing with the diseases and events which kill us off so quickly... and our lifespan curves would look much more like the exponential death rate than they do now, with only a few exceptional people showing signs of actual aging. Some demographers have noticed an increase in the number of centenarians, so we could be seeing just such evolution right before us.

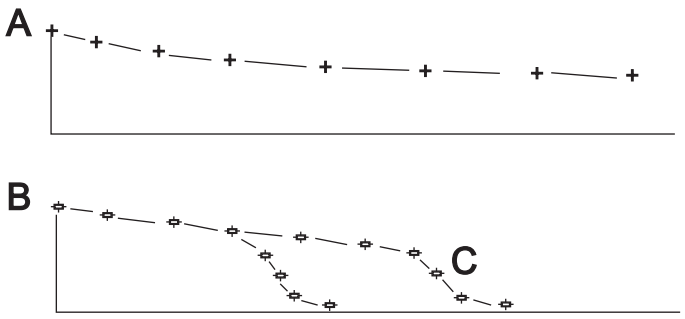


Figure 1: Total Absence of Aging versus Aging Later

The top graph A shows the deathrate or lifespans of a species which did not age at all. They would still die of random causes, but that deathrate does not depend on their ages. B and C show lifespans of species which may age at different rates: rather than dying off exponentially, after a period their deathrate increases strongly with age, so that the curve rapidly drops to zero, when all of them have died. So far we have no treatment which produces a curve A in any animal; we have many that moves the time of sickness and death into the future.

When we look at currently proposed treatments for aging, we notice something else important, too. First of all, calorie restriction, and possible drugs which imitate the lifespan extending effects without the hungry feelings, clearly does not abolish aging. Yes, it does prolong lifespan, and we can all hope that suitable drugs will come out of calorie restriction research. Yet when we look at the lifespan curves of calorie restricted rats or mice, what we see looks as if the curve of high mortality has moved over to the right. It has not disappeared at all. Suppose that we had and used such drugs. We would then face the problem of dealing with that same curve of high mortality as before. It would just have been delayed a bit.

I have written a book[1] on drugs available right now which have shown the ability to increase the lifespan of healthy mammals. Some of these drugs, and perhaps all if we get lifespan tables for all of them, have actually shown the ability to push the lifespan curve over to the right, just as calorie restriction has done. Not only that, but perhaps to offend many preconceptions, even the denigrated drug procaine turns out to push the lifespan curve over to the right, increasing both average and maximal lifespans. Anna Aslan, unlike many experimenters who have done lifespan experiments, used about 20 times the number of animals as others have: 920 treated animals versus 920 controls. (An experiment with 40 treated plus 40 controls may not have shown any increase in maximal lifespans simply because both controls and treated animals, by the time they reach high ages, become too few for any statistical conclusions to hold. If the lifespan effect turns out to be relatively small, such an explanation looks even more likely).

We have no reason to believe that every one of these drugs acts on the same process as calorie restriction. Some may prevent other ultimately fatal changes with aging. Since calorie restriction does not deal with all such changes, they deserve more study than they now get.

It is also possible that calorie restricted animals show totally new changes which require high ages to appear at all. None of the drugs or treatments known truly abolish aging itself. In the end, if we really wish to abolish aging itself rather than just to prolong lifespans, we will simply have to press on. The number of changes must, after all, be finite, though they may show themselves in many ways, and some may only show themselves when we reach the age of 200 ... or 300 ... or more.

These points about aging research do not tell us to give it up at all. They tell us not to expect any instant cures in our normal lifespans, even for those of us who may be young. What they really do instead is to very much strengthen the case for making cryopreservation arrangements.

Compare the problem of perfecting cryopreservation with that of abolishing aging. We are now close to completing research on vitrification, which is not completely perfected but even now turns out superior to freezing with cryoprotectants. We do not face the big problem of unknown size that true abolition of aging presents. Considering what still needs doing, we have a clearly defined problem. Once solved, at least for most cryonicists, we will know that whether or not we naturally live long enough for abolition of aging, we will still be able to wait until that happens. Speaking long term, research on aging may disappoint many of us by prolonging our lives but just not quite long enough. Suppose that aging under calorie restriction causes totally new problems not shown in our normal lifespans: one more problem to solve. And of course solving it requires that we have enough calorie restricted animals around that we can study just what happens in this new condition.

Moreover, aging research suffers from a problem which cryonics has so far avoided. A number of companies now are trying to make (and patent) substances which act like HGH (Human Growth Hormone, which has at least one experiment showing that it increases the lifespan of mice[2]). From its start, bringing any drug to market takes a long time, and ultimately applying *any* drug which prolongs life will turn out much slower, needing the approval of many bureaucrats (and popular figures, too) and to satisfy much more testing than cryopreservation. I would not be at all surprised if we can actually perfect vitrification enough that we can revive animals cryopreserved at very low temperatures, without bureaucrats noticing us at all. Moreover, to test anti aging drugs will automatically take many years; to test a means to vitrify and revive someone takes, at most, a few months.

We aim, by cryopreservation, to reach a time when aging can be reversed and abolished. Cryopreservation may well turn out to be the only way that anyone has any chance of doing that. ▲

[1]A GUIDE TO ANTIAGING DRUGS, still available with Updates, which keeps it up to date.

[2]Various scientists have criticized the idea that HGH increases lifespan. The experiment with mice turns such criticism into puffs of air. One such test of human growth hormone (HGH) in mice was done and published by David N. Khansari and Thomas Gustad in *Mechanisms of Aging and Development* 5(1991)87 100.

ALCOR SUPPORTERS:

As a cryonicist, I am very much aware of the responsibility that comes with trying to support an industry in which experimental science is the central activity. As Executive Director of Alcor, the awesome weight of that responsibility is greatly magnified because so many have placed their hopes and dreams in Alcor's ability to achieve steady progress.

Cryonics research does not have the benefit of large government grants or private foundations to fund needed protocol enhancements, but our industry does have loyal, dedicated members like you with a personal interest in the success of the field. With this in mind, Alcor has set a goal of enlisting 200 dedicated members to join the Alcor "Leadership Team" by pledging $500 or $1,000 per year for the next five years to fund research projects, upgrades, and staff additions.

Thus far, nine individuals have joined our quest. I am writing to invite you to join this select group of individuals committed to ensuring cryonics research receives funding to support the long term success of our mission. In appreciation of your pledge, you will receive these Leadership Team benefits:

Quarterly executive briefs offering up to the minute reports on how your contributions are making a difference with our major initiatives, including:

A larger operating room and patient care bay
Equipment for our new clinical lab
Pushing our membership numbers beyond the 800 mark
Whole body vitrification research and more!

Free admittance to the next Alcor Conference **a $495.00 value!**

Recognition in *Cryonics* magazine and Alcor News, our monthly electronic newsletter *(unless confidentiality is preferred)*.

A free copy of our new 30 minute DVD, "The Limitless Future," that includes exclusive features not available to anyone else **a $29.95 value!**

Membership dues and cryopreservation cases cover just sixty percent of our annual budget. The remainder must come from generous individuals within our small community. Only the collective resources, ideas, wisdom, and tireless efforts of the membership as a whole will get us to the future. So please, right now while this article is in front of you, take a minute to fill out and send us the pledge form on the next page.

With many thanks and wishes for good health and long life.

Sincerely,

Steve Van Sickle
Executive Director

"Leadership Team" Pledge Form

As Alcor begins its 34th year of operations, we have set a goal of enlisting 200 dedicated members willing to pledge $500 or $1,000 per year for the next five years to the Alcor Leadership Team project. Your gift will help establish a fund that will advance the scientific and growth targets of Alcor for a better future for all members. Join the Leadership Team by pledging TODAY!

Your generous, tax deductible gift can be made using one of these convenient Plans. Just check the pledge amount and billing preference you wish to use.

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Regular Technical Updates...

All components for one whole body M22 perfusion are in house, solid components are weighed out, and we will have 120 liters of pre mixed concentrate by the middle of this week.

Excerpt from August 15, 2005, Alcor News

Readiness drills for transport and cryopreservation teams are in development. These drills will be developed, tested and refined, until we are capable of evaluating the readiness in all areas of technical operations. For this first month's readiness drill, a city was selected and all Regional Coordinators were contacted to provide team members, flight times, and a bulk count of their remote kits.

Excerpt from August 15, 2005, Alcor News

Administrative Matter Updates...

All member households were sent a copy of Alcor's new 30 minute, high definition documentary. Additional complimentary copies are available for your family and friends. If you want to send us your comments about the DVD you can send them to Jennifer@alcor.org. Alcor thanks Joe Waynick, Tanya Jones, WalshCOMM, and all of the individuals who agreed to be interviewed for the documentary. We think it will be a wonderful promotional tool for Alcor and cryonics.

Excerpt from August 15, 2005, Alcor News

To date we have received $43,000 in pledges toward our $1 million goal. That's an increase of $10,500 since last month.

Excerpt from August 15, 2005, Alcor News

or subscribe to ***Cryonics*** magazine ***TODAY!***

Want to talk about cryonics with your friends and family? Start them off by giving them a gift subscription to *Cryonics* magazine. Just record the subscriber information below, and send it with a check for $35 to:

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Cryonics and Science Fiction Theatre

By R. Michael Perry

Some readers may remember a television series called Science Fiction Theatre, hosted by Truman Bradley (Ivan Tors, producer; syndicated), which first aired between 1955 and 1957, and was rerun in the 1960s under a new title, Beyond the Limits. I was in grade school when the series first appeared, and I remember the half hour shows with fondness. They were important in shaping my view of science and technology as basic forces for good in the world, granted that perils and problems existed too and must also be confronted. The possibilities were awesome, both wonderful and scary, but to me the positives clearly outpointed the negatives.

Truman Bradley shows fish in ice.

Important to this perception was the presentation of the ideas. At the start of each show the kindly, fatherly Bradley would give an introduction tying the fiction to follow with science and the world as it was at the time. At the end he would come back with some brief, reassuring commentary. (The emphasis on extrapolating from existing science and the overall character of the stories is, of course, a credit to Ivan Tors who wrote them.) Recently I obtained some of these old classics on DVDs and viewed them again after a half century.

One show I especially remember premiered in October 1955 and had a cryonics theme (this being a decade before the term was invented). "Dead Storage" is its title and I think it was my first exposure to the idea. The show opens with the usual, prefatory tie in with existing science. Bradley shows a fish in a block of ice, preserved "for a year," which inspiringly swims away when placed in an aquarium where its frozen casing melts. A related phenomenon of survival after extreme drying out or dessication is also noted in a certain insect, the water tiger. (I was unable to confirm this, but the tardigrade is a better known example of a small, caterpillar like creature for which this definitely occurs.) Turning again to cold storage, Bradley continues, "There is a name for this process: suspended animation, the science of maintaining life indefinitely, perhaps forever, by means of controlled refrigeration, and this is the theme of our story."

The story begins "in the frozen wasteland that circles the top of the world, the Arctic." Army engineers, cutting ice from a glacier, discover a frozen baby mammoth in what appears to be good preservation. A large block of ice containing the find is carefully sawed out and shipped to the Institute of Scientific Research in Washington, D.C., where a team of several scientists has been quickly assembled. Using steam to melt the ice, confirms that the preservation has indeed been extraordinary, and the possibility is raised that the creature may even be in "suspended animation" that is, revivable. At first this seems unlikely, but some slight activity might have been detected, so the attempt is made. A combination of "injections and other treatments," oxygenation and electoshock are applied, and, contrary to expectations, the creature struggles to its feet.

Tobey, as he is soon named, is physically healthy but not too happy because he misses his mom until a bond is formed with the leading scientist, Dr. Myrna Griffin (Virginia Bruce). The next few weeks are uneventful as Tobey gains weight and size, along with worldwide acclaim. It is realized that the massive, growing creature should not be cooped up in the lab's cramped quarters forever, so a move is arranged to a game reserve in Wisconsin. Dr. Griffin goes along for much needed company on the long journey, but Tobey is still frightened in the small transport trailer, and his nervous agitation makes it overturn. He is not too much hurt, but his adoptive mom is hospitalized and incommunicado for several days, during which he will not eat. When she is finally able to see him again, all he can do is cry out a plaintive greeting and die. The somber ending is softened by the comforting words of Warren Keath (Walter Coy), a reporter with a Ph.D. who has been covering the story and assisting Dr. Griffin. Bradley's concluding remarks have not lost their appeal, and still retain some relevance:

Tobey, the sleeper awakes.

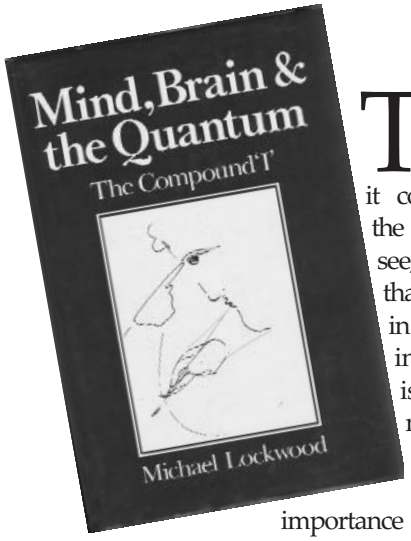
"Frozen giant mammoths have of course actually been discovered. Science has never been able to restore them to life. But who knows perhaps someday it might, just as in our fictional story. Suspended animation through deep ▸

continued on page 25 ☞

Mind, Brain and the Quantum: The Compound 'I'

By Michael Lockwood (Oxford: Blackwell, 1990)

Book Review by R. Michael Perry, Ph.D.



The deep nature of reality holds more than passing interest for cryonicists, since it could profoundly affect life in the future we hope to personally see, including even the processes that might be used or attempted in our reanimation. Of special interest are philosophical issues involved with the nature of the mind, which in turn depend, ultimately, on basic physics. Of central importance in physics are relativity and quantum mechanics, two disciplines that are difficult enough to master that many philosophers are not well acquainted with them. By the same token, physicists who are conversant with these twin theories are generally not also specialists in the finer points of philosophical thinking, with the consequence that philosophical viewpoints now centuries old and more in serious need of updating. *Mind, Brain and the Quantum* is an informative and provocative step in that direction, though it is clear that much remains to be done. What is done already, moreover, must also be examined carefully and not taken as dogma. In time, then, we may hope that a truly worthy successor to traditional views will be attained that, in its turn, will shed useful light on important issues likely to confront us in the future.

While covering some fairly advanced ideas, the book is written in a simple style to make its contents as accessible as possible. No advanced training in physics or other disciplines is required, though some acquaintance with the basic ideas of quantum mechanics and relativity will be helpful. (Consulting the Internet occasionally may be helpful for certain mathematical concepts. Those less prepared, on the other hand, may find the book useful as a teaching tool, if a few critical passages are given close attention, again, with some reference to the Internet which has good explanations of the underlying concepts.) In all, however, the book and the issues it covers in its exploration of the mind are complex enough that space here is really inadequate to do more than try to give the flavor of what is conveyed by touching briefly on a few of the more interesting points.

That the mind is difficult to explain is a point made early on. Traditionally such explanations tended to evade the issue (as a modern, materialistic scientist might say), positing a "mind body dualism" in which the mind is a different sort of thing entirely from the body it inhabits, a "spirit" that is not part of the physical world and is in important respects unknowable. Scientific advances do not necessarily enlighten us on this matter, however, even if many now hold the view that the mind is not something special and apart from material things. The case is made that even perfect scientific knowledge must forever be inadequate. Knowing what is going on physically in the brain when red is perceived, for example, would not convey what it is like to see red to one who is color blind. Knowing "what it is like" would seem in general to require enhancements of the knower's own mind rather than more complete knowledge expressed in terms or ways the knower is already familiar with or capable of grasping directly. In addition, it would be necessary to reliably correlate what one has experienced with what someone else has experienced, to know that this is indeed what it is like an intractable problem (it is argued) in its own right.

Lockwood thus makes an interesting distinction between materialism and physicalism, two concepts sometimes equated in philosophical thinking. Materialism is defined (a glossary is helpfully provided, emphasis here is original) as, "The view that, as regards mind and body, there exist only the body and bodily states. Mental states do not exist over and above brain (or other bodily) states; the mind does not exist *in addition* to the body." Physicalism is, "The view that, as regards mind and brain, an account of what is going on that is couched solely in the language of physics, chemistry and physiology leaves nothing out. According to the physicalist, there are no additional mental or psychological facts, that are incapable of being reduced to physical facts." So with materialism, the mind is something material, yet of course there are "mental facts." With physicalism, however, there are no facts of any kind that cannot be accounted for or reduced to (essentially) basic physics, in which it is not necessary to invoke the concept of a mind at all. As it happens, Lockwood sides against this latter view, on grounds that, once again, knowing what is going on in a brain at the level of basic physics will not, in and of itself, convey what it is like to actually experience the happening in question.

Some of his train of logic, though, I must take issue with, particularly his rejection of what is called functionalism, which in turn would shed light on the matter of (in principle) deciding when one's own experiences were like the experiences of someone else. Functionalism in effect says that any system, including a mind in a brain, can be resolved into components which themselves can be treated as black boxes, so that what they do is all that matters, not

how they do it. To my thinking, a strong case can be made in favor of functionalism based on quantum mechanics itself. At a subatomic level it is not significant (and maybe not even meaningful at all) just exactly how the various transformations or interactions of particles occur, just what is occurring.

We then have interacting entities that seem to make ideal black boxes of the very sort demanded of functionalism, something which is powerfully underscored by the possibility of a universal quantum simulator. In principle such a device could simulate a brain, thus a mind, at a basic level, and the simulated mind should then experience pain, joy, the color red or whatever just as would the actual mind. And more generally, we might have a handle on exactly what is going on and what is inessential when various sensations are experienced, which in turn might be of importance in deciding whether such a possibility as uploading or transferring one's personality to a computational device would be either feasible or desirable. None of this is considered however, and it is understandable since some of the important thinking on these issues had not been done at the time the book was written. Lockwood instead opts for the view that mental states must be identified with physical brain states, a version of mind brain identity theory.

So at this point the anti uploaders might feel some encouragement. But lest they become complacent, Lockwood also endorses the Everett relative state model of quantum mechanics, better known as "many worlds" though he dislikes that term and avoids it. Whatever you call it, the observer is splitting into alternate versions of himself (making the "compound 'I'"), which would challenge any notion of survival of a unique "original."

The book of course was not written to endorse the views of any particular group of immortalists or any others, and must be taken "as is" for whatever insights it has to offer. In important ways I found it enlightening and informative, though seeing it also as a pioneering effort calling for much additional work and rethinking. ▲

Cryonics and Science Fiction Theatre *(continued from page 23)*

◂ freezing is a new science. And one of the future hopes is that by this deep freezing process man may be able to withstand the initial shock and stress of a rocket's ascent into the stratosphere. Even now it's used in certain surgical operations to lessen operative shock. All this naturally stems from the knowledge acquired from the frozen world of the glacier era. I hope you enjoyed our story."

When I first saw this show fifty years ago as an eight year old, I was excited about the prospects it suggested of freezing and reviving creatures but a bit puzzled and saddened by the ending. Why did Tobey have to die? He did not, I realized, and I went on to other things. But now I can see that this sort of ending would be in keeping with the overall conservative tone, where something unusual happens, but things go back to "normal" at the end, and life goes on. Presumably it was thought that the audience would be more receptive that way. Maybe they were. A good many of them, of course, are not with us now along with the producer of the show, the host, and all but one of the actors. Very few, in fact, were able to seriously consider an idea that is implicit in the story: cold storage as a possible way to see the future ourselves. It is this idea that we call cryonics and continue to have the challenging task of popularizing today. ▲

Member Notes

RESIGNATION OF JOE WAYNICK

Michael Riskin announced: On behalf of the Alcor Life Extension Foundation, I wish to thank Joe Waynick, who resigned as Alcor's CEO / President effective August 31, 2005, for the efforts he has made on behalf of the foundation. Steve Van Sickle, an Alcor Board Member and employee, has accepted the position of Executor Director and Acting CEO / President of the Alcor Life Extension Foundation. He has assumed responsibility for Alcor's executive needs. A search process has been initiated for a successor CEO / President.

RESIGNATION OF MATHEW SULLIVAN

It is with deep regret that we inform you that Mathew Sullivan has resigned his position as Suspension Readiness Coordinator at Alcor. Mathew has been a loyal and dedicated employee for nine years and we all wish him much success and happiness in his future endeavors. He wishes the best for the members, employees, and patients of the organization.

LEADERSHIP TEAM PLEDGES

To date we have received $50,000 in pledges toward our $1 million goal. That is an increase of $17,500 since last month.

CRYOFEAST PARTIES

You don't want to miss this annual gathering! See the ad on page 25 for details about upcoming events being sponsored by Alcor.

NEWLY HIRED RESEARCH SCIENTIST

Alcor has hired Sergey Sheleg, MD, PhD to head our research department. Dr. Sheleg will be working on a variety of projects in support of our efforts to improve our field capabilities as well as our cryoprotection procedures.

CONGRATULATIONS TO BILL VOICE

Congratulations to Bill Voice, Alcor's Transport Coordinator, for passing his national Registry exams. Good job!

WEBSITE HITS JUMP

Alcor's web page was visited by over 5,000 more distinct computers in July as compared to June. The exact cause of the surge is unknown, although thirty information requests were received from people in Spain around the end of the month in response to a television program that aired there.

PROMOTIONAL DVD MAILED

All member households were sent a copy of Alcor's new 30 minute, high definition documentary. Additional complimentary copies are available for you and your friends. All you have to do is ask! Send your request for additional copies and your comments about the documentary to: jennifer@alcor.org. Alcor would like to thank Joe Waynick, Tanya Jones, WalshCOMM, and all of the individuals who agreed to be interviewed for the documentary. We think it will be a wonderful promotional tool for Alcor and cryonics.

MEDIA UPDATE

In July, Alcor participated in the following media events:

St. Petersburg Times: This article will feature Alcor members in the Florida area and around the world.

Teen America: This documentary about teens, including teen members of Alcor, will air in the UK. Joe Waynick gave the teens a guided tour of the facility.

Miami Herald: Alcor provided technical information for this article.

Chicago Tribune: This article will feature Alcor members around the world. The reporter became interested in writing the article because of the recent media blitz about the opening of Suspended Animation's new facility.

HURRICANE KATRINA

Anyone affected by Hurricane Katrina is urged to contact Alcor. We need your current contact info and want to ensure you are in a safe area that is accessible by aircraft.

FUNDING YOUR CRYOPRESERVATION WITH A TRUST

If you are thinking about using a trust to fund your cryopreservation arrangements with Alcor, don't go to all the trouble of hiring an attorney and creating one from scratch. Use Alcor's template trust, available for download at: http://www.alcor.org/Library/html/alcortrusts.htm. Revisions can be proposed in writing for consideration of Alcor's Board of Directors.

THE FIRST IMMORTAL

View an online copy of this fictional story of a family surviving and reuniting after a century of cryopreservation by James Halperin: http://www.heritagecoins.com/tfi/

EMERGENCY RESPONSE IMPROVEMENTS

Our emergency phone number has not changed in many years, but some members may still carry outdated emergency alert tags (bracelets and necktags). It is important to keep the emergency numbers current. A quick phone call to Alcor Central may one day be crucial. We have made diligent efforts to ensure members receive updated tags when changes are made, but please verify that your tags have the following correct phone numbers: 800 367 2228 and 480 922 9013 (note area code). If the numbers on your tags do not match these, we apologize and you are encouraged to let us know immediately so we can send you replacement tags. Contact D'Bora Tarrant at Alcor: 877 462 5267 x 101 or eMail her at dbora@alcor.org.

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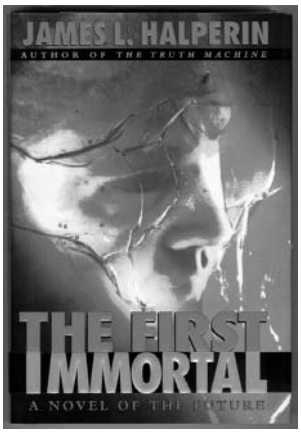

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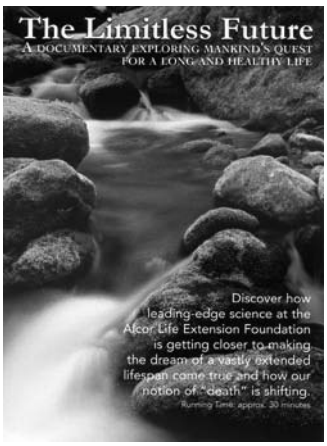


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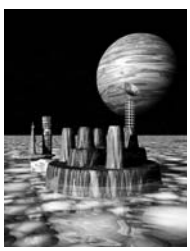
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Cover Art by Tim Hubley!

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 inkjet prints of these images *(without all the messy text added in layout)*.

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About the Alcor Foundation

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

Alcor's Emergency Response capability includes specially trained technicians and customized equipment in Arizona, northern California, southern California, and south Florida, as well as many additional cryotransport technicians on call around the United States. Alcor's Arizona facility includes a full time staff with employees present 24 hours a day.

MEETINGS

ARIZONA

Scottsdale:
Alcor Board of Directors Meetings
Alcor business meetings are generally held on the first Saturday of every month starting at 11:00 am MST. Guests are welcome. For more information, contact Alcor at (480) 905 1906.

Scottsdale/Phoenix:
Alcor Tours
Tours are held at Alcor at 10:00 am and 2:00 pm every Tuesday and Friday. They are hosted by our Executive Director (10:00 am) and Director of Technical Operations (2:00 pm). Call Alcor at (877) 462 5267, ext. 101 to schedule an appointment.

NEVADA

Las Vegas:
There are many Alcor Members in the Las Vegas area. If you wish to meet and socialize, contact Katie Kars at (702) 251 1975. This group wants to get to know you!

CALIFORNIA

Los Angeles:
Alcor Southern California Meetings
For information on Southern California meetings, call Peter Voss at (310) 822 4533 or e mail him at peter@optimal.org. Although monthly meetings are not held regularly, there is no shortage of Los Angeles Alcor Members you can contact via Peter.

San Francisco Bay:
Alcor Northern California Meetings
For information on Northern California meetings, call Tim Freeman at (408) 774 1298 or e mail him at tim@fungible.com.

WASHINGTON

Seattle:
For information on Northwest meetings, call Richard Gillman at (425) 641 5136 or join the e mail group CryonicsNW at http://groups.yahoo.com/group/CryonicsNW.

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

DISTRICT OF COLUMBIA

Life Extension Society, Inc. is a cryonics and life extension group with members from Washington, DC, Virginia and Maryland. Meetings are held monthly. Contact Secretary Keith Lynch at kfl@keithlynch.net. For information on LES, see our website at www.keithlynch.net/les.

MASSACHUSETTS

Boston:
A cryonics discussion group meets the second Sunday of each month. For more information, contact Tony Reno by phone at (978) 433 5574 or e mail at tonyreno@concentric.net. Information can also be obtained from David Greenstein at (508) 879 3234 or e mail: davidsgreenstein@juno.com.

UNITED KINGDOM

There is an Alcor chapter in England. Its members are working hard to build solid emergency response, transport, and cryopreservation capability. For information about meetings, contact Andrew Clifford at Andrew@banknotes.ws. See the website at www.alcor uk.org for additional details

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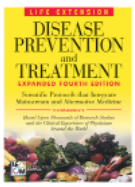
- Access to a toll-free phone line to speak with **knowledgeable health advisors, medical doctors** and **oncology experts** about your individual health concerns. You can also receive help in developing your own personal life extension program.

- **Discounts on prescription drugs, blood tests, and pharmaceutical-quality supplements** that will greatly exceed your membership dues. You'll receive a directory listing the latest vitamins and supplements, backed by scientific research and available through a unique buyers club.

- ***Disease Prevention and Treatment*** book ($49.95 cover price)…this hardbound fourth edition provides novel information on complementary therapies for 129 diseases and illnesses—from Alzheimer's disease to cancer, from arthritis to heart disease—that is based on thousands of scientific studies.



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