

# ALCOR

## *Reaching for Tomorrow*

(formerly Cryonics magazine)

2nd Qtr. 2001 A PUBLICATION OF THE ALCOR LIFE EXTENSION FOUNDATION Volume 22:2

**Cells4Life Update.....3**

*The business plan for the new company*

**Cryotransport Case....7**

*Report on patient A-1705*

**Project Future Bound...12**

*Improved remote rescue operation*

**Take It with You.....13**

*Estate and wealth preservation planning*

**A Bundle of Trusts.....14**

*A new funding trust from Alcor*

**Pooled Income Funds...15**

*A turnkey alternative to charitable gift giving*

**TimeShip.....17**

*An introductory overview*

**Alcor Update.....19**

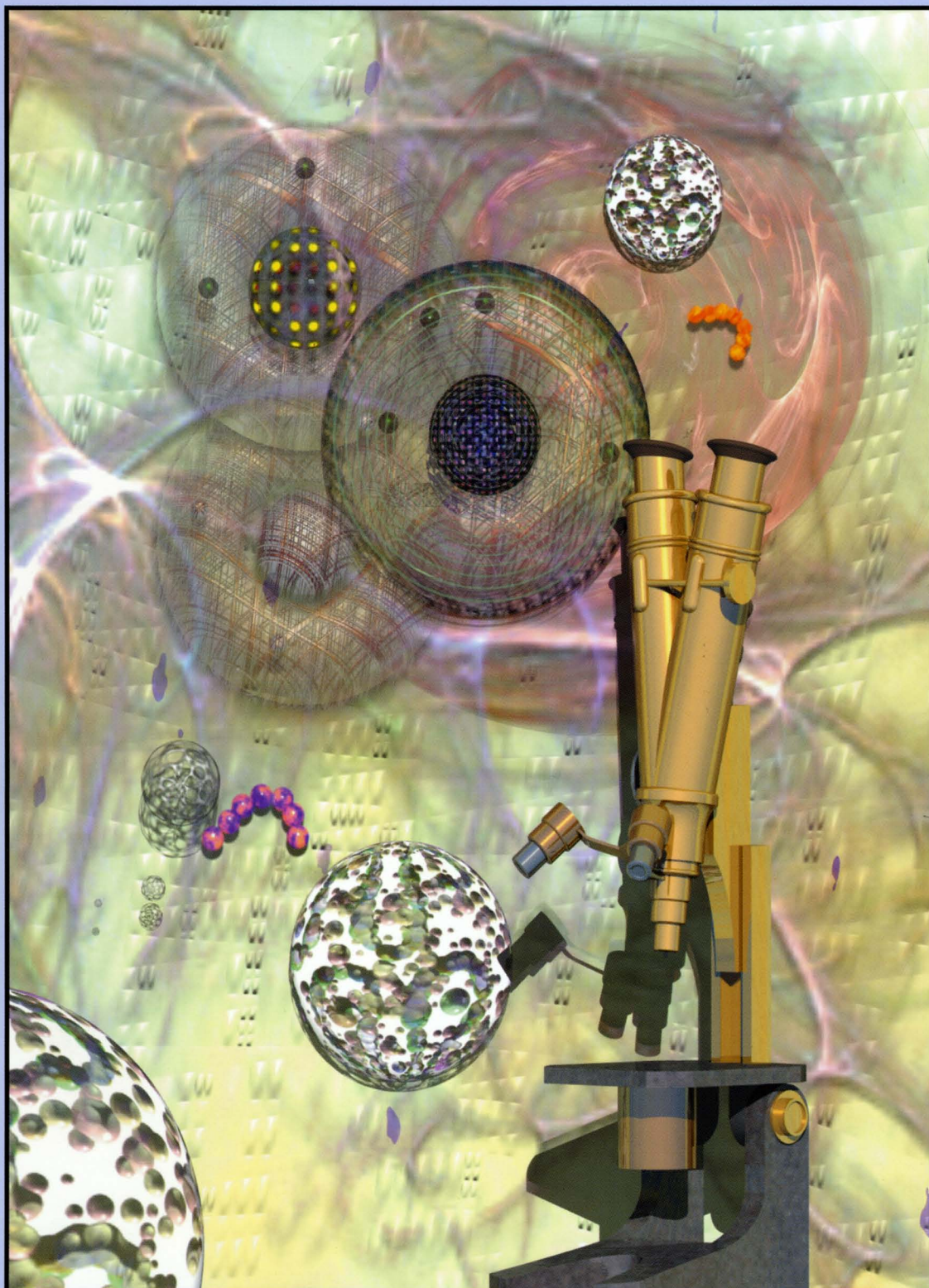
*- Membership dues increase  
- Marketing plan  
- 2000 Financial statements*

**Pro-Act.....37**

*New organization:  
Progress Action Coalition*

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# ***Alcor: Reaching for Tomorrow***

Vol. 22:2  
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## **FEATURES**

- 3** Cells for Life, Inc.: An Update *by Fred Chamberlain*
- 7** CryoTransport Case Report: Patient A-1705 *by Jerry B. Lemler, M. D.*
- 12** Project Future Bound Takes Off *by Jerry B. Lemler, M. D.*
- 13** Wealth Preservation Trusts *by Philip J. Herbert*
- 14** A Bundle of Trusts *by Linda Chamberlain*
- 15** A Turnkey Alternative to Charitable Gift Giving *by Ron Tunison*
- 17** TimeShip: An Introductory Overview *by Fred Chamberlain*
- 37** Progress Action Coalition *by Natasha Vita-More*

## **COLUMNS**

- For the Record: Cryonicist Authors and Their Books** *by Fred Chamberlain* 40
- You Only Go Around Twice: With a Banjo on My Knee** *by Jerry B. Lemler, M.D.* 47
- TechNews** *by R. Michael Perry, Ph.D.* 50
- Book Review: Formerly Brandywine** *by Philip J. Herbert* 54
- Book Review: Rebirth of the Frozen Head in the Year 2240** *by R. Michael Perry, Ph.D.* 55
- Book Review: Forever for All** *by Jerry B. Lemler, M.D.* 56

## **ALCOR UPDATE**

- Membership Dues Increase** 19
- Alcor Marketing Plan** 23
- Membership Status** 29
- Alcor Financial Statements, Year 2000** 31

## Alcor: The Origin of Our Name

In September of 1970 Fred and Linda Chamberlain (the founders of Alcor) were asked to come up with a name for a rescue team for the now-defunct Cryonics Society of California (CSC). In view of our logical destiny (the stars), they searched through star catalogs and books on astronomy, hoping to find a star that could serve as a cryonics acronym. *Alcor*, 80 Ursae Majoris, was just what they had been looking for. It not only had some acronymic "fit" for cryonics but was also symbolic for its historical use as a test for eyesight and was located in a very well known constellation.

Alcor, a companion star of Mizar in the Big Dipper's handle, is approximately 5<sup>th</sup> magnitude, barely within the threshold of human vision. Additionally, it is quite close to Mizar from an angular standpoint, and dimmer. Only with excellent vision can one tell there are two stars rather than just one. For thousands of years, people in the Middle East have used Alcor as a critical test of visual sensitivity and focus. If you could *see* Alcor, you had excellent vision indeed. In the early days of cryonics, few people could see

the need for a rescue team or even for cryonics itself. Symbolically then, Alcor would be a "test" of vision as regards life extension.

As an acronym, Alcor is a close if not perfect fit with *Allopathic Cryogenic Rescue*. The Chamberlains could have forced a five-word string, but these three seemed sufficient. *Allopathy* (as opposed to *Homeopathy*) is a medical perspective wherein *any treatment that improves the prognosis is valid*. *Cryogenic* preservation is the most powerful method known to halt the rapid, entropic disorganization of people following clinical death. *Rescue* differentiates a cryonics approach from (yet to be developed) proven suspended animation. The acronymic interpretation of Alcor is therefore *use of a cryogenic procedure, though unproven, to preserve structure and potential viability, since failing to do so allows further disorganization to occur and reduces the probability (prognosis) of reversal and reanimation at any future time*.

Some of these thoughts were presented at a CSC dinner meeting in the autumn of 1970. A number of people who have subsequently become members of the Alcor Life Extension Foundation were present at that gathering. Over the months that followed, it became increas-

ingly evident that the leadership of CSC would not support or even tolerate a rescue team concept. Less than one year after the 1970 dinner meeting, the Chamberlains severed all ties with CSC and incorporated the "Rocky Mountain Cryonics Society" in the State of Washington. The articles and bylaws of this organization specifically provided for "Alcor Members," who were to be the core of rescue team activity. Difficulties in securing nonprofit status in Washington then led to reincorporation in California, this time under the name "Alcor Society for Solid State Hypothermia." In the late 1970s, to further broaden the organization's objectives, the present name (Alcor Life Extension Foundation) was adopted.

Despite many transitions, the symbolism of the name remains. How long will it take for more people to *see* that "Ashes to ashes and dust to dust" is a meaningless destiny... to *see* that it is possible to reach for a distant tomorrow and perhaps to attain it... to *see* Alcor for what it really is: a vehicle with which to attempt that fantastic voyage!

—Reprinted from *A:RFT* (formerly *Cryonics*), August 1984.



### *Alcor: Reaching for Tomorrow*

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#### Editor

Lisa L. Lock  
llock@winterthur.org

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about the cover

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# Cells4Life, Inc.

## An Update

by Fred Chamberlain, CEO



### Business Plan

Most new companies have a “business plan.” In Cells4Life, Inc., this document tells how we see the company developing and what we can and should do to make a reality of that. Much of the plan is proprietary, but some parts give a broader view. These may be shared with Alcor’s members. Here are a few carefully selected excerpts.

### Vision

*Medical and biological sciences stand at the threshold of an astonishing new era for the prevention and treatment of catastrophic disease, chronic illness, heredity-related problems, and the entire spectrum of clinical conditions that have plagued humanity throughout history. Growing public awareness and enthusiasm at the prospects of tissue engineering, stem cell technologies, and therapeutic cloning point to an imminent explosion in the need and demand to culture and preserve viable human cells.*

Every new advance in biotechnology opens a new range of possible applications. It is a time of great change, and great opportunity. New niches are unfolding. One of them, centered around the enormous potentials of cellular therapies and higher applications of viable cells, offers a compelling advantage. It is Cells4Life’s objective to take a leading role in this new dimension of the biotech industry.

Cells4Life is in a strikingly similar position to tiny computer companies of the early 1970s with regard to the emerging “personal cell storage and applications” marketplace. In contrast to the early Apple and Microsoft, Cells4Life has had the good fortune to attract world-class marketing and medical-veterinary community people.

### Early Market Development Activities

Cells4Life is now commencing operations and expects to generate demand rapidly once the “doors are open.” In an initial exposure to physicians at a major conference (A4M) last December, more than 100 physicians enrolled to assist with tissue sample collection procedures.

### Imminent Loss of Life Creates Urgency

There is no reason for saving cells quite so urgent as the

fact that they are all about to be lost, and this happens for each human and each animal at the point of mortality. Pets and other valuable animals have shorter life spans than humans, and the technological arguments for the feasibility of cloning are sound. More to the point, if it becomes a widespread practice to preserve the cells of pets, it may soon seem perfectly natural to do the same for people. For humans, it can be advocated that cells be stored simply to maximize the options, whether for therapeutic uses or simply for conserving a family’s genomic heritage.

### Company

Key members of the Cells4Life team held their first planning retreat in Scottsdale, Arizona, on July 22-23, 2000. Since its initial meeting in Scottsdale, the Cells4Life team has:

- Formally incorporated as Cells4Life, Inc.
- Conducted thorough market surveys.
- Established a working laboratory in Scottsdale, Arizona.
- Developed and validated systems for service operations.
- Organized a network of physicians for taking tissue samples.
- Recruited a strong panel of credible consultants.
- Devised a detailed business plan for operations, research, and expansion.

Cells4Life has established its initial laboratory in sub-leased space, a state-of-the-art lab, and has isolated the space with partitions and glass doors for security and the preservation of quality working conditions. Access to the cell cryostorage area can be restricted with two locked barriers. Laboratory capabilities include everything needed for viable cell separation and culturing, DNA analysis, cryopreservation, and recovery of the living cells. Video observation via microscopes with integrated digital photography permits comparative assessment of cell culture methods as well as monitoring of clients’ cells during the sensitive phases of growth in culture. PCR (polymerase chain reaction) analysis is available. Dewars for cell storage are equipped with alarms; an integrated bar code inventory system is used to identify cryovials and track their locations.

Procedures for service operations and protocols have been

organized so that staffing can be rapidly scaled-up to accommodate growth. Studies of all process cycles have been conducted, and results have been integrated into estimates of manpower and materials for projecting operating costs in a realistic way. Cell samples have been cultured, preserved, retrieved from cryogenic storage, and re-cultured, to validate procedures and provide confidence that quality and reliability meet appropriate standards.

### Service Strategy

Even in cases where a service is known to a veterinarian or physician, our market survey reveals that such services will lack the quality and some of the features we will be offering. Any knowledgeable professionals will be reluctant to refer business to our competitors, if they are aware of what we have to offer. Our services are Internet accessible and can be subscribed to online. Kits are then shipped directly to a physician or veterinarian.

### Market Analysis in a Nutshell

All indications are that a strong market response can be secured quickly in storing viable cells of animals, with storage of human cells being a more resistant market, slower to develop. Conversely, the human cell marketplace will ultimately be the one that opens the door to providing a wide medical service industry, and thus the most opportunity.

### Marketing Plan in a Nutshell

Key factors in our goals include (1) identification of optimum markets; (2) attaining high visibility within these markets; and (3) development and delivery of services with high quality and reliability, in such a way as to build and maintain an unmatched reputation.

We will promote a high level of public awareness of Cells4Life's services, in sectors of the veterinarian and medical communities where maximum potential demand exists. Along with media editorial exposure and advertising, responses to Internet inquiries will offer us opportunities to engage in briefings and interviews.

### Financial Plan

The Cells4Life laboratory for serving clients with viable cell culture and storage is fully in place and operating. No additional expenses are foreseen. Even the materials with which to generate a large number of kits for overnight express distribution to physicians and veterinarians are already purchased. The service agreements are finished and are in production/distribution. Video instruction materials for the professionals have been generated.

### Conclusion

As with the small computer industry, the current state of biotechnology suggests that this is one of those points in the evolution of technology when those with vision can plunge into relatively straightforward ventures with a likelihood of securing good positioning and opportunity.

### Key People

What more is there to say? Only that the core group of Cells4Life, Inc., is strong and well rounded. Below is a "reprint" of the web page that profiles key people in Cells4Life. You may be surprised to see how many of them you already know.

**Terry Grossman, M.D.,  
VP; Medical Director**  
tgrossman@cells4life.net



Terry is the author of *The Baby Boomer's Guide to Living Forever*. Terry's responsibilities lie mainly in establishing service relationships with physician networks, clinical laboratories, and other organizations that might contract with Cells4Life for the storage of viable cells in anticipation of therapeutic applications, advanced diagnostic techniques, or preservation of families' genome information at the highest quality level. As an "anti-aging" physician, who must deal with the deteriorative impacts of senescence along with the more fundamental interventions in aging, Terry is in an ideal position to anticipate needs for cell storage and bring these to the attention of the medical community. Terry started his medical practice in a conventional way and then evolved it into a forward-looking model embodying the best of current-day preventive medicine.

**Jerry Lemler, M.D., VP;  
Director of Medical  
Ethics**  
jlemler@cells4life.net



In addition to his role in Cells4Life, Jerry serves as the President of BioTransport, Inc., and as a resident physician and key manager for the Alcor Life Extension Foundation. Jerry practiced psychiatry, in addition to emergency medicine, but more recently established a chain of health clinics. He thus relates to health-seeking patients in a unique way—of critical importance as growing complexities of therapies challenge existing norms of medical practice. You may judge from his essay on ethics elsewhere in the web site as to Jerry's skills in written communication, which are extraordinary.

**Kathleen Cotter, D.C.;**  
**VP for Sales and**  
**Internet Activities**  
kat@cells4life.net



Kathleen presently is engaged in developing an extensive web site "mall" covering health-related businesses. She is also very familiar with direct consumer service and thus will be one of Cells4Life's most capable sources of help for individuals who deal with Cells4Life based on initial visits to this site.

Kathleen, additionally, has the privilege of being the owner of the first pet in Cells4Life's pool of clients. Her tiny dog "Bob" was unable to be kept alive last fall and now provides a source of countless cells, all of which could be re-cultured to generate more, for eventual pet cloning.



**Brian Grossman, M.S.,**  
**D.V.M., M.D., VP;**  
**Director of**  
**Veterinary Medicine**  
brian@cells4life.net

Brian's medical and veterinary practice give him a powerful foundation for his role as Cells4Life's "vet." While his current pursuits largely focus on human surgery, specialized to the neck and spine, his background with animals, especially equines (horses), provides him with a wide range of contacts and perspectives, which are virtually unique. His professional memberships include the American Veterinary Medical Association, the North American Spine Society, and the American Academy of Orthopedic Surgeons. With four current hospital affiliations and current licensure as both a Medical Doctor and a Doctor of Veterinary Medicine, Brian is as well qualified as we could hope to find in assessing the potential for a procedure we might perfect in animals for later application in humans.



**Linda Chamberlain, VP;**  
**Director of Member**  
**Organization Liaison**  
linda@cells4life.net

Linda's principal responsibilities are making Cells4Life's services available to membership organizations such as the one

she now leads as its President (Alcor Foundation). Linda's background includes the startup of a highly successful management firm in which she was the primary organizer and manager for more than a decade. The organizations Linda will serve range from small groups to enormous mission-oriented networks, encompassing companion animal breeder groups, genealogy interest groups, retirement organizations, and public benefit associations. Linda will have a unique potential to create programs for the indefinite storage of cells for these groups through her own organization, the Alcor Foundation, which is committed to long-term biological preservation to begin with.

**Jeffery Benjamin, MNS,**  
**VP; Director of**  
**Research**  
jeff@cells4life.net



Jeff's most recent position prior to joining Cells4Life was as Research Director for a pharmaceutical firm, which developed and marketed alpha-lipoic acid supplements. In joining Cells4Life he returns to his primary interest in reproductive cloning. Most of Jeff's ideas in this area are proprietary, but suffice it to say that his targeted research objective is to render reproductive cloning in animals reliable and affordable. Other components of his research will focus on therapeutic uses of cells, anticipating a gradual widening of areas, which will be open to practice as technology continues to advance and ethical dilemmas are resolved. One of Jeff's great strengths is the wide range of consulting professionals he already recruited to his anticipated activities with Cells4Life, so that investigations into both basic animal reproductive cloning and the more appropriate applications for human medicine (therapeutic cloning as the primary example) can be conducted in parallel.



**Dale Howell,**  
**VP and Secretary;**  
**Laboratory Director**  
dale@cells4life.net

Dale has managed the development of the Cells4Life, Inc., laboratory from its inception as a Division of BioTransport, Inc., conducting surveys of competitors, performing market assessments, specifying and leasing equipment, selecting protocols, setting high-quality and reliability standards, performing laboratory layout and design, and carrying out pilot cell culture and preservation studies. Her more general

contributions to the definition of Cells4Life’s corporate image have substantially “shaped” the company. Dale’s professional goals include doctorate-level research in the endocrine-related aspects of embryology, which is in full harmony with Cells4Life’s mission to develop cutting-edge clinical applications, among which therapeutic cloning appears to have perhaps the greatest promise. In parallel with this, she is pursuing an MBA for the purpose of better managing and evolving Cells4Life’s service operations.

**Ron Wise,**  
**VP for Corporate**  
**Communications**  
**and Marketing**  
 ron@cells4life.net



Ron has headed public relations and marketing for two of the largest, best-known hospitals in the United States—Cook County in Chicago and Cedars-Sinai Medical Center in Los Angeles. At Cedars he was vice president for public relations and marketing for thirteen years until he joined a major health care provider in 1997 as Senior Vice President for Corporate Communications and Marketing. Ron also served as Chairman of Marketing and Communications for the United Way of Los Angeles and is still a member of its board of directors. Ron’s specialty is media relations and the marketing of health and science programs and services. His initial major project is building Cells4Life’s national reputation for reliability and excellence, in addition to broader goals of market development. One particularly outstanding aspect of Ron’s background is his close, well-established relationships with national broadcast and print media. He also has a strong understanding of and has contacts within the entertainment/celebrity community of Los Angeles and the media forces that influence and are influenced by it. Cells4Life will, as Ron has put it, be a “marketing driven” type business, and a “follow the leader” mentality can fuel the marketplace. By way of illustrating the breadth of experience Ron brings to Cells4Life, he has served on many of the boards of major, national organizations concerned with healthcare and recreational diving.

**Karla Steen, VP;**  
**Director of**  
**Legal Affairs**  
 karla@cells4life.net



Karla’s role in Cells4Life, Inc., includes serving as its corporate Vice President, in addition to cognizance for its contracting,

published representations of its services, and internal documentation for investors. Karla’s knowledge of the law (she is actively pursuing a degree), together with her experience in psychological counseling (MS with credentials), are augmented by extensive experience in business ventures and marketing. These strengths permit Karla to balance a reasonable legal footing for Cells4Life with the necessity to make viable cell storage available to both professionals and individuals coping with a wide complexity of motivations. Karla also serves as Legal Assistant and Advisor to the Board of the Alcor Foundation, a nonprofit corporation with complex responsibilities in many ways related to those of Cells4Life.

**Fred Chamberlain,**  
**President and CEO**  
 fred@cells4life.net



Fred has three decades of management experience including research efforts with the U.S. Air Force, projects at Jet Propulsion Lab in spacecraft guidance and control systems, and development-operation of a successful management company. More recently, Fred served for four years as President of the Alcor Foundation, moving it into a high level of tax-exempt donations and steady growth, with a committed core of Life Members. Also, during the same period, he organized a new service corporation (BioTransport, Inc.) for the nonprofit corporation and acquired initial investments, part of which served to establish Cells4Life, Inc. Fred has served on boards of directors of a number of health- and longevity-oriented organizations over the past thirty years, including the Southern California Aging Association, Longevity Foundation, and the Lake Tahoe Life Extension Festival.

**Summary**

That’s the picture of Cells4Life, Inc., as it stands today. As discussed at length in earlier issues of this magazine, this new company is an outgrowth of BioTransport, Inc., and its purpose was to provide a source of income to BioTransport during its early years of development. The formula for that is that 5 percent of all income to Cells4Life is paid to BioTransport, in the same way as if it were a “tax.” This is a very different practice than most new companies engage in, where the shares rarely if ever pay a dividend. Will Cells4Life serve this purpose well, for BioTransport (and thus for Alcor)? We are about to find out!

# CryoTransport Case Report: Patient A-1705

by Jerry B. Lemler, M.D., Alcor Medical Director and CryoTransport Manager  
with Linda Chamberlain, Mathew Sullivan, Hugh Hixon, and Dr. R. Michael Perry



**A-1705 Date of Birth: May 10, 1937**  
**Date of Biostasis: March 22, 2001**

Please note: Due to time constraints and editorial deadlines, this article will confine itself to the first half of the cryosuspension of A-1705, encompassing background history, standby, cardiopulmonary arrest and local transport, cephalic isolation, and neuro washout. The full cryoprotective phase, cooldown, and placement into long-term care, accordingly, will be detailed in a later publication as well as on our web site.

\* \* \* \* \*

## Background History

A-1705 (name withheld, as is our custom) was a sixty-three-year-old retired Ph.D. physicist and a well-known biostasis advocate. He regularly attended and actively participated in numerous life extension-related conferences, both Alcor sponsored and otherwise. On a personal note, my wife (Paula) and I met A-1705 at the Asilomar meeting last June (2000), and we both took quite a liking to this most interesting gentleman.

When I assumed the duties of Medical Director and CryoTransport Manager in early February, I was given a list of significantly ill Alcor members. A-1705 was at the top of this short list, and I contacted him by telephone at his home in the rural Midwest. We had a pleasant enough conversation under the circumstances, predominantly dealing with logistical issues, should an imminent cryosuspension become necessary.

A-1705 was signed up as a whole-body suspension member and for the moment committed himself to remaining so, even after I detailed the virtues of neurovitrification technology and our new Open Option Plan. In his own words, he said he'd process the information I'd given him, and, "take it under advisement."

I was given the name of A-1705's key personnel and with his verbal permission, in turn, contacted his attorney, personal physician, and mortician. Each and every one of these individuals pledged his full support to provide the requisite assistance required to best ensure A-1705's trip to the future. And, in truth, they amply demonstrated their fidelity, in deed as well as word.

In mid-February, A-1705 called to notify me he would be traveling to the Mayo Clinic in Rochester, Minnesota, for a

definitive workup of his advancing metastatic stomach cancer that had initially manifested itself some two years previous. Against my stated recommendation he not drive himself to Minnesota in the middle of the winter (an arduous seven-and-a-half-hour trip), A-1705 nonetheless made the solo sojourn, leaving him in a most exhausted state upon arrival. The exacting Mayo examinations suggested A-1705 return to Rochester in three weeks time for a round of experimental chemotherapy. Our member drove home (barely arriving ahead of a major snow storm), and he and I continued our ongoing telephone dialogue. He was understandably ambivalent about returning to Minnesota, though I encouraged him to proceed with their prescribed protocol.

A-1705 lived alone, with no close family or friends nearby. He never married nor fathered any children. His work and studies, along with the care of his mother, were the essence of his life. When his mother (and closest friend) died a few years back, A-1705 was truly alone. Accordingly, he was unable to secure a ride back to Rochester, and so he personally chauffeured himself again to the North Country. He called upon arrival, from his hospital bed, and said he'd gotten "deathly ill" two times, forcing him to the side of the busy road to gather himself in order to complete the journey.

Further discussions including A-1705's designated mortician, attorney, and personal family physician were conducted by myself (JBL) and were, without question, exceedingly productive. We constructed a plan of action whereby it was decided that if our patient survived his travails in Minnesota, he would be transferred for terminal hospice care in the greater Phoenix area.

I met with and subsequently spoke several times to representatives of a local hospice in the greater Phoenix area. Our thanks go out to Bob Ettinger for his referral of these diligent and compassionate individuals. They proved not only to be compliant with our various needs but ultimately of significant assistance to us in carrying out our mission.

A-1705's second in-patient hospital course in Minnesota was, somewhat predictably, deleterious. He began the experimental chemotherapeutic regimen as scheduled but within a matter of days spiked a fever and developed a dangerously high leukocytosis. A-1705's chief surgeon (who stayed in



regular close contact with me) was of the opinion our member was septic from an intra-abdominal bleed. His recommended course of action was an exploratory laparotomy, which, in fact, occurred on February 24. No active bleeding site was located during the operation, and A-1705 was closed, following ligation of adhesions.

Post-operatively, inclusive of assisted breathing in the Surgical ICU, our member continued to regress. Daily conversations with him were no longer possible, even after he was breathing on his own and stepped down to the Intermediate Care Unit. I remained in almost constant contact with A-1705's attending surgeon, hospice intake coordinators, and ActNet members, and our agreed-upon action plan called for the direct transfer of A-1705 from Rochester to a large private hospital in Phoenix, should his condition stabilize sufficiently (not a given by any means) to allow him to make the trip.

Thanks to the expert care of his team of surgeons, after three "touch and go" weeks, A-1705 was discharged from the Mayo facility. On Saturday March 17, he was flown via a med-transport Learjet to Sky Harbor Airport, where he was greeted and taken to the hospital, escorted by Alcor facilities engineer Hugh Hixon (HH) and myself.

**Standby**

With the arrival of A-1705 in Phoenix for terminal care, Alcor readied its staff, equipment, and facilities to await pronouncement of our member. Figures 1-3 are illustrative of this highly detailed process. (MLS = Mathew Sullivan.)

A wing of the fourth floor of the Phoenix hospital is set aside for in-patient care of hospice patients, under the supervision of their Medical Director (name withheld, but an excellent practitioner). Hospital personnel directly responsible for A-1705's care were thoroughly vested in his comfort and our procedures.

**Figure 1.**

Completed by:	Date:	INITIAL LOGISTICS
LC	ok	CryoTransport Team preparations ( <i>CryoTransport Overview Checklist</i> ).
LC	ok	Make list of needed consultants (Contact Information).
LC	ok	Call consultants (if necessary).
LC	ok	Prepare still camera (film in refrigerator and in MARC).
MLS	N/A	Order dry ice (900 lbs. WB / 100 lbs. neuro).
MLS	N/A	Order first delivery of liquid nitrogen (8 LS160 = WB / 2 LS160 = neuro).
JS	19 March	Fuel ambulance #1 (Fuel and use different fuel tank each time).
Completed by:	Date:	INFECTION CONTROL
MLS	19 March	Determine patient's infectious disease status (file, physician, CryoTransport Manager).
MLS	N/A	Inform surgeon and all staff of any special infectious precautions.
MLS	19 March	Post infectious status at OR entrances, at pump, sample station, cooldown bay, and in appropriate offices (if none, post "No Known Infectious Disease").
MLS	19 March	Prepare protective wear supply/disposal; red bags at two locations.
MLS	20 March	Lock and tape Dr. Lemler's door.

**If It's Your Turn**

Should you become aware you're suffering from a terminal illness, the time to prepare for an Alcor biostasis procedure is the moment of diagnosis. We don't have to convince you of the desirability of a pronouncement just minutes away from our Scottsdale facility, with your Alcor Standby Team and its life-saving equipment positioned at your bedside.

Teams of Alcor staff and volunteers faithfully stood vigil at A-1705's bedside, beginning Tuesday March 20, when his condition noticeably deteriorated towards an agonal state. Just one day prior to this clinical worsening (March 19), Fred and Linda Chamberlain (LC) secured the necessary paperwork from A-1705 to convert his suspension arrangement from whole-body to Alcor's new Open Option Plan. The Open Option allows Alcor's Medical Director (Jerry B. Lemler, M.D.), and/or senior cryotransport leaders (in his absence), to choose for the suspendee the preferable preservation method at the time of his/her deanimation.

Alcor's twenty-four-hour/day standby vigil-keepers included staff members Linda Chamberlain, Fred Chamberlain, Dr. Jerry B. Lemler, Hugh Hixon, and Jessica Lemler, along with the valuable assistance of Alcor volunteers Jerry Searcy (JS), Bruce Cohen, and P. M. Early Thursday morning, March 22, at 0500 hours, A-1705 developed a Cheyne-Stokes breathing pattern, prompting me to

redraw a second batch of stabilization medications. Fortunately, the hospital staff allowed us not only unlimited pre- and post-morbid access to our patient, but further permitted us to station our MARC (Mobile Advanced Rescue Cart) in A-1705's room, enhancing its availability for immediate use (see Figure 4).

**Cardiopulmonary Arrest and Local Transport**

At 0545 hours, March 22, 2001, Member A-1705 deanimated, with pronouncement by designated nursing personnel (upon notification by Alcor standby representatives within minutes of the event) (see Figure 5). Cardiopulmonary stabilization was immediately begun following pronouncement in A-1705's hospital room, along with Alcor Central, with Hugh Hixon behind the Alcor ambulance wheel, as Linda Chamberlain and Dr. Jerry Lemler attended to the MARC and its valuable contents. Due to A-1705's unusual anatomy (he

Figure 2.

Completed by:	Date:	Time:	OPERATING ROOM (Initial Preparations)
MLS	20 March	17:05	Set wall clock to correct time.
MLS	19 March		Remove all excess equipment.
MLS	19 March		Place table dump buckets (kick pails).
MLS	19 March		Remove trash.
MLS	19 March		Prepare remote monitoring system.
MLS	20 March	14:57	Place new tape in video recorder.
MLS	19 March		Turn on video recorder.
MLS	20 March		Place 12 of each data log on (2) clipboards (forms on perfusionist cabinet).
MLS	20 March		Place Surgeon Checklist, Datasheet, and SOP on clipboard.
MLS	20 March		Place Burr Hole Checklist, Datasheet, and SOP on clipboard (as above).
MLS	19 March		Prepare infection control filter (unlock switches, hook up tubing, test, etc.).
MLS			Prepare Perfusion Station ( <i>Perfusionist Checklist</i> )
MLS	19 March		Locate crackphone microphones (pre-sterilized).
MLS	19 March		Clean all non-metal surfaces (10% bleach).
JS	19 March		Vacuum and mop floor with disinfectant or 10% bleach solution.
MLS	19 March		Lay floor mats on each side of operating table.
JS	19 March		Clean and dry operating table (10% bleach).
MLS	19 March		Wipe down equipment (Windex - perfusion machine & other electronics).
Completed by:	Date:		OR BATHROOM
JS	19 March		Empty garbage and wash all surfaces and sink (10% bleach).
Completed by:	Date:		SCRUB ROOM
MLS	20 March	15:14	Remove excess equipment.
JS	19 March		Wash all surfaces and sink with soap and water.
JS	19 March		Wash all surfaces and sink with 10% bleach solution.
JS	19 March		Lay out betadine scrub brushes.
JS	19 March		Lay out surgical gowns.
JS	19 March		Lay out surgeon's gloves.

Completed by:	Date:	Time:	OPERATING ROOM (Final Preparations)
			Prepare back table for surgery. Lay out:
MLS	19 March		Sternal saw tray
MLS	19 March		Burr hole tray
MLS	19 March		Main tray
MLS	19 March		Supplemental surgical tray
			Place electrocautery supplies on back table:
MLS	19 March		4 each sterile gauze package
MLS	19 March		Betadine scrub bottle
MLS	19 March		Betadine solution bottle
MLS	19 March		40 alcohol swabs
MLS	19 March		Electrocautery plate
MLS			Electrocautery gel
MLS	19 March		Extra surgeon's gloves
MLS	19 March		Drape back table.
			Prepare burr hole surgical area:
MLS	20 March	15:14	Place (2) I.V. poles at head of OR table (for burr hole drape).
Completed by:	Date:		LABORATORY
HH	pre-made		Mix perfusate (100L = WB / 50 L = neuro).
HH	pre-made		Dilute and filter perfusate.

Figure 3.

Figure 4.

Date:	Time:	Time status:	NOTES
20 March	14:30		Patient at Phoenix Hospital. Weight 60 kg; I.V.s in readiness
20 March	14:30		500 cc of 20 g/100 cc mannitol, 500 cc of 10 g/100 cc dextran 40 (rheomacrodex)
20 March	14:30		Drew up 120 mg diprivan (propofol, 12 cc soln.)
20 March	14:35		Drew up 60 mEq potassium chloride (30 cc soln.)
20 March	14:43		Drew up 25,000 units sodium heparine (2.5 cc soln.)
20 March	14:48		Drew up 10 mg vecuronium (norcuron, 10 cc soln.)
20 March	17:39		Drew up 2 g deferoxamine (desferal, 8 cc soln.)
20 March	17:47		Drew up 0.6 mg nimodipine (0.6 cc soln.)
20 March	18:16		Drew up 20 g vasopressin (20 cc soln.)
20 March	18:19		Drew up 180 mg chlorpromazine (thorazine, 7.2 cc soln.)
20 March	18:24		Drew up 1 g methylprednisolone (solumedrol, 8 cc soln.)
20 March	18:27		Drew up 10 mg bactrim (10 cc soln.)
20 March	18:29		Drew up 60 mg gentamicin sulfate (1.5 cc soln.)
20 March	21:00	Est	Patient asleep with some flashes of alertness. Morphine earlier today reduced heart rate
			Approximately 40 lbs ice in break room. MARC (Mobile Advanced Rescue Cart) placed in 4th floor hallway, and nurses given tour. They were quite interested in our equipment and procedures.
20 March	22:25	Est	Bagged ice--10 bags, using scoop cup from nurses.
			Red-painted electrical outlets in rooms are hospital's generator-backed essential bus. NGC O2 fittings in rooms release by pushing in on fitting while pulling down on button above fitting.
20 March	22:39		Patient breathing getting shallow, even somewhat labored
20 March	22:47		Noted: nurses have heparin, THAM, streptokinase, other items including I.V. line
20 March	22:52		Nurse check of patient. Breathing shallower.
20 March	22:57		Forehead scrunched up, indicating possible pain. Gave sublingual morphine.
20 March	22:57		Respirations 24/min. O2 saturation 96%
20 March	23:31		Hung THAM and Dextran-40
20 March	23:40		Rolled patient--no bowel movement
21 March	00:10		Patient breathing regularly
21 March	00:37		Patient no change
21 March	01:00		Patient about the same
21 March	01:14		Patient respirations 24/min.
21 March	01:40		Vitals: blood pressure 120/90; 91% O2 saturation; 28 resp/min.; breathing deeper, color better, circles under eyes, kidneys working
21 March	02:06		Occasional cessation of breathing and other signs noted--wringing of shoulders, expression indicating problems
21 March	02:12		Breathing somewhat erratic
21 March	02:14		Breathing better. Morphine administered
21 March	02:35		Raccoon eyes, noted--a sign of "blood pooling"
21 March	05:14		Pulse rate 140-160/min.; capillary refill time 1 sec (hands), 4 sec (feet); resp 28/min.; O2 saturation 94-96%; marked edema of extremities
21 March	07:40		Pulse rate 120-140/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 22/min.
21 March	08:55		Pulse rate 120/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 20/min.; increasing edema
21 March	09:45		Pulse rate 116/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 28/min.; just given morphine (note:all morphine is given as morphine sulfate)
21 March	10:49		Pulse rate 120/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 32/min.; increasing edema right hand, increasing lung congestion
21 March	11:55		Pulse rate 120/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 30/min.
21 March	14:28		Pulse rate 120/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 26/min.
21 March	15:04		Pulse rate 125/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 28/min.; breathing seems sharp and rapid, but rate is not that different
21 March	17:26		Pulse rate 120/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 22/min.
21 March	18:27		Pulse rate 120/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 24/min.; blood pressure 122/62. No change in condition.
21 March	19:40		Pulse rate 120/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 28/min.; O2 saturation 92%. No change in condition.
21 March	20:40		Pulse rate 122/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 28/min.; 1 mg ativan given to control twitch. Non-responsive when asked if in pain. 10 mg morphine sulfate being given at 6 hr. intervals, and PRN based on nsg assessment of pain. Will increase dose to 15 mg depending on estimated pain levels.
21 March	21:40		Pulse rate 120/min.; capillary refill time 1 sec (hands), 1 sec (feet); resp 20/min.; 20 mg morphine sulfate given.
21 March	23:07		Nurse checked; gave morphine; breathing very gurgly.
22 March	02:20		Pulse rate 138/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 22/min.; blood pressure 100/60
22 March	04:00		Pulse rate 136/min.; capillary refill time 1 sec (hands), 2 sec (feet); resp 24/min.
22 March	05:10	Est	Made decision to redraw meds based on patient's altered breathing pattern.
22 March	05:18		Drew up 120 mg diprivan (propofol, 12 cc coln, replacing previous sample).
22 March	05:24		Drew up 10 mg vecuronium (norcuron, 10 cc soln, replacing previous sample).
22 March	05:28		Drew up 60 mEq potassium chloride (30 cc soln, replacing previous sample).
22 March	05:39		Drew up 250,000 units streptokinase (streptase, 5 cc soln).
22 March	05:44		Drew up 250,000 units sodium heparin (2.5 cc soln, replacing previous sample).

*Note to figures 4 and 5:*

A-1705 Standby and Suspension Records: Some times are approximate, indicated by “Est” in the Time Status column, which is otherwise blank. Unspecified times can be considered to fall between enclosing, specified times in same locale or theater, again with allowance for inexactness. Units of measurement: unless otherwise noted, temperatures are in degrees Celsius (°C), pressures are in millimeters of mercury (mm Hg), flow rates are in milliliters per minute (ml/min), and times are in 24 hr. mountain standard time (MST: Arizona and Alcor Central time).

**Figure 5.**

Date:	Time:	Time status:	NOTES
22 March	05:45	Est	Cardiopulmonary arrest. Patient is pronounced.
22 March	05:47	Est	No airway placed; anatomy bad. I.V. started (THAM, Mannitol, Dextran 40). Used Ambu Cardiopump for meds circulation.
22 March	05:48		Administered sodium heparin (25,000 units, 2.5 cc).
22 March	05:51		Administered diprivan (120 mg, 12 cc).
22 March	05:52		Administered streptokinase (250,000 units, 5 cc). Administered vecuronium (10 mg, 10 cc).
22 March	05:53		Administered potassium chloride (60 mEq, 30 cc). Administered vasopressin (20 mg, 20 cc).
22 March	05:56		Administered nimodipine (0.6 mg, 0.6 cc).
22 March	05:57		Placed patient into ice bath; put ice bags around head.
22 March	05:58		Administered deferoxamine (2 g, 8 cc).
22 March	05:59		Positioned thumper and oxygen.
22 March	06:00		Started thumper and oxygen.
22 March	06:10	Est	Spray cooling device useless due to patient's anatomy. Rerouted tubing to have diffuser cool head.
22 March	06:14		Administered bactrim (10 mg, 10 cc). Administered gentamicin sulfate (60 mg, 1.5 cc).
22 March	06:15		Administered chlorpromazine (180 mg, 7.2 cc). Administered methylprednisolone (1 g, 8 cc). Meds terminated.
22 March	06:20	Est	Disconnect MARC from wall power and O2, and moved out. Thumper temporarily shut off while going through lobby.
22 March	06:31		Ambulance with patient left hospital for Alcor Central.
22 March	06:45	Est	In ambulance: tympanic temperature probes placed. No airway placed, precluded by unusual anatomy, secondary to long-standing ankylosing spondylitis and consequent torticollis. Icewater diffuser held in place by hand.
22 March	07:01		Patient arrived at Alcor.

suffered from a chronic ankylosing spondylitis and severe cervical torticollis, leaving him with a severe twisting neck deformity), the spray cooling device was reconfigured, using the diffuser to manually cool the patient's head during transit.

The ambulance arrived at Alcor Central at precisely 0701 hours, and A-1705 was transferred to the operating table without incident. Tympanic probe readings at 0719 hours were: left: 20.7°C, right: 19.9°C. This means the patient's temperature had been reduced by approximately 17°C, in only 94 minutes!

### Cephalic Isolation

Surgery was performed by Alcor surgeons Dr. José Kanshepolsky and Dr. Nancy McEachern, assisted by myself. A-1705's head was shaved and prepped for burr hole placement by Dr. Kanshepolsky at 0729 hours.

#### Burr Hole (Before Perfusion)

7:29 Shave/prep patient's head

#### Left burr hole:

7:34 Retraction completed  
 7:35 Pilot dimple completed  
 7:47 Main hole completed  
 7:48 Skull/dura separation completed  
 7:48 Brain exposure completed

#### Right burr hole:

7:30 Retraction completed  
 7:34 Pilot dimple completed  
 7:41 Main hole completed  
 7:42 Skull/dura separation completed  
 7:42 Brain exposure completed

Cephalic isolation was accomplished without incident at 0909 hours, after both carotid arteries had been clamped. The left vertebral artery was cannulated at 0912 hours (est.), with the right following immediately after at 0922 hours (est.). Right carotid artery cannulization was confirmed at 0937 hours, while the left was secured at 0941 hours. The surgeons acknowledged having some difficulty with the carotid cannulizations, attributable in their opinion to A-1705's previously documented aberrant anatomy.

#### Neuro Washout

At 0945 hours (est.) the circuit was configured for washout with B1 compound. Five minutes later, at 0950 hours, the perfusion pressure was increased to 60-80 mm Hg, and the circuit was opened. A-1705's washout commenced at 0954 hours and was successfully terminated at 1006 hours. At this juncture of the proceedings, neurosurgeon Dr. José Kanshepolsky noted "The brain looks good!"

(continued on page 57)



# Project Future Bound Takes Off: Initial Launch Site—Southern California

by Jerry B. Lemler, M.D.  
Medical Director, Alcor



Alcor is pleased and excited to announce the development of an improved remote rescue operation, to be known as Project Future Bound. Planning of the logistics (manpower, equipment, location sites, funding, etc.) has been under way for the better part of a month, in anticipation of a September start-up. The basic components of the plan will be outlined below, while the full details will appear on our web site (<<http://www.alcor.org/>>), and in future publications.

## Why Start Project Future Bound?

As elucidated on page 7 in this issue, a recent suspension patient (A-1705) got a “first-class ticket” to the future by traveling to Phoenix five days prior to his first life-cycle termination. True, he cut it precariously close, and realistically not everyone can be so fortunate. With Alcor’s CryoTransport Team at his bedside, and given a fresh vascular bed to cannulate, as noted, A-1705’s case clearly demonstrates the viability of our new clinical neurovitrification procedures.

Your Alcor staff desires nothing less than to be able to consistently deliver the very same level of service to our membership, allowing for time and distance factors. So, we asked ourselves, within our budgetary limits, how we could best shorten the time and shrink the distance. Our answer—Project Future Bound!

This ambitious proposal will enhance Alcor’s rescue capabilities manifold, without compromising the safety of our current suspension patients. Since a plurality of our members live in southern California, we’ve decided to start Project Future Bound in the land of fun and sun. If the program proves to be a success (and we trust it will), replication of these services will follow into additional major pockets of Alcor membership—and should also provide enticement for potential new sign-ups.

## So, What Exactly Is Project Future Bound?

Alcor has recruited and assembled a top-notch surgical team, based in southern California, and we are scheduled to train and certify them (along with the rest of our increasing number of expert physicians) in Scottsdale in early June. Concomitantly, we have secured a suitable West Coast location to store our equipment and perform our procedures. Between now and our anticipated September opening, we will be gearing up on the training of ancillary personnel (professional and volunteer) as well as purchasing and reconfiguring the requisite cryosuspension equipment.

When a southern California member goes down, the Alcor team (headed by an Alcor physician) will instantly spring into action. Our new patient should reach our facility expeditiously, where he/she will undergo surgery with a pliable vascular bed.

In the first phase of Project Future Bound, our surgeons will perform cephalic isolation, carotid and vertebral artery cannulation, and neuro washout for greater biological support and faster cooling. Once completed, the cephalon, securely packed in ice, will be transported to Alcor Central for the final phases of clinical cryoprotective vitrification, additional cooldown, and long-term care.

## Care to Make a List?

At some point in the not-too-distant future, our goal is to be able to completely vitrify our members (neuro) as close to their homes as possible. Naturally, this takes considerable finances, and manpower, and more finances, and vehicular support, and more finances, and expensive state-of-the-art equipment, and even more finances. Won’t you help us out? If we only had just a few Oscar Schindlers, who would make a list—and save us all! If you would like to help make this a reality, please contact me at [jlemler@alcor.org](mailto:jlemler@alcor.org) for more details.

# Wealth Preservation Trusts; or, Taking It with You

by Philip J. Herbert



Estate planning and wealth preservation planning is a process that involves the protection, preservation, and transfer of wealth from one generation to the next. Part of this planning process may include the use of certain estate planning techniques unique to wealth preservation for those who have made arrangements to be placed into biostasis (should they become terminally ill by today's standards) in the hope that future medical technology will be able to repair and resuscitate them.

To this end the purpose of this article is to address certain unique and heretofore unanswered and untested legal, financial, and tax hurdles. As always it is important to consult with your personal legal advisor to identify the areas of personal concerns you may have in this matter.

With this in mind we can begin to address the most basic concerns most individuals may have with respect to biostasis-related estate planning. It is indeed a most unique and frankly unaddressed area of the law. In this regard the information provided in this article may be untested in U.S. common law but nevertheless merits a review in order to assess any concerns an Alcor member may have and provides a basic understanding of these matters.

As a former member of a top 5 accounting firm, Ernst and Young, and a former partner in a Florida law firm specializing in estate and tax planning law and the President of Olde Colony Financial Group, a company specializing in unique financial and estate planning needs with offices world wide, I am in a unique situation to offer a complete range of services to our clients that need cryogenic biostasis-related estate planning. It is most important to have these issues addressed by a firm that understands a client's needs. With the availability of counsel in Arizona, Florida, Connecticut, Pennsylvania, and Washington, we can provide a vast array of services including insurance, financial, tax, and estate planning; trust funding and formation; and offshore investment banking services to any client interested in pursuing cryogenic biostasis-related estate planning.

It is indeed an area of planning quite unique and innovative to our industry. So, quite simply, what is biostasis-related estate planning? It is a discipline that focuses on the preservation of capital upon a successful resuscitation from biostasis. It provides an individual the ability to emerge and utilize funds

invested for a period of time so that upon successful recovery that individual may be able to draw on these monies put aside to successfully integrate into the 21st century without concern for being able to financially fend for him- or herself. This is a consideration that must be given priority. Those who have been in biostasis for possibly decades could be resuscitated to a culture where a complete evolution of technology could represent an insurmountable challenge to an individual trying to assimilate into the then-current economy. However, with proper financial planning this issue can be easily resolved.

How do we resolve this issue? Quite simply by proper estate and wealth preservation planning.

There are a number of estate planning techniques that one can use to achieve this, the first of which is a Wealth Preservation Trust designed to hold invested funds for the period of biostasis. There are only a few states that permit this to take place, so it is very important to choose the proper jurisdiction in which to execute and fund your trust. Olde Colony Financial Group of course will assist in delivering this proper product based on a number of factors that require close personal discussions with a potential client as well as working closely with Alcor and that client's financial and legal advisors to assist in this decision process.

Although many fundamental issues would be resolved in the initial client interview, much will be developed as an ongoing process. Wealth Preservation Trust planning involves the retitling of assets in the name of a trust that avoids the rules against perpetuities, and this can be accomplished in only a few states currently. Potential clients from overseas may be able to avoid this issue entirely, however. In the United States, a Wealth Preservation Trust is the only current way to have assets maintained in perpetuity and ensure that upon successful recovery from biostasis one would have the ability to utilize them and successfully transfer them into a potential further generation for personal use.

A Wealth Preservation Trust differs dramatically from an inter vivo trust or family trust or irrevocable life insurance trust in many ways. Typically, a trust provides for the disposition of

*(continued on page 16)*

# A Bundle of Trusts

by **Linda Chamberlain**  
President/CEO, Alcor



I remember a talk show host, Joe Pine, back in the 1970s. He had heard about the concept of being placed into biostasis in order to save your life and expressed interest. The startling thing was that in spite of his initial interest, his conclusion was that if there was no way to take his money with him, then he wasn't interested.

For many years, members at large as well as members of the Alcor Board of Directors have sought mechanisms for wealth preservation. There is no doubt that there is a need for mechanisms for preserving wealth if one intends to extend the normal human life span, whether through biostasis or other life extension technologies.

Not everyone takes the attitude Joe Pine did, but there is no doubt that more people would be interested in Alcor's life-saving option if they were confident that upon resuscitation they would not be penniless and therefore helpless in a strange world.

The Wealth Preservation Trust that has been developed by tax attorney Phil Herbert (see page 13) is not the first such trust to be developed. Many Alcor members have had their personal attorneys draw up dynasty trusts for them over the years to accomplish this goal. Unfortunately, finding a good attorney who understands our unique needs is not easy. That attorney also must understand the laws against perpetuities that many states still have and know how to write a Wealth Preservation Trust that will avoid those problems. Alcor members now have a couple of exciting new options that were not available before. They can either have Mr. Herbert draw up their Wealth Preservation Trust for them, or they can purchase the template trust and have their own attorney craft it to their individual situation.

This also couples well with a new Funding Trust that Alcor has developed over the last year. Numerous obstacles in the past have made it difficult for members who would like to use a trust for their funding. These have been resolved with this new Funding Trust, which is a single-purpose trust that is separate from other trusts that a member may set up to take care of other family members and obligations.

By coupling the new Funding Trust with the Wealth Preservation Trust, we can now offer Alcor members more secure funding options. The trustee of this new Funding Trust

is a corporate trustee. This means that all the financial arrangements are done through an "escrow." A member who has no close relationship with individuals in Alcor (which will continue to be a growing number as Alcor becomes a larger organization) can have complete confidence that the financial details are being handled in a professional manner.

One possible scenario: An Alcor member makes arrangements for a \$50,000 clinical neurovitrification and takes out an insurance policy for a million dollars (an arbitrary amount for this scenario) and puts the insurance policy into the Alcor Funding Trust. The trust is then written to instruct the corporate trustee to:

1. Pay \$33,000 to Alcor for the clinical neurovitrification process.
2. Pay \$17,000 to the Alcor Patient Care Trust for long-term care.
3. Pay \$100,000 to Alcor as a charitable donation to make Alcor stronger (clearly in the member's best interest, but an option of course).
4. Pay \$400,000 to LifePact\*\* to fund reanimation costs.
5. Pay \$450,000 to member's Wealth Preservation Trust.

\*\*One of the goals for LifePact (still currently an informal group within Alcor) is to develop a trust mechanism to (1) watch out for those of us in biostasis, like an ombudsman; and (2) use the funding directed to it to fund research into reanimation technologies; as well as (3) oversee and optimize the eventual repair and resuscitation of the individual. This is currently not a reality but something for which there is a real need and for which every Alcor member should give thought to funding.

The coupling of our new Funding Trust and the Wealth Preservation Trust is one of the most exciting financial opportunities that has come along in a long time. It will truly allow Alcor members to fund not only their biostasis but their future life cycles as well.

# A Turnkey Alternative to Charitable Gift Giving

by Ron Tunison, CEP  
Certified Estate Planner



Have you heard of Pooled Income Funds? They may help you accomplish your financial and philanthropic goals.

Pooled Income Funds are similar to establishing a Charitable Remainder Trust. Many of the same benefits are achievable with Pooled Income Funds, such as the ability to unlock the growth on highly appreciated securities without capital gains taxes, generate a lifetime of income, and create a modest income tax deduction.

You may ask, "What exactly are Pooled Income Funds?" Well, they are an IRS-approved, tax-qualified public charity. Pooled Income Funds are investments designed to provide the donor and/or designated beneficiary with a lifetime of income and later, the ability to establish a tradition of charitable giving.

The income is generated by the donor's choice of diversified investment portfolios, composed of established mutual funds registered with the Securities Exchange Commission.

After the death of the last income beneficiary, the "remaining value" of the Pooled Income Funds is then passed to the designated "qualified 501(c) 3" charities or organizations of the donor's choice.

How do Pooled Income Funds work? When you contribute assets to the fund, you are eligible for an immediate income tax deduction. Your taxable estate will also be reduced by the amount you contribute. Your contribution is not subject to estate or gift taxes and is invested in your choice of three diversified investment pools, which generate a monthly income payable to you and/or a loved one. Upon the death of the last income beneficiary, the remaining principal is available for gifting based on your wishes.

Who is eligible to donate to the Pooled Income Funds? Each Pooled Income Fund will accept contributions from individuals, trusts, and estates. However, the income interest must be created for the life or lives of natural persons.

Who is eligible to receive income? The interest income from the Pooled Income Funds, which is subject to income tax, can be paid only to individuals. You and/or your designated beneficiary will receive a monthly income distribution. Payments will continue until the death of the last income beneficiary. At that time, the remaining balance will transfer to "The Gift Trust" for charitable grants or distributions. The

income is variable and will depend on investment performance. Monthly income distributions are not fixed and cannot be deferred.

What is an acceptable contribution? Only cash and long-term securities (stocks, bonds, and mutual funds) can be contributed. A minimum initial donation of \$20,000 is required, after which subsequent minimum donations of \$5,000 may be made.

What fund choices do you have? Three Pooled Income Funds are available. All assets are invested in established mutual funds, registered with the SEC. No transfers among funds are permitted. Any subsequent donations must be made to the chosen fund. Donors may select one of the following three funds:

## High Yield Fund

The High Yield Fund is a fund that seeks to maximize current income by investing primarily in high-yielding obligations rated "below investment grade." The fund's principal value (and corresponding income payments) may decline over extended periods of time. This is appropriate for individuals seeking high income who are comfortable with the above-average risk and volatility associated with lower-quality debt investments.

## Income Fund

The Income Fund seeks current income from a variety of debt instruments and other income-producing securities, the majority of which will be "rated investment grade" by established rating agencies. The Fund's principal value will fluctuate. Please note that Pooled Income Funds don't reinvest income. This fund is more appropriate for individuals who are uncomfortable with the volatility of lower-quality debt investments and who can accept a more modest rate of income.

## Growth and Income Fund

The Growth and Income Fund seeks total return by investing primarily in income-producing equity securities and "investment-grade" debt obligations. It seeks to realize both capital appreciation and current income. This fund is more appropriate for younger individual donors with a longer life expectancy for whom potential growth of principal (and income) is primary and current yield is secondary.

Who is the investment manager? Eaton Vance Manage-



ment manages all three funds. Eaton Vance Management has provided professional investment management services since 1924 and is a recognized leader in tax-sensitive investment strategies. The company currently manages more than \$46 billion in assets.

How do I compare the Pooled Income Funds versus the

Charitable Remainder Trusts? Depending on your situation, the Pooled Income Funds may offer desirable advantages over Charitable Remainder Trusts and are far easier as well as less expensive to establish and maintain. Below is a comparison chart to highlight the differences.

	Pooled Income Funds	Charitable Remainder Trusts
Start-up fees	No	Yes
Attorney needed to draft documentation	No	Yes
Lifetime income potential	Yes	Yes
Family tradition of giving	Yes	No
Investment management provided by Eaton Vance	Yes	Optional
Capital-gain tax savings	Yes	Yes
Ability to fix income payout	No	Yes
Reduction in taxable estate	Yes	Yes

You do not need to be a multimillionaire to be philanthropic and to take advantage of Charitable Remainder Trusts. Pooled Income Funds give you the ability to give and receive with minimum paperwork and cost.

To learn more about the Pooled Income Funds and to receive your investor’s kit, please call:

Ron Tunison, CEP  
 Certified Estate Planner  
 Raymond James Financial Services  
 Toll Free: (888) 655-1035 ext. #306  
 E-mail: [rtunison@rjfs.com](mailto:rtunison@rjfs.com)

*(continued from page 13)*

assets after a stated period of time. With a Wealth Preservation Trust, said assets are maintained for an indefinite period of time, protecting them from taxes, creditors, and beneficiaries if so devised properly. It would specifically provide for a sprinkling of income or assets upon a specific event, in this case the successful resuscitation of an Alcor member, and to this end it would be important to insure that it is properly funded and protected.

All these matters require exact and proper planning and the coordination of these desires with Alcor. There are two ways to approach this. If you have an attorney that you are already working with, you may chose to purchase a template Wealth Preservation Trust that I have created (\$250.00, price is subject to change) and have your attorney craft it for your individual needs. I will of course also be happy to work with

individuals to personalize the template trust (starting at \$1,250.00 for a final personalized trust).

For further information on this or any other matters regarding insurance or wealth preservation trust planning, please contact:

Philip Herbert, J.D., CFPP  
 541 S. Benbrook Road  
 Butler, PA 16001  
 Voice: 724-482-2532  
 Fax: 949-666-5161  
 E-mail: [oldecolony@aol.com](mailto:oldecolony@aol.com)

# TimeShip

## An Introductory Overview

by Fred Chamberlain, CEO, Cells4Life



Those of you who attended Alcor's Conference at Asilomar in June 2000 had a chance to see the "unveiling" of a large-scale project for cryogenic storage of everything from vitrified human beings to DNA of endangered species. This \$200 million facility, when fully developed, would be capable of storing 10,000 human beings (whole-body) or the equivalent in other biological materials, including organs for transplantation, stem cells for therapy, and so on.

At an initial workshop by a major contractor later that year for brainstorming all of the factors relating to TimeShip's development, I was asked to present a scenario of how the TimeShip might fit into the overall scheme of life extension. The attendees were to explore topics ranging from seismic risks to power system reliability, from local community acceptance to alliances with the biotech industry in general. Many specialists were on hand. The company had taken on projects ranging from presidential hideaways to NATO centers. As an initial study contractor, the company was highly qualified.



Architect Stephen Valentine with a model of the TimeShip.  
(photo, Andrew Scialino)

What might the significance of this project be? How did present-day activities of Alcor fit in? Did the TimeShip make sense at this time, or would it ever make sense at all? These

were questions that needed to be addressed, and below is a reprint of what I said. The attendees seemed to relate to this picture well, and the two-day workshop was very productive. Recently, TimeShip was formally reported in the open press and will be receiving increasing public exposure. A link from the TimeShip web site to Alcor is active and is producing inquiries.

\* \* \* \* \*

The world is changing, more rapidly all the time, but change is not always even, or predictable. Advances can seem to stall for awhile, and then explode.

What is the significance of the TimeShip? Let me tell you what I see coming! First, let me make a few observations about human nature.

Humans are "compassionate" animals. If they think they can save lives, they will go to extraordinary lengths to do so. If a child, or an adult, is trapped in a collapsed building, people will get out every kind of heavy machinery they can lay hands on to attempt a rescue, even if they have no concrete reason to hope that the victim is alive. Instances of this happen all the time and never cease to amaze us.

On the other hand, if everyone truly believes the victim is lost, their thoughts turn to the survivors, to help them bear the pain and go on. It's the natural, practical way people live. This way of reacting has built the human civilization we live in today.

OK! Here's what I see coming: antiaging research results so encouraging, so compelling, that soon, only the most stubborn, the most blind, will be able to deny them. But the disinclination to hope for too much, too soon, runs deep!

As I recall the story in Isaac Asimov's *Foundation Trilogy*, Harry Seldon, the most powerful mathematician in history, stood on an upper floor of a building far higher than any we are likely to build on Earth, anytime soon. He was on the planet that served as the capital of a galactic empire, perhaps hundreds of billions of people on that one planet alone, and he was holding in his hand a computing device that, at the time I read the story, made me think of an early model Hewlett Packard pocket calculator with red LEDs. Harry was predicting that within the next 50 to 100 years, the entire human civilization

across the galaxy would crumble and that almost all of the knowledge the human species had accumulated could be lost. He had, as an old man, called together the most powerful minds he could find to hatch a plan to see human civilization safely through the Dark Age to come. He also observed that due to his age, he would not live to see these events. The human civilization must survive, he insisted, but he said, "As for me, I am finished!"

That vision of the inevitability of aging and death, an intrinsic part of the core of our literature, is about to fall apart. The extremely elderly will no longer be seen as the "soon to be departed." They will be seen the same way as the child or adult in a collapsed building is seen. They will be seen as severely ill, many likely to die before sufficiently powerful anti-aging treatments are developed. They will be "hanging on for dear life," and their families, their friends, and others around them will be hanging in there with them, as they hover on the brink of clinical death.

Sooner, much sooner, the vitrification technologies 21st Century Medicine, Inc., has developed will have become visible. Organs will be preserved for transplantation in a vitreous, cryogenic state, some of them donated, others grown from the cells of the anticipated recipient.

Whole human beings, in increasing numbers, will be going into this state also. Cells from all significant organs and depths within their bodies will be observably viable. These biopsies will "culture," multiplying, or they will survive transplants and function normally in living members of the same species. It will be clear that taken as a whole organism, such people are as "potentially alive" as the organs and cells alongside which they are stored.

Anti-aging treatment centers will spring up like the TB and polio clinics many of us remember as children. Extremely weak and aged people will go to these instead of the euphemistically named "convalescent hospitals" where they presently go to die. Some of these people will linger for years, hanging on by a thread, and then gradually regain the healthy youthfulness they enjoyed so many decades earlier. Others will not be so lucky.

By the time such anti-aging treatment centers are everywhere, it is likely that suspended animation will be "proven" in healthy volunteers, first in rats and rabbits, then in canines and felines, and then in humans, the leading edge "cryonauts" who will prove out the clinical methodologies.

There will be ways to provide these options in dying humans, probably at far less cost than continuing maintenance in a very fragile condition of health in a care center with full ICU and resuscitation capabilities. At the levels such facilities will operate, each day will be an expensive proposition, and even continued care for a fraction of a year might be far more expensive.

By then, it will be taken for granted that the most humane option, the option with the most promise for a successful, eventual cure and return to quality of life, will be clinical vitrification, applied long before catastrophic multiple system organ failure brings the patient to the state in which most persons die today.

It will be an era in which younger people, in their 80s and 90s, are easily maintaining health. Insurance mortality tables will be in a chaos of transition from age-related statistics of mortality to a predominance of odds of dying from hazardous sports and occupations. "Retirement" as we are now accustomed to thinking of it will no longer exist. The productivity of human civilization at such a time will be enormous.

It will not be a "peaceful" era, though. The human species, for the first time in its history, will be united and at war at the same time, not with aliens from other planets, but with the "Grim Reaper." Those who fell to the enemy in this war will have to be "brought home" in troop ships, to the medical care of the still further future. The present TimeShip Project will launch the first of these.

In World War II, Kaiser Industries and Kaiser Steel switched their energies to building ships, as well as other instruments of war. I seem to recall that at the peak of production, they were sliding ships into the water at the rate of almost one per week. The entire industrial might of the nation went into this endeavor. The freedom we have today is in no small part indebted to these shipbuilders.

The TimeShip, at this moment, is emerging so rapidly that for all practical purposes it is invisible, traveling toward and into human civilization so fast that it keeps pace with any light emanating from it. Soon, people will be able to see it, but they will not yet hear it. They will simply see it getting bigger and bigger, silently approaching.

As 21st Century Medicine, Inc., research begins to move into human therapeutic arenas, with trials of organ preservation for transplantation, there will be a glimmer that maybe the TimeShip, after all, is "real." As aging research uncovers more and more evidence that death is not necessarily inevitable, and as more and more people hover on the brink of slipping away but are struggling to hang on, the TimeShip will move from the image of a high-risk gamble on future medical technology to being a possibly valuable lifeboat.

As human thinking finally identifies the Grim Reaper as an enemy to be fought with all the energy people would devote to the rescue of trapped and endangered children, the TimeShip will take on the role of a "Guardian Angel." By the time large anti-aging centers are being constructed, they will cluster around Timeships, or Timeships will be provided for in the earliest planning exercises.

The troopships in WWII finally "brought the boys home!" This first TimeShip, as seen through the eyes of people 20 to 30 years from now, will be the grand old flagship taking the "boys and girls who fell in battle," on into the future. This is the start of something so special we can hardly conceive of it in looking forward from this point. We will only fully appreciate it in looking backward at what we are doing here, from a few decades in the future. I'm very much looking forward to contributing to this effort.

A non-profit,  
tax-exempt 501(c)(3)  
California Corporation

*Alcor's Mission:  
The Preservation  
of Individual Lives*

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# Alcor Update



## Membership Dues Increase

by **Linda Chamberlain**  
**President/CEO**



This section is based in large part on the quarterly staff reports made to the Alcor Board of Directors by the following staff members: Fred Chamberlain (recently retired Alcor President and CEO), Linda Chamberlain (current President and CEO), Jennifer Chapman (Membership Administrator), Jerry Lemler, M.D. (Medical Director and Cryotransport Manager), Mathew Sullivan (Facility Operations Manager).

### Major Personnel Changes and Additions:

At the April 1, 2001, meeting of the Alcor Board of Directors, Linda Chamberlain was unanimously approved as the ninth President for the Alcor Life Extension Foundation (the succession of Alcor Presidents is as follows: Linda Chamberlain; Fred Chamberlain; Alan McDaniels, M.D.; Laurence Gale; Mike Darwin; Carlos Mondragon; Steve Bridge; and Fred Chamberlain, a second time). It is universally considered one of Alcor's strengths that the leadership of the organization has never been tied to a single individual. Linda Chamberlain enjoys the singular position of having been Alcor's first President, when it was incorporated in 1972, as well as serving it currently.

In 1997 Fred Chamberlain became the first Alcor President to reprise his role. Fred left the position of Alcor President and CEO in

order to concentrate full-time on his position as the Chief Executive Officer of Cells4Life, Inc. (see the last issue for a detailed report on that corporation, and page 3 of this issue for an update).

During his recent term as the President of Alcor (from 1997 to 2001) Fred has again made major contributions to Alcor's strength and growth. These include support for the finalization of field operational equipment (such as the suitcase-style transportable ice bath with spray cooling device and the finalization of the Air Transportable Perfusion [ATP] System); the Life Membership Program, which brought financial stability to the organization during a time of financial woes; the reintroduction of the LifePact Program; the fostering of renewed relationships with estranged members and organizations (a significant healing of old wounds that had shattered the biostasis community for years); and the development of corporate mechanisms designed to create greater financial strength and independence than has ever before been possible.

Cells4Life, Inc., and BioTransport, Inc., are two important corporate entities that owe their existence to Fred Chamberlain. The magnitude of these two organizations is still far from being visible and appreciated. Alcor will miss having Fred's particular far-sighted abilities focused on the day-to-day management of Alcor but is pleased that he will remain on the Board of Directors to continue to influence its growth and development.

Other changes have taken place within the Alcor staff as well. Jerry Lemler, M.D., currently Alcor's Medical Director, was named Vice President to replace Steve Bridge, who has "retired" to spend more time with his family in Indiana.

Jessica Lemler (daughter of Jerry) has just

**Fred Chamberlain**  
Chief Executive Officer  
Cells4Life, Inc.  
fred@cells4life.net





# Membership Dues Increase Announced

At the Meeting of the Alcor Board of Directors held April 1, 2001, the need for a dues increase was discussed.

Annual Alcor membership dues have remained at \$360 since 1995 in spite of a 16% increase in the Consumer Price Index (see [economagic.com](http://economagic.com)). Alcor services to members have increased dramatically during the same period (as the pages of this publication will attest). Dues are Alcor's primary source of income. Without sufficient income, Alcor cannot continue to improve its services.

Membership dues will be increased to \$396 per year on 1 January 2002. Family rates will remain unchanged. The second member of a family (spouse or significant other, living in the same household) will be 50% or \$198. For additional family members (children under the age of 18, living in the same household) will be 25% or \$99.

If you have any questions, or if this represents a hardship, please contact Joe Hovey at 480-905-1906 x 106.

Jerry B. Lemler, M.D.  
Vice President,  
Medical Director  
[jlemler@alcor.org](mailto:jlemler@alcor.org)



joined the Alcor staff. She will be spending half her time as our "in house" web master updating information on the web site.

Jessica will also be assisting both Dr. Lemler with administrative matters within the Cryotransport area and Jennifer Chapman with membership administration. Extensive work is being done by professional web masters and Alcor volunteers and staff to make major changes in the cosmetics of the Alcor web site, but the updating is an ongoing effort that can only be done by in-house staff that know what is out-dated and how to update it. That will be Jessica's primary function—something that we have needed for a very long time.



Paula Lemler

Jessica Lemler  
[jessica@alcor.org](mailto:jessica@alcor.org)

Paula Lemler (wife of Jerry—do we sense a family commitment here?) has volunteered to work part time with our bookkeeper, Joe Hovey. Joe's workload has been steadily growing as the Alcor membership grows, and he has been needing help for some time.

#### **New Template Funding Trust Available:**

Six months of working with legal council and a corporate trustee have resulted in the development of a turnkey trust mechanism for funding biostasis. Now finished and available upon request, this is a single-purpose trust that addresses only the issue of funding. No other estate matters are addressed. Separate trusts, in addition to this funding trust, need to be used by any individual who wants to use a trust to address other estate issues.

The primary advantages of this template funding trust are (1) it is turnkey (those in the sign-up process no longer have to find an attorney to reinvent the wheel for them); (2) it is a cost-effective mechanism for members because Alcor has underwrit-

ten the cost of development; and (3) most important of all, it provides an arm's length (escrow) mechanism for using existing assets without having to rely on the good reputation of Alcor or the current (at any given time) staff (we all know that none of us has a guarantee of being here indefinitely!).

For future members, who may have little or no personal knowledge of the management or staff at Alcor, this trust will provide the peace of mind of knowing they are dealing with a professional organization that has a secure method of handling such funds. This is due in large part to the fact that a corporate trustee ([www.ColonialTrust.com](http://www.ColonialTrust.com)) acts as the escrow agent, seeing that the terms of the trust are carried out with Alcor receiving the amounts needed to fund the biostasis process. This eliminates the need for Alcor to be involved in handling additional funds that are earmarked for estate purposes, or for wealth preservation (see page 13 for a discussion of the template Wealth Preservation Trust that can now be made available to members and easily used in conjunction with this funding trust).

Linda Chamberlain and Jennifer Chapman (Membership Administrator) have worked closely with Colonial Trust Company as well as Gallagher and Kennedy in developing this trust mechanism, and a positive relationship has been established with the trust manager and the primary trust officer who will be assisting Alcor members.

#### **New Endowment Mechanism Easier Than Ever:**

Charitable Remainder Trusts and Charitable Lead Trusts have long been useful mechanisms for endowing one's favorite charity. They do have some shortcomings, however. First, the minimum amount that one can put into such a trust is usually quite large, making it difficult for everyone to benefit. Second, the legal fees to set up such trusts are often daunting for those who would rather see their donations go to the charity instead of the lawyers. And third, in spite of costly legal fees, such endowments are usually one-time events only. Should the donor want to make an additional donation, the legal fees and the inconveniences of setting up the legal documents must be done all over again.

Ron Tunison of Raymond James Financial Services has an article in this issue (see page 15) about a new endowment mechanism that is similar to Charitable Remainder Trusts but has fewer disadvantages and some new advantages. We encourage our readers to look over this article carefully. It might represent a mechanism that could benefit both Alcor and you.

#### **Tom Cruise Movie:**

A movie called *Vanilla Sky*, starring Tom Cruise, is being filmed with a release date projected to be October 2001. All we know about the plot is that the main character is placed into biostasis and then has dreams about what the future might be like. It could be either negative or positive, but with the stature of the primary actor, it is likely to draw a lot of viewers.

Paramount Pictures has been in touch with Alcor extensively for consulting on equipment matters, has visited our web site, and has rented one of Alcor's patient protection pods for use in the movie (they are making their own mock-up of the

long-term patient care units). Our primary marketing consultant, Ron Wise, will contact large media concerns such as "Entertainment Tonight" and offer to let them film at Alcor prior to the release of the movie. He will be working for as much media exposure as possible around this event.

#### **New Background Video:**

Bill Seidel (producer of the Alcor adventure video) has been working with Alcor over the last year to develop up-to-date b-roll for the media. "b-roll" is background foot-age (without audio) that is used during credits, to cut into the inter-view sequence for extra interest, etc.



Bill Seidel

The b-roll footage that we had previously was about ten years old and out-of-date. New footage was taken during two recent cryovitrification rescue operations. The new b-roll includes never-before-available action scenes taken in the hospital during patient preparation. This b-roll is all in good taste and will dramatize the high level of technology used by Alcor.

#### **Membership Growth:**

On March 31, 2001, Alcor had 526 members on its Emergency Responsibility List. In comparing the statistics for the year 2000 with those for 2001, a steady increase in membership growth is easily recognizable. For instance, the average net gain of new members (full legal and financial arrangements for biostasis) in 2000 was 2.92 per month. Thus far, the average net gain of new members for 2001 is exceeding that at 3.33 per month. Further, the average number of memberships finalized in 2000 was 5.08 per month. Again, that figure is being surpassed in 2001 with an average of 5.67 memberships finalized per month.



Jennifer Chapman  
Membership Administrator  
[jennifer@alcor.org](mailto:jennifer@alcor.org)

Also as of March 31, there were 102 individuals in the sign-up process (signing up for Alcor membership) with a gain of 23 new applicants this quarter. Again, the statistics for 2001 are impressive at 7.67 applications received per month, or almost 2 per week. This is approximately a 40 percent increase over last year's rates of 1.38 per week.

Interestingly, the number of information requests received per week (approximately 20) is consistent with historical expectations, suggesting that recent marketing efforts are generating an improved response.

#### **Improved Operating Room Equipment and Procedures:**

In addition to the refractometry improvements reported in the last issue, the LabView perfusion program in the Alcor

operating room has been upgraded to include pressure monitoring. This is another step toward automating the cryoprotection process, and it takes us closer to the day when computer precision will dominate the control of this process.

The system is still not optimized, however, and work is ongoing to solve continuing challenges. Mixed results are still common when digital gauges and the hand-held pressure gauges are compared. Additional thermocouple temperatures now augment the program, and good temperature data is now a reliable part of all cryopreservations.

Two additional refractometers were added for neuro-preservation (to the two refractometers previously in use, one in the arterial line and one in the venous line) to determine bilateral perfusion for our most recent cryopreservation. Unresolved calibration issues still require the use of a hand-held refractometer to determine exact concentrations, but it is anticipated that this challenge will be resolved soon.

In order to optimize the effectiveness of the new vitrification perfusates, the protocol calls for the use of subzero temperatures during cryoprotection. Hugh Hixon altered the Blanketrol heater-cooler used routinely in our operating room to allow the patient's temperature to be lowered to -10°C during the perfusion process (circulating the protective chemicals through the patient's vasculature in order for the cells to take up the cryoprotective agents and give up body water, resulting in greater protection for the patient). In order to further optimize the effectiveness of the cryoprotection procedure, a 230-liter dewar is being used to vent nitrogen gas into the neuro container to control the patient's external temperature.



Mathew Sullivan  
Facility Operations  
mathew@alcor.org

**Standby More Critical Than Ever:**

Two recent biostasis operations (A-1705 in March and A-1756 in June) served as poignant reminders of the value of a standby (see page 7 for details of the A-1705 suspension). During the standby operation for A-1705, teams of Alcor staff, ACT team members, and volunteers kept a round-the-clock bedside vigil, and were therefore present upon pronouncement. Accordingly, cardiopulmonary support, cooldown, medication infusion, and transport of the patient from his hospital bed to Alcor Central was greatly expedited, leading to a near optimal neurosuspension.

The standby operation for A-1756 was carried out in northern California. As the member had provided extra funding for a private jet to fly him to Scottsdale Airport (just minutes from the Alcor facility) the flight time was only 1.5 hours and at least 4-5 hours were saved by not having to deal with the cargo department of a commercial airline.

In both of these operations, medications and cooling were begun immediately upon cardiac arrest, and the documented perfusion results clearly show how advantageous this is for improved cryoprotection. The data on these clinical vitrifications cases will be available soon on the Alcor web site (www.alcor.org). Alcor staff is updating and improving its standard operating procedures (SOP's) and checklists to further codify and systematize our standby procedures and overall readiness based on recent experience.

Additionally, Alcor is exploring various mechanisms in order to initiate "universal standby" for all our members. An Executive Committee from the Alcor Board of Directors (Linda Chamberlain, Jerry Lemler, Ralph Merkle, and Steve Van Sickle) has been selected to study this issue and make recommendations to the Board.

*(continued on page 30)*

**Improved Operational Readiness:**



Russ Cheney

Russ Cheney, ACT-A (Alcor member from southern California) spent a week at Alcor Central in February making a complete inventory of the supplies in the Alcor ambulance, in preparation for a project designed to evaluate necessary changes in the use for which the ambulance is to be put, and then stocking it accordingly.

With development of a hospice relationship and anticipation of more frequent hospital standby situations (see page 7) changes to the equipment and supplies on the ambulance were needed.

Russ spent a second week at Alcor central in April, working on this project. We all thank Russ for his (continuing) efforts to help improve Alcor readiness. The valuable efforts of volunteers like Russ make a significant difference at Alcor.

***Our Apology!***

**In the last issue we printed an old and out-dated version of the Standby Agreement and the cost schedule that was attached to that agreement.**

**Standby costs and levels of readiness are currently being studied. An updated version of the new Standby Agreement will be published in an upcoming issue.**

**We apologize for any confusion or inconvenience this may have caused.**

# Alcor Marketing Plan

by **Linda Chamberlain**  
**President/CEO, Alcor**  
linda@alcor.org



## **Purpose**

This marketing plan was prepared for a 501(c)(3) non-profit corporation in order to (1) better serve the requirement for dissemination of information to the public, and (2) to save more lives by increasing awareness about the Alcor biostasis program.

## **Program Description**

Alcor is the world's largest provider of biostasis services, covering many types of biological stabilization and preservation technologies. Over the last several decades, the most promising technology for biopreservation was cryostasis, or the use of cryogenic temperatures to stabilize biological systems and prevent further biological damage until advanced repair technologies become available. Fundamental breakthroughs in this area of research, however, are revolutionizing this science.

Today, instead of "freezing" tissues and accepting the resulting ice damage, extraordinary recent advances allow biological systems to be taken to extremely low temperatures without sustaining damaging ice crystal formation. This glass-like solid state is known as vitrification.

Alcor is currently the only organization in the world that offers this heightened level of technology, clinical cryovitrification, for individuals who might be in life-threatening situations that cannot be cured or repaired by current medical techniques.

Considered the industry leader since its founding in 1972, Alcor has often stood alone in its insistence for unsurpassed excellence in services provided. When others were content with non-medical and unscientific procedures, Alcor remained unyielding in its demand for state-of-the-art technologies and in its support of research to develop improved methods of biostasis. This commitment is the result of an unshakable conviction among the leadership at Alcor that the optimal preservation of structure will be crucial, even with the anticipation of advanced technologies such as nanomedicine (molecular control and repair at the atomic level of matter). A cornerstone of our belief acknowledges that the preservation of structure is necessary for sufficient memory and identity to be preserved and then to be restored upon the resuscitation of a patient from clinical cryovitrification.

Alcor is pleased to once again be on the leading edge of our industry in developing the delivery systems required by the new cryovitrification process.

These advanced protocols promise to save the lives of

millions of people who do not wish to accept the limits of current medical technology. Toward this end, over the last three decades, Alcor has developed the Emergency CryoTransport System (ECS), capable of rushing specially trained teams to Alcor members in imminent need of this crucial, and potentially life-saving, technology. This is a medical-style rescue network, patterned after the Emergency Medical System (EMS) already well known in medical communities throughout the world. Alcor CryoTransport Technicians (working in like fashion to EMTs in the standard hospital/ambulance system) are supervised by Alcor physicians as they stabilize and transport the patient to the specialized Alcor facilities in Scottsdale, Arizona—the only place in the world where clinical cryovitrification technology is available for human patients.

Alcor is committed to maintaining its patients in biostasis until the advancement of medical technology is such that resuscitation may be possible. The future repair scenario will undoubtedly include the discipline of nanomedicine. Launched in 1986, and in violation of no known laws of physics, the ability to manipulate biological matter at the atomic level is being robustly pursued by scientists throughout the world. It is estimated that nanomedicine will take several decades to develop to the level required to resuscitate those individuals placed into biostasis by today's level of technology. How the new cryovitrification technologies will affect this time line is not yet known, though the "finished product" promises to be considerably more like the authentic original.

Alcor's mission is the preservation of individual lives. We are proud of the fact that everyone who works at Alcor, be they directors, officers, or staff, must be an Alcor member with arrangements to be placed into biostasis should their lives be endangered. This is more, though, than just a point of pride. It's an important reason why Alcor has remained the industry leader, with an unequaled devotion to excellence and to the pursuit of better technologies and ways of delivering those potentially life-saving measures to our growing membership. It is also the driving force in seeking long-term strength and security for the protection of our patients (46 patients in biostasis as of June 2001), as many of them are the loved ones of the very Alcor staff members charged with their care. Our staff members are therefore acutely aware that they themselves could one day depend on the security mechanisms they have helped to implement and maintain.

An early step toward long-term security was to make Alcor a non-profit, tax-exempt 501(C)(3) organization upon its

inception in 1972. In an arena where other organizations have failed, our record of thirty years experience and success at safeguarding our patients speaks for itself. As a further step toward providing greater security for our patients, Alcor has independently established a Patient Care Trust to oversee both the safety of the Alcor patients and the funds they have set aside for their long-term care. These funds are invested such that they have traditionally earned at least double the current costs of maintaining patients in biostasis, providing an extra safety margin against years with a smaller return on investment.

**Demographics**

Several market surveys done over the last three decades all substantiate the same general demographic information. Currently, the majority of our members and potential members follow a similar customer profile: as a general rule they are male, about forty-five years old, well educated in technological areas, and usually are employed in a high technology industry, with computers being at the top of the list.

An important principle in marketing is to focus efforts in the direction of those who are already seeking your product or service. It is a waste of resources to pursue those who are not interested in your service. It is also detrimental to pursue customers that represent a negative result. Business success is determined as much from knowing which customers not to pursue as well as knowing what type of customer will be beneficial.

Although currently approximately 10 percent of Alcor’s members live outside the United States, the liabilities represented by pursuing additional international members at this time are not justified. These liabilities include both the (1) inability to service such members at the same level as our domestic members, and (2) funding problems (compounded by language barriers and varying legal systems) that jeopardize Alcor’s financial security and resulting ability to continue to care for our members in biostasis. Awareness of the liabilities represented by foreign members together with the knowledge of how vast and untapped the domestic market is, and the continuing need to seek better ways to service the domestic market, are strong indications that Alcor should limit further international growth at this time.

Our current marketing plan, therefore, will focus on that segment of the domestic population that is health conscious, seeking anti-aging solutions and the expansion of their abilities, both conscious and physical. This is the segment of the population that will be receptive to biostasis, as well as being the segment of the potential market that will be the most productive and beneficial to Alcor.

**Competition and Market Position**

There simply is no relevant competition at this time and the conditions for growth are good. Other organizations have come and gone over the last three decades, but currently there is no other organization actively offering biostasis through a high-tech, clinical approach, nor is there any other organization that can match Alcor in size, experience, stability, or commitment. As Alcor is the only organization currently that can offer clinical cryovitrification technology, we can easily

*This Marketing Plan was developed in order to best utilize the marketing budget donated by the Miller Family in Toronto, Canada.*

*There are special laws that apply to non-profit organizations. One particularly troublesome set of regulations deals with formulas that are applied to the numbers of donors during a given period versus the size of the donations received.*

*The U.S. government likes to see small or relatively equally sized donations spread over a large number of donors rather than a few large donations from a small number of donors. Please help Alcor meet IRS regulations and not be faced with the possibility of having to reject further larger donations.*

*A small donation from every member would help offset this large donation.*

*We hope that by publishing this plan, we will inspire members to want to see it succeed and send a donation.*

*Remember, it is in your personal best interest to help build a stronger Alcor!*

**Our thanks to:**

- Robert Appa**
- Honor Bulkley**
- Richard Gillman**
- Michael Grodzicki**
- Ravin Jain, M.D.**
- Irene Olberz**
- David Shipman, ACT-B**
- David Ward**

**for their donations  
to the Marketing Project.**

position Alcor in this manner.

This can be accomplished by broadening public awareness to the sizable gap that currently exists between the programs offered by Alcor as the high-end provider and those of the rest of the competition, all of which currently offer, at best, the type of low-technology, mortuary practice that the general public morbidly equates with the term “cryonics.” Widening the gap of perceived service levels will require education-based marketing efforts and new approaches that emphasize that clinical cryovitrification is a life-saving technology, rather than just an alternative means of interment (as “cryonics” is currently viewed by the general public). This will be a challenge that will require major marketing effort, time, and funding.

The first critical step toward making this effort successful is a carefully sculpted change in terminology designed to promote a positive shift in concepts that currently provoke a negative emotional response that results overwhelmingly in a refusal to listen or consider. All our marketing advisors strongly agree that the term “cryonics” (although it evokes a positive response in [some of] those who already view biostasis as a life-saving technology) is currently our greatest problem in communicating to the general public that major changes have taken place in the technology and the standard of care.

This need to reposition Alcor apart from the “cryonics community” is due in large part to the negative association with mortuary practice and death. It is also tainted with the baggage of negative past occurrences such as the “Chatsworth Disaster” (in the 1970s the Cryonics Society of California allowed nine of their patients to thaw—a heritage that we still suffer from heavily) and other negative and ghoulish press over the years. Using the word “cryonics” continues to associate Alcor with such historical events (even though Alcor was not involved) and with low-technology organizations that use that term in their names.

Replacement of the term “cryonics” with other more appropriate and productive terms has already played a major role in the success of the effort to differentiate Alcor and position it away from such organizations and concepts. There is a growing cadre of individuals who have experienced the dramatic difference in responses they receive when they do nothing more than make this shift in vocabulary. It is a remarkable difference and one that amazes many. The renaming of our publication is one way that we are making this shift. Another effort in that direction is to rename the Alcor book *Cryonics: Reaching for Tomorrow*. The new name for this book is *Alcor Life Extension Foundation: An Introduction*. See more discussion of this on page 29.

Positioning Alcor as the high-tech, high-quality provider of clinical cryovitrification, with a thirty-year history of stability will be an admirable position to hold as other high-quality competitors eventually enter a growing market. This entry of competitors will result from heightened awareness throughout the general population to the amazing promise of our increasingly high-tech, biotech world. As this happens, maintaining this position will become Alcor’s major marketing challenge.

## New Marketing Challenges and Dimensions

Historically, Alcor has faced an intricate marketing problem. The outcome for any of the human patients placed into biostasis is far less certain than for most other life-saving options that a person may choose. In order to remain above any claims of fraud, or even high-pressure sales, Alcor has always taken an extremely cautious approach. Alcor has always given full disclosure of all the uncertainties, even to the point of erring on the side of being too pessimistic, and risking the potential loss of lives that might have been saved had we been aggressive in our marketing techniques.

Since the beginning, our conservative approach was necessitated by the experimental nature of our service and the fact that advanced technologies would be required for the repair and resuscitation of biostasis patients. As these advanced technologies have not even yet been developed to the maturity that will be required for our needs, it is still not possible to prove that lives can be saved by employing clinical cryovitrification to halt the dying process. Indeed, until recently the entire thesis (placing currently terminal patients into biostasis until more advanced medical technology can repair and resuscitate them) has been considered by the vast majority of our culture to be overly optimistic to say the least.

In the last decade, however, the startling pace with which biological and medical technologies have advanced has surprised even those of us engaged in providing biostasis as an option. Advances such as therapeutic cloning, stem cell technology, and genetic engineering have changed public attitudes overnight. Biotechnology advances are frequent subjects on television science channels; they receive coverage in newspaper and magazine features; and they are discussed on the evening news. Biostasis no longer seems like distant science fiction. When presented properly, the response to meeting an Alcor employee or encountering this subject is more often positive and curious rather than skeptical or disdainful as was experienced in past decades.

This change in public awareness and attitude has created unique marketing possibilities that Alcor must use to its advantage or suffer the loss of an important strategic opportunity. Although Alcor, because of its historical commitment to integrity and respect for honesty, will always want to remain appropriately conservative, it is no longer necessary to over-emphasize potential reasons for failure. With a small and conservative shift toward more positive marketing, fewer lives will be lost as a result of being overly conservative about selling the potential that biostasis represents. By carefully and skillfully seeking ways to optimize how we communicate to the public about clinical cryovitrification, we hope to double our membership in five years and set in motion a growth rate that has never before been experienced at Alcor.

In order to hold onto the exceptional marketing position described above, we will need to seek ever more effective means of communicating the life-saving potential of biostasis, without sacrificing the conservative, open, honest approach that Alcor has a firm reputation for. The speed with which the goal for greatly increased membership growth can be achieved will be accelerated by the use of professional marketing

talent and expertise. With the newly acquired marketing budget at our disposal, part of what will be involved as we continue to develop this marketing plan is to seek additional professional marketing expertise to augment and expand on the volunteer consulting currently being made available from dedicated members.

### Current Marketing Budget Summary

Below you will find the preliminary budget to implement this marketing plan. This plan was developed in order to best utilize the marketing budget donated by the Miller family in Toronto, Canada. Current progress is also discussed.

We hope to be able to expand these substantially, but our ability to do so will depend on raising further donations. Our fund-raising effort was launched in the 1st Quarter issue of this publication. We will continue this fund-raising drive to make it possible to apply larger sums to the different areas outlined below. All of these areas need attention, but the amounts we can currently budget are small in spite of the fact that this is a far larger budget than Alcor has had in the past.

In addition to the need to apply more funds to these marketing areas, there is another reason why we need to seek additional donations. There are special laws that apply to non-profit organizations. One particularly troublesome set of regulations deals with formulas that are applied to the numbers of donors during a given period versus the size of the donations received.

The U.S. government likes to see small or relatively equally sized donations spread over a large number of donors rather than a few large donations from a small number of donors. Please help Alcor meet IRS regulations and not be faced with the possibility of having to reject further larger donations.

### Preliminary Budget Summary

Amount	Project Areas
\$25,000	Salary for Marketing Manager
\$10,000	Internet and web site development
\$10,000	Video development projects
\$10,000	Conferences
\$20,000	Magazines and mailing lists
\$10,000	Strategic alliances
<u>\$10,000</u>	Postage and misc
<b>\$100,000</b>	<b>Total (before additional fund-raising)</b>

A small donation (even \$100) from every member would help to offset this large donation. We hope that by publishing this plan, we will inspire members to want to see it succeed and to contribute to that end by sending in an additional donation of whatever size they can afford.

*Remember, it is in your personal best interest to help build a stronger Alcor!*

### Summary of Initial Marketing Projects

Marketing is basically the endeavor to bring one's product or service to the attention of the greatest number of potential users. This involves creating the right message, identifying the most appropriate and receptive market, and then determining the most cost-effective media or ways to communicate the carefully sculpted message to the focus marketplace.

Our message (our unique selling proposition) is that biostasis has the potential for saving lives—both our own and the lives of our loved ones. Our two most appropriate and receptive markets are:

- (1) individuals (domestic baby-boomers) who want to extend their healthy, sexy, lives; and
- (2) those involved in high-technology fields that view the human mind as a machine that can be fixed and augmented.

Determining the most cost-effective media or ways to communicate to these markets will be an ongoing developmental challenge.

Initially, two primary avenues are being pursued. For the life extension market, we have launched a direct marketing campaign utilizing magazine ads. The first being monthly ads in *Life Extension Magazine* and a three-page feature in the *Life Extension Directory of Life Extension Technologies* (published by the Life Extension Foundation in Florida). With additional funding we hope to create a major magazine campaign in mainstream business publications.

We are also pursuing the promotion of our services through health enhancement coaching programs and other strategic alliances such as Cells4Life (see article on page 3). For the high-tech segment, we are developing a more effective web site and have developed a visually stunning display booth for use at biotechnology conferences, the first of which was A4M (American Academy of Anti Aging) in 2000, which was an extraordinary success. Alcor has made a commitment to have a presence at A4M again in December 2001. We will continue to sponsor our own major scientific conferences, with the next being planned for December 2002.

Concurrent to developing a groundswell of interest in membership, we need to give attention to developing better materials for communicating the advantages of using the services of Alcor. In other words, once we have convinced a potential customer that faster-than-walking transportation is worthwhile, we then need to have good materials for communicating the advantages of riding in a Cadillac as opposed to riding a bicycle! They need to choose Alcor over the competition. Toward this end we are making major web site improvements, an improved brochure, and an integrated and simplified information package, which will include a CD of "the Alcor adventure."

These efforts are described in more detail below.

### Current Marketing Efforts

**Major Image Change:** The inability of members to convince their friends and family members to join them in choosing biostasis has been a common lament of members for



decades. Just as it takes time for a large ship to turn around in the water (they can't turn on a dime but have to make small changes in direction that are too slow to be noticed) it has taken time for major changes within Alcor to begin to be visible. Several years ago, the development of a Scientific and Medical Advisory Board was the initial step toward building a new image for Alcor. The rebuilding of a major cryotransport team and superior clinical cryovitrification capability added to Alcor's ability to attract additional physicians to our team.

As Alcor's image and reputation became ever more impressive, it gradually became an organization with which physicians and scientists would not be ashamed or embarrassed to be openly involved. All of the projects described below reflect different, but integrated, parts of an overall plan for moving ahead at full steam in that very same direction. These are broken into three categories: (1) *attracting interest (attracting interest in the idea of biostasis)*; (2) *convincing the prospects that Alcor offers the best program and turning them into Alcor members*; and finally (3) *creating greater customer satisfaction so that membership retention is improved*.

#### **(1) Attracting interest (attracting interest in the idea of biostasis):**

**Magazines and Mailing Lists:** Initially, ads were placed in two magazines, *Anti-Aging Medical News* (a quarterly publication of A4M) and *Life Extension* (a monthly publication of the Life Extension Foundation). The half-page four-color ad in *Anti-Aging Medical News* costs \$1740.00 per quarter. The same ad (basically, though set up just slightly differently) is in exchange for the back cover on our own publication. The latter is not only extremely cost effective, it produces a lot of inquiries—once again proving the marketing principle that a focused, well-selected marketplace is the most productive. By comparison, the ad in *Anti-Aging Medical News* produced only a small handful of inquires. As it was not productive, it was discontinued.

If we are able to raise additional funds, we hope to expand this magazine advertising into more mainstream publications. This form of advertising can be remarkably expensive, so additional funding will be required (a single full-page ad in *Wired*, for example, would take one third of our current marketing budget!). Suggestions from our marketing committee for potential magazines that would be good to investigate for this purpose include: science magazines, millionaire magazines (such as the *Robb Report*), and computer magazines. Readers are asked to help by participating in a survey to help determine what magazines they read and suggest possible candidates for advertising (see page 29).

**Strategic Alliances:** As previously mentioned, Alcor and Cells4Life are sharing the A4M booth as a "strategic alliance" that will help promote Alcor by association with a hot area of interest that is also a related high-technology field. As human therapeutic cloning, pet cloning, stem cell technology, etc. create more and more excitement within the general public, these issues will heighten the awareness of clinical cryovitrification as a life-saving technology. This awareness will gradually influence and shift general attitudes about

biostasis as well. We will seek win-win situations where both Cells4Life and Alcor will benefit from strategic interaction and promotional activities.

We are also negotiating a strategic alliance with Life Extension Technologies (David Kekich, Kathleen Cotter, and Peter Passaro, all Alcor members) which is developing a major life extension, anti-aging coaching business that will also have a strategic alliance with Life Extension Foundation. As they develop customer relationships, one of the life-extending technologies they will promote will be clinical cryovitrification through an Alcor membership. This negotiation is still in the earliest stages.

This type of strategic alliance is an extension of the "Physicians Referral Network" that we began to develop early in 1999. One of the primary focus points for the A4M conference booth in December 1999 was to develop leads and relationships with physicians for this network. As anti-aging clinics and coaching programs proliferate, this type of strategic alliance will become a significant marketing activity as Alcor positions itself as the major high-technology provider of biostasis services.

**Conferences (booth participation):** Although the cost is high (we paid \$4000 for a twenty-foot booth for the December 2000 conference, we have had very good return in terms of exposure from the last two A4M booths. This has been great exposure for Alcor and has resulted in attracting many new physicians both for membership and for participation on our cryotransport team, as well as raising our professional image.

In order to upgrade our booth we invested (\$8000) in a more professional booth display (which can be used each year as well as at other conferences). The costs of this booth display (and the fees for A4M for the December 2000 booth) are being shared with Cells4Life.

We will continue to evaluate the cost versus benefits from this exposure at A4M (the costs keep rising from year to year) and also look at other biotechnology and other high-tech conferences as potential marketing venues.

**Conference Participation (sponsorship):** Alcor will hold another major conference (like the one held at Asilomar in June 2000) in December of 2002. Site selection is currently under discussion and will most likely be Las Vegas, a location that will help us boost attendance. These conferences have played an important role in positioning Alcor as the only well-known provider of biostasis services in the biotech community. They have also played a major role in forging strategic alliances, creating greater opportunities for Alcor both directly and indirectly. Many physicians and scientists form closer relationships with Alcor as a result of their participation in these conferences. The brochures and other marketing done to gain conference attendance is a major advertising vehicle in itself that benefits Alcor beyond the receipt of attendance fees.

**Video Projects:** Our current culture relates strongly to the multimedia inputs that can be achieved through video. As video presentation is well known as an effective communicator, several projects are currently in the works to take advantage of this tool. These efforts could be considered either "interest getters" or "membership makers," and indeed (a) and

(b) [below] probably belong more in the first category, while (c) and (d) would fall more into category two. However, since they are all video projects, they are all discussed here.

(a) *Updated broadcast quality "b-roll"*: Alcor has not for many years had any up-to-date broadcast quality, background footage to supply to the media for their use when they put together a program. This is why so many programs, even with current interviews of contemporary personalities, still have background shots taken as many as twenty years ago and often not even of Alcor, but of other "cryonics" organizations. This is damaging to our efforts to be seen as a high-tech provider of clinical cryovitrification. In order to improve our press coverage and at the same time cut down on the time spent by film crews (that shuts down important technical areas as well as tying up the staff members being interviewed) Bill Seidel is working with us to produce and edit our own "b-roll."

(b) *Thirty-second spots on cable TV*: This is not actively under development at this time. Initial indications are that this is quite expensive. Further investigation is needed to determine the cost effectiveness of this type of marketing (for our particular product). Depending on the additional funding we raise for marketing, however, this may also be considered.

(c) *Conference speakers on videotape*: Alcor member Bill Seidel has produced saleable videotapes of the Asilomar Conference. These are an effective tool for communicating the quality of scientific work (and scientists, too) involved in related life extension technologies (see pages 37-38).

(d) *the Alcor adventure*: This is a video introduction to Alcor and biostasis in general that is currently being produced by Alcor member Bill Seidel (who produced a similar video for Alcor about ten years ago that is now badly outdated both in terms of technology and in terms of the leadership and membership represented). As part of our membership information package (in the form of a CD) it will be a powerful tool in setting Alcor apart from all others as the premier provider of clinical cryovitrification.

Footage and interviews taken at the Fourth Alcor Conference on Life Extension Technology (Asilomar, June 2000) as well as interviews and footage taken since then will be included. Twenty-seven minutes in length, it is a good marketing tool that can be mailed to potential members as well as sold to Alcor members to help them introduce family and friends to the idea, mailed to libraries, etc. (depending on the additional funding we raise). It is now available on CD as well.

## **(2) Convincing the prospects that Alcor offers the best program and turning them into Alcor members:**

It would be a waste of time and money to create a lot of interest through magazine ads, conference attendance, and strategic alliances only to see the membership rate remain flat. This section discusses the efforts that are focused on converting general interest into memberships.

**Internet and Web Site Development:** This is an area that contributes to attracting the attention of new potential members, but in most cases, individuals will not visit our site merely through random surfing. Usually, people will visit the web site after hearing about biostasis some other way, to gather

more information and/or to decide which of the available service providers best fills their needs.

As stated in the **Demographics** section above, market analysis has shown that the "average" Alcor member is male, forty-five years old, highly educated, and employed in a high-tech industry such as computer technology. For this reason, and because of the tremendous efficiency involved, Internet marketing will remain a major focus.

The recent suspension (July 2000) of Alcor member FM-2030 was a real eye-opener for us from the standpoint of gauging the effectiveness of past marketing efforts. Alcor received coverage in nearly every major newspaper around the world and many news shows on TV, and as one would expect we saw a dramatic increase in the visitation to our web site. We were, however, dismayed to see that the number of people asking for membership information did not go up in a corresponding manner. This tells us that (1) people visit web sites just for entertainment, without any real personal interest; or maybe (2) our web site fails miserably; or (3) some combination. It is obvious that we need to try something new on our web site!

Fortunately, due to the large number of Alcor members who are involved in the computer industry, we have several highly qualified members (David Hayes, Bobby June, and Polo Merguzhis) who are volunteering their time and expertise to produce graphics that are designed to improve the quality and impact of information and are employing new technology that may include broadband video streaming and other state-of-the-art techniques to make the web site more attractive, interesting, and in-step with the high-tech image of Alcor as the premier provider of high-quality, life-saving biostasis services.

Upcoming changes to the web site represent only the bare beginnings. This new "softer side of Alcor," expressing a more inviting and welcoming organization, is not meant to eliminate the emphasis on technology but to make it less overwhelming to the average person when they first inquire. People do not need to be buried in the technology until they are convinced that this whole issue is one that interests them—and if interested in the technology (and we hear complaints daily that we dish out far, far too much technology) then they will still find it easy to access. This is an attempt to address frequent requests from members to find ways to help them attract friends and family members more easily. We also hope this will lead to greater interest and help our market response.

Improvements will also include attention to more functional tools such the user-friendly forms that can be filled out on the web site (not just downloaded to be filled out and mailed) and the safe use of credit cards for ordering items and paying signup fees, making content more accessible. We will also be seeking additional individuals (volunteer and contract) to help expand the effective e-business functions.

**Improved Membership Information Package:** Another major area of concern has been the deficiencies in the materials we mail to individuals who request information about becoming an Alcor member.

The Alcor book *Cryonics: Reaching for Tomorrow* has been our primary informational tool for some time. This is

being rewritten (a project headed up by Jerry Lemler, M.D., Alcor's Medical Director) to try to make it a better marketing tool and respond to the common complaint that it is "too focused on technology." If this rewrite is completed in time, we hope to publish it as a special issue of this publication (we hope it will be the next issue). It will also be published on the web site along with all the technical appendices for those who do want technical detail.

In keeping with the overall shift in terminology and image, this book is being renamed *Alcor Life Extension Foundation: An Introduction*. This title change emphasizes the fact that as our primary informational tool, it should sell "Alcor" and not just the "field of endeavor."

Our updated membership information package will include a copy of *Alcor Life Extension Foundation: An Introduction*, a revised and updated brochure, *the Alcor adventure* on CD (currently only on video), and a membership application and ancillary information about funding, etc.

The need to change the title of this magazine has been under discussion and consideration for some time now in order to consistently shift our image. Our old name served us well in the early years, but only through evolution do you maximize your potential. The new name is *Alcor: Reaching for Tomorrow* (retaining much of the positive part of the old title from the information booklet). This title change is again designed for greater positive response from first-time readers and to promote more directly the organization rather than the general field.

**(3) Creating greater customer satisfaction so that membership retention is improved.**

Membership organizations all share a common problem. In spite of efforts to improve membership growth, there is always attrition. In our field of endeavor, this not only means that the *net* membership growth rate is lower, but it means that lives are being lost when members are lost. In an effort to cut attrition, we are seeking ways to increase membership benefits.

We are currently looking into the ability to offer designer credit cards to Alcor members as well as negotiating for Alcor members to receive discounts on products and services that they would be purchasing anyway. This is the type of membership service that large, nonprofit organizations like AARP and AAA offer their members. Please let us know what you would like to see Alcor offer you as a membership benefit!

Please send us your ideas about membership benefits.

Tell us which magazines you think we should advertise in.

Contact: Linda Chamberlain at [linda@alcor.org](mailto:linda@alcor.org)

## IMPORTANT NOTICE TO ALL MEMBERS WITH LIFE INSURANCE POLICIES THROUGH NEW YORK LIFE

*If you ever have an address change, you must contact Alcor (480-905-1906 ext. 114) or Mary Naples (1-800-645-3338), insurance specialist, to ensure that your contact information is properly processed. New York Life is currently undergoing changes to its central database and is experiencing unexpected glitches that could result in your receiving insurance mail intended for other clients. Your cooperation will prevent this inconvenience from occurring and is much appreciated by Alcor.*

—Jennifer Chapman  
([jennifer@alcor.org](mailto:jennifer@alcor.org))  
Membership Administrator

## Alcor Membership Status

Alcor has 529 Suspension Members (including 103 Life Members) and 46 patients in suspension. These numbers are broken down by country below.

Country	Members	Applicants	Subscribers	Country	Members	Applicants	Subscribers
Argentina	0	0	1	Mexico	0	0	1
Australia	10	2	2	Monaco	1	0	0
Austria	1	0	0	Netherlands	2	3	1
Brazil	1	0	0	Russia	0	0	3
Canada	13	0	13	South Africa	0	0	1
France	0	0	1	Sri Lanka	0	0	1
Germany	3	1	3	Switzerland	0	0	2
Ireland	0	0	1	Taiwan	0	0	1
Israel	0	1	0	U.K.	21	7	6
Italy	0	2	3	U.S.A.	472	79	226
Japan	2	0	2				
Lebanon	0	0	1	<b>TOTALS</b>	<b>526</b>	<b>95</b>	<b>269</b>

(continued from page 22)

**2001 Surgical / Physician Training Held:**

A physician/surgical training session was held Friday and Saturday, June 8 and 9, in Scottsdale. Participation included seven physicians. The physicians reviewed Alcor policies, procedures, and appropriate checklists and skills required during the coordination of a rescue operation, prevention of autopsy, gaining hospital cooperation, etc., during the two-day session. The training also included "hands-on" honing of the specialized surgical skills needed for Alcor operations.

**Cryotransport Team Training and Improvements:**

Alcor hopes, if necessary funding becomes available (as promised), to move in the direction of hiring a full-time cryotransport staff, who, in turn, will train and direct our cadre of volunteers. Until this occurs, ACT-A and ACT-B training sessions will continue unabated. Our next scheduled sessions are set for July 20, 21, 22 and August 10, 11, 12.

**Cryoprotection Protocol Improvements:**

Promising news from our purveyor of cryoprotectants has clearly dominated the last several months. Hugh Hixon has been conversing on a weekly basis with the supplier, and in the offing we are pleased to be able to employ more effective and less toxic chemicals. Dr. Jerry Lemler and Lemler and Dr. Steve Harris will be working together to review and upgrade the initial medication infusion protocol used currently by Alcor.



Hugh Hixon  
Facility Engineer,  
Biochemist  
hugh@alcor.org

**New Hospice Capability Represents Major Advance:**

Within the past few months we have secured a fruitful working alliance with the Hospice of the Valley in the greater Phoenix area. Everyone affiliated with this particular hospice (Medical Director, nursing, and intake staffs, etc.) has been extremely cooperative and helpful. Their participation made the A-1705 standby one of the best yet.

This new arrangement promises to offer Alcor members a most viable end-of-life option, leading to unsurpassed deployment of our protocols for cryopreservation! If you or a loved one has a terminal disease such as cancer, or is admitted into hospice for any reason, contact us to see if you can be transferred to the hospice program in Phoenix. This organization can accommodate a wide range of living arrangements, from critical hospital care to simply renting an apartment for a few months. If you want the best standby that can be coordinated, this is the way to make it happen!

**Cells4Life, Inc., Now Fully Operational:**

Cells4Life, Inc. (the new corporate subsidiary of BioTransport, Inc.), is now fully operational and ready to serve the public, having raised funds for marketing and expansion of operations (see page 3 for more details). Pilot studies involving the culture of cells have been under way for five months now. Cells4Life has optioned the next two units in the Alcor building (as the lease for another tenant came due and was not renewed) for lab space, which it expects to occupy soon.

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**Alcor Hosts Members of Scientific Advisory Board**

On two special and completely separate days in May, the Alcor staff was treated to visits from some extra special members: K. Eric Drexler, Ph.D.; and Marvin Minsky, Ph.D. (both members of the Alcor Scientific Advisory Board), and Chris Peterson. As you can see, a good time was had by all!



Marvin Minsky, Ph.D.



Chris Peterson



Chris Peterson and Eric Drexler climb a ladder to inspect the patient care units.



Marvin Minsky demonstrates the correct way to make bubbles.

# **Alcor Life Extension Foundation, Inc., and Subsidiaries**

## **Consolidated Financial Statements**

### **Year Ended December 31, 2000**

#### **Accountants' Review Report**

To the Board of Directors  
Alcor Life Extension Foundation, Inc.  
Scottsdale, Arizona

We have reviewed the accompanying consolidated statement of financial position of Alcor Life Extension Foundation, Inc. and Subsidiaries as of December 31, 2000, and the related consolidated statements of activities and changes in net assets and cash flows for the year then ended, in accordance with Statements on Standards for Accounting and Review Services issued by the American Institute of Certified Public Accountants. All information included in the consolidated financial statements is the representation of the management of Alcor Life Extension Foundation, Inc. and Subsidiaries.

A review consists principally of inquiries of Company personnel and analytical procedures applied to financial data. It is substantially less in scope than an audit in accordance with generally accepted auditing standards, the objective of which is the expression of an opinion regarding the financial statements taken as a whole. Accordingly, we do not express such an opinion.

Based on our review, we are not aware of any material modifications that should be made to the accompanying financial statements in order for them to be in conformity with generally accepted accounting principles.

Our review was made for the purpose of expressing limited assurance that there are no material modifications that should be made to the financial statements in order for them to be in conformity with generally accepted accounting principles. The information included in the accompanying schedule of departmental assets, liabilities and net assets and the schedule of departmental revenues and expenses is presented only for supplementary analysis purposes. Such information has been subjected to the inquiry and analytical procedures applied in the review of the basic financial statements, and we are not aware of any material modifications that should be made thereto.

Fester & Chapman P.C.  
Certified Public Accountants  
4000 North Central Avenue  
Suite 1000  
Phoenix, Arizona 85012-3599

February 21, 2001

Alcor Life Extension Foundation, Inc., and Subsidiaries

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

December 31, 2000

**ASSETS**

Current assets	
Cash and cash equivalents	\$ 155,772
Investments	1,295,316
Accounts receivable	173,857
Deposits	<u>36,712</u>
Total current assets	1,661,657
Property and equipment	
Land	150,000
Building and improvements	712,190
Equipment	<u>506,683</u>
	1,368,873
Less accumulated depreciation	<u>371,574</u>
	997,299
Prepaid suspensions and standby	673,354
Investment in building	<u>32,000</u>
Total assets	<u>\$ 3,364,310</u>

**LIABILITIES AND NET ASSETS**

Current liabilities	
Accounts payable	\$ 8,446
Current portion of capital lease obligations	<u>8,673</u>
Total current liabilities	17,119
Security deposits	9,289
Capital lease obligations	24,062
Deferred suspension revenue	679,096
Deferred patient care reserve	<u>1,648,838</u>
Total liabilities	2,378,404
Net assets	
Unrestricted controlling interests	754,883
Temporarily restricted	69,982
Minority interests	<u>161,041</u>
Total net assets	<u>985,906</u>
Total liabilities and net assets	<u>\$ 3,364,310</u>

Alcor Life Extension Foundation, Inc., and Subsidiaries

CONSOLIDATED STATEMENT OF ACTIVITIES AND CHANGES IN NET ASSETS  
Year Ended December 31, 2000

	<u>Unrestricted</u>	<u>Temporarily Restricted</u>	<u>Total</u>
Revenue and support:			
Membership dues	\$ 229,171		\$ 229,171
Rental income	115,114		115,114
Contributions	147,750	\$ 69,982	217,732
Suspension and standby	212,076		212,076
Interest	31,626		31,626
Loss on investments	(200,480)		(200,480)
BioTransport, Inc., expense reimbursement	19,729		19,729
Other	42,734		42,734
Total revenues	<u>597,720</u>	<u>69,982</u>	<u>667,702</u>
Expenses:			
Salaries and related	186,526		186,526
Advertising	35,017		35,017
Depreciation and amortization	56,910		56,910
Magazine and publications	29,251		29,251
Emergency response	8,521		8,521
Insurance	15,682		15,682
Interest	3,213		3,213
Legal and professional	34,000		34,000
Medical supplies	21,077		21,077
Office expense	15,348		15,348
Other	38,079		38,079
Postage	11,900		11,900
Repairs and maintenance	26,403		26,403
Suspension and standby	67,348		67,348
Telephone	21,241		21,241
Travel	5,901		5,901
Conference	28,124		28,124
Taxes and licenses	31,262		31,262
Utilities	18,234		18,234
Total expenses	<u>654,037</u>	<u>        </u>	<u>654,037</u>
(Decrease) increase in net assets before minority interest	(56,317)	69,982	13,665
Minority interest in income	<u>(5,072)</u>	<u>        </u>	<u>(5,072)</u>
(Decrease) increase in net assets	(61,389)	69,982	8,593
Net assets, beginning of year	<u>816,272</u>	<u>        </u>	<u>816,272</u>
Net assets, end of year	<u>\$ 754,883</u>	<u>\$ 69,982</u>	<u>\$ 824,865</u>



Alcor Life Extension Foundation, Inc., and Subsidiaries

**CONSOLIDATED STATEMENT OF CASH FLOWS**  
Year Ended December 31, 2000

Cash flows from operating activities	
Increase in net assets	\$ 8,593
Adjustments to reconcile change in net assets to net cash provided by operating activities:	
Minority interest in share of net income	5,072
Service provided capital contribution	10,000
Depreciation and amortization	56,910
Loss on investments	200,480
Increase in accounts receivable	(69,793)
Increase in deposits	(6,445)
Increase in accounts payable	<u>8,446</u>
Net cash provided by operating activities	213,263
Cash flows from investing activities	
Purchase of investments	(370,572)
Increase in prepaid suspensions and standby	(147,009)
Purchase of equipment and leasehold improvements	<u>(28,220)</u>
Net cash used in investing activities	(545,801)
Cash flows from financing activities	
Proceeds from deferred suspension revenue	145,209
Proceeds from deferred patient care reserve	217,041
Payments on capital leases	<u>(5,979)</u>
Net cash provided by financing activities	<u>356,271</u>
Net increase in cash and cash equivalents	23,733
Cash and cash equivalents, beginning of year	<u>132,039</u>
Cash and cash equivalents, end of year	<u>\$ 155,772</u>
<u>Supplemental Disclosures</u>	
Cash paid for interest during the year	\$ 3,213
Equipment acquired under capital lease	\$ 25,475

Alcor Life Extension Foundation, Inc., and Subsidiaries

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2000

**NOTE 1—BACKGROUND AND SUMMARY OF ACCOUNTING POLICIES**

Alcor Life Extension Foundation, Inc. (Alcor), is a California non-profit organization formed under Section 501(c)(3) of the Internal Revenue Code. Alcor conducts its primary operations in Scottsdale, Arizona. Alcor is funded primarily through contributions and membership dues from its members, and rental income.

Alcor's primary exempt purpose is research and education in the science of cryonic storage and cryonic suspension.

The significant accounting policies of Alcor follow:

**Principles of Consolidation:** The consolidated financial statements for the year ended December 31, 2000, include all accounts of Alcor Life Extension Foundation, Inc., and its subsidiaries, the wholly owned Alcor Patient Care Trust and the 56.52% owned Cryonics Properties LLC. All significant intercompany transactions have been eliminated.

**Basis of Presentation:** Financial statement presentation follows the recommendations of the Financial Accounting Standards Board in its Statement of Financial Accounting Standards (SFAS) No. 117, Financial Statements of Not-for-Profit Organizations. Under SFAS No. 117, Alcor is required to report information regarding its consolidated financial position and activities according to three classes of net assets. Alcor has \$69,982 in temporary net assets and has no permanently restricted net assets at December 31, 2000.

**Use of Estimates:** In preparing financial statements in conformity with generally accepted accounting principles, management is required to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

**Cash and Cash Equivalents:** For purposes of the statement of cash flows, Alcor considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents.

**Investments:** Investments are recorded at market. Unrealized gains and losses are accounted for as investment income.

**Property and Equipment:** Property and equipment costing \$500 or more are recorded at cost, or at estimated fair value at

the date of gift if donated.

Depreciation and amortization are computed using the straight-line method based on estimated economic lives of the assets as follows:

Building and improvements: 39-40 years

Equipment: 5-20 years

Automobile: 5 years

**Investment in Building:** Interests in buildings held for investment are recorded at cost.

**Prepaid Suspensions and Standby/Deferred Suspension Revenue:** Prepaid suspensions and standby services are recorded as deferred revenue. Alcor recognizes suspension and standby revenue as the services are performed.

**Deferred Patient Care Reserve:** Upon suspension of a patient, a specified amount of the suspension revenue is deferred and invested into the Alcor Patient Care Trust to be used for patient reanimation, at which time Alcor would recognize the revenue.

**Restricted and Unrestricted Revenue:** Contributions that are restricted by the donor are reported as increases in unrestricted net assets if the restrictions expire (that is, when a stipulated time restriction ends or purpose restriction is accomplished) in the reporting period in which the revenue is recognized. All other donor-restricted contributions are reported as increases in temporarily or permanently restricted net assets, depending on the nature of the restrictions. When a restriction expires, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the Statement of Activities as net assets released from restrictions.

**Advertising:** Advertising costs are expensed as incurred.

**Income Taxes:** Alcor is exempt from Federal income taxes as an organization other than a private foundation under Section 501(c)(3) of the Internal Revenue Code.

**NOTE 2—CONCENTRATION OF CREDIT RISK**

Alcor maintains cash balances and cash equivalents at financial institutions. At December 31, 2000, Alcor had no deposits at financial institutions in excess of federal insurance limits. Alcor has not experienced any losses in such accounts and believes it is not exposed to any significant risk on cash and cash equivalents.

**NOTE 3—INVESTMENTS**

Investments consist of shares in mutual funds and are stated at market value at December 31, 2000. Interest income and loss on investments for the year ended December 31, 2000, were \$31,626 and \$200,480 respectively.

Year ending December 31,	
2001	\$ 14,636
2002	11,978
2003	10,250
2004	9,208
2005	992
	<u>47,117</u>
Less amount representing interest	14,382
Present value of future minimum lease payments	<u>\$ 32,735</u>

**NOTE 4—PREPAID SUSPENSIONS AND STANDBY**

Alcor must maintain prepaid suspensions and standby services in separate accounts for each member, per the suspension contracts. Alcor’s bylaws require that the accounts be invested conservatively in depositories insured against loss by an agency of the Federal Government. At December 31, 2000, Alcor had invested the monies received for prepaid suspensions and standby services in certificates of deposit at financial institutions insured by the Federal Deposit Insurance Corporation up to \$100,000 per account. Alcor had certificates of deposit in excess of federally insured limits of approximately \$67,220. The following is a summary of those investments.

	Total <u>Invested</u>	Amt. insured <u>by FDIC</u>
Certificates of deposit	\$587,986	\$520,766
Insured deposit accounts	<u>85,368</u>	<u>85,368</u>
Total	\$673,354	\$606,134

**NOTE 5—DEFERRED PATIENT CARE RESERVE**

Alcor has a financial obligation to fund the maintenance and reanimation of members who have undergone cryonic suspension. The actual amount of future expenses required to meet this obligation is unknown due to the uncertainty of how long Alcor must maintain its members in cryonic suspension and the uncertain costs of reanimation, if reanimation becomes scientifically and legally possible in the future.

**NOTE 6—CAPITAL LEASES**

The cost of equipment acquired under capital leases was \$46,417 as of December 31, 2000. Amortization of assets held under capital leases is included with depreciation and amortization expense. Accumulated amortization was \$16,219 at December 31, 2000.

The following is a schedule of future minimum lease payments under capital leases, with the present value of net minimum lease payments as of December 31, 2000.

**NOTE 7—FUNCTIONAL EXPENSES**

Alcor conducts research and education in the field of cryonic suspension and storage. Expenses related to providing these services for the year ended December 31, 2000, are as follows:

Research and education	\$ 308,561
General and administrative	<u>345,476</u>
	<u>\$ 654,037</u>

**NOTE 8—EMPLOYEE LEASING**

On May 6, 2000, Alcor entered into a one-year agreement with Action Employment Resources, Inc. (AER), to provide professional employment services. Under the terms of this agreement, AER assumed payroll administration and human resource responsibilities for Alcor and as a result, Alcor’s staff work as employees of AER.

**NOTE 9—RELATED PARTY TRANSACTIONS**

Several members of Alcor’s board of directors and management own shares in BioTransport, Inc. BioTransport, Inc., uses Alcor’s personnel, facilities, equipment, and supplies in its operations. BioTransport, Inc., reimburses Alcor for Alcor’s actual cost in this regard. Alcor also receives overhead fees calculated at 50 percent of actual costs of services and materials utilized by BioTransport, Inc. BioTransport, Inc.’s reimbursements to Alcor for the year ended December 31, 2000, were \$19,729.

If you would like a full copy of these reports,  
 please contact Joe Hovey  
 at 480-905-1906 ext. 106, or joe@alcor.org.

# PROGRESS action coalition

Imagine it is the year 2030 and we are looking back on our accomplishments of the past three decades. How should our time be best remembered? How about: Cancer reduced to a minor health problem that is easily curable; Billions of people enjoying lives enhanced by connection to a rich global cultural network; Nanotechnology solving the environmental damage of past centuries; Art forms barely imaginable today enriching the lives of a population made more creative through new technologies and new ideas; or, the dream of true artificial intelligence realized, adding a new richness to the human landscape never before known.

Each of the above “future headlines” is fun, but also raises issues implicating our basic values. The swift progress of technology and both the promise and peril it presents are serious concerns; the basic question of whether we will continue to progress or turn away in fear needs our earnest attention and ability to solve problems.

Progress Action Coalition (“Pro-Act”) serves as a conduit of information and exchange for those working to counter the many biases against advanced technologies that are growing in our culture and the policies of our governments. Recent years have revealed a growing feeling of fear around the world that is a source of danger to the very value of progress itself. Questions are raised about the development of life-transforming technologies and the spread of freedom, creativity, and enterprise in our society, but too often now the only answers offered are based on a pessimistic rejection of progress. Pro-Act is a resource to build networks among people who acknowledge the challenges before us, but who face those challenges with an optimistic commitment to improving the human condition.

If we take action now, we can have a major impact on how the world views efforts to prolong and improve life, advance the world’s knowledge about positive technologies, improve the environment, promote space travel, and

address fundamental issues in education, the environment, and the quality of life for the vast majority of humanity that still lives in hunger, fear, and ignorance. As Buckminster Fuller said, it is a matter of distribution not content. By distributing knowledge effectively, we can encourage others to ask the right questions and find reliable information about these and other issues.

Many of us have been discussing these concerns for years. Now we have an organization designed to work with you in taking action for progress. Now is the time to take a stand to make sure the public gets all the facts, not just the ones that alarm them.

Pro-Act is an independent organization created to fill a need in our culture. Rather than stand by and let voices counseling fear and retreat dominate the public stage, we plan to push progress.

Our web site, [www.progressaction.org](http://www.progressaction.org), was secured in April and formally announced at Extropy Institute’s “Extropy-5” Conference in June 2001, where advocates for a positive future gathered. My presentation on Pro-Act is available at our web site located at [www.progressaction.org/pro-act.htm](http://www.progressaction.org/pro-act.htm). Writings by Max More, Greg Burch, Harvey Newstrom, and others are also featured at this web page.

We hope you will join us in sharing information and resources among people knowledgeable about the technologies and trends that will effect our future and concerned that progress continue toward a brighter future.

Natasha Vita-More  
Director  
Progress Action Coalition

*For more information on the Progress Action Coalition, or to get involved, please visit our web site at [www.progressaction.org](http://www.progressaction.org) or e-mail Natasha at [natasha@natasha.cc](mailto:natasha@natasha.cc).*

## PRO-ACT

## Selected Presentations from the Fourth Alcor Conference on Life Extension Technologies Are Now Available on Video

Alcor's fourth conference was held at Asilomar, California, on June 17-18, 2000. A meeting of scientists, technologists, and individuals working in fields leading toward the expansion of human health and longevity, the event excited and inspired the 200 attendees that sunny weekend. A select number of the presentations (recorded on video) are now available for purchase. The synopses that follow are brief and cannot begin to capture the full content, but they will give you an idea of the scope and quality of the presentations.

### U

#### **K. Eric Drexler, Ph.D., Foresight Institute** **“The Conservative Treatment of Transient Inviability; or, Your Computer Crashed—Shall I Throw It Out?”**



Keynote Speaker Eric Drexler challenged anyone to offer proof that “freezing erases the brain.” He contrasted the preservation of brains for future recovery by cryobiologists vs. molecular scientists. Arguments from the audience asserted that the brain might be rendered irreparable

by ischemia, freezing, and many other hypothesized mechanisms. Eric acknowledged that such damage was irreversible by present technologies, but he repeatedly returned to the question of whether or not, in any way that could be convincingly demonstrated, information essential to the reconstruction of the brain and restoration of memory and identity was “erased” by freezing. The advice Eric gave, at the end of his talk and after considerable interaction with the audience, was that in order to reach the future, if one could not stay alive to do so with the help of current medical technology, one should at least stay “intact” (through cryostasis)!

#### **Brian Wowk, Ph.D., 21st Century Medicine Inc.** **“Molecular Control of Ice Formation”**



Recently it has become practical, through research at Dr. Wowk's laboratory, to use advanced materials to virtually eliminate ice during cooldown to cryogenic temperatures. Ordinary cryoprotection combats freezing by lowering

the freezing point, but Dr. Wowk pointed out that sophisticated proteins can be included in small quantities, akin to natural “freeze-blocking” compounds that protect arctic fish and insects. This further restrains ice formation. With sufficiently rapid cooling, he showed that a glasslike or “vitreous” state could be produced, with custom molecules developed in his laboratory. The even more difficult problem of rewarming, where the glasslike state has the tendency to be replaced by a crystalline or “ice-like” state as it is heated, “devitrifying” with destructive effects on the cells, can be helped through the use of his well-designed, protective freeze-blockers.

#### **Gregory Fahy, Ph.D., 21st Century Medicine, Inc.** **“Cryobiological Research at 21st Century Medicine”**



Dr. Fahy, backed by more than thirty years of active interest and study of cryobiology, reported on his research at 21<sup>st</sup> Century Medicine, “to cryopreserve large, complicated systems, the larger and the more complicated, the better.” Concentrating on brain preservation, Dr.

Fahy's spoke of trying to find optimal cryoprotective agents and the elimination of chilling injury. Evaluation of kidney preservation perfusates showed excellent results at 50% cryoprotective agent concentration, close to levels needed for vitrification. The work Dr. Fahy reported is integral with the work of Dr. Wowk; the full implication of this research will be the development of what someday will be perfected human suspended animation.

**Natasha Vita-More, Author, Artist**  
**“A Talent for Living: Cracking the Myths of Mortality”**



Rapidly changing animated graphics were interwoven with poetic narrative in this thought-provoking presentation. Natasha explored how our communication pathways steadily become more intertwined with technology and how we are growing “out of” what we are at present and into what we may become. The key is a matter of changing technologies and challenging cultural myths. On a more practical level, Natasha discussed an integrated work in which she is bringing together input from 20 minds who are creating the future. “If a ‘talent for living’ is a youthful and positive attitude, then a talent for living may indeed be the baton of wisdom passed on over the eons.”

**“Panel: Cracking the Myths of Mortality”**  
**Natasha Vita-More, Ralph Merkle, Greg Fahy, Max More**



With myth-cracking as its theme, this session began with each panelist’s chosen myth. Merkle’s favorite: “Cryonics Is Radical!” Fahy’s bane: “Free Radicals Cause Aging!” More’s chosen illusion: “The Zardoz Myth!” Whereupon a lively exchange ensued in which Sartre, Calvin and Hobbes, long-lived biblical figures, space travel, and Greek and Italian mythology were conjured in a heady discussion of the inevitable changes that will be brought about by the extension of life. “Shifts of mentality,” “the abandonment of parts of comfortable worldviews,” and “adjustments in religious attitudes” were offered as some probable avenues of the future myth-cracking to be done.

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## Cryonicist Authors and Their Books

by R. Michael Perry, Ph.D.

Cryonics has been fortunate in that, for all the small size of the movement, there have been articulate cryonicists who have both conveyed the principal ideas behind the freezing practice and delved into the scientific and philosophical positions that support it. In this article I will briefly survey this effort in approximate chronological order. I include authors who, as part of their involvement in cryonics, wrote book-length works whose principal focus is cryonics or which prominently feature immortalist themes. I wanted to be comprehensive but will not claim definitiveness, since there are many gray areas as to who should or should not be included. (And I have to be somewhat restrictive, in the first place, because space and time are limited!) We have to decide who, among those with appropriate literary output, is also to qualify as “cryonicist” enough to merit attention. Most of those listed here have formal arrangements for cryonic suspension or are now frozen—these are my usual criteria—but I also allowed some near-misses, based on a gut feeling about each particular case. “Appropriate literary output” means works that can be considered published books, including “private” publications but not unpublished works and not publications that are not books. And again, there must be a reasonable emphasis on immortalist themes. Your opinions on these matters may differ from mine, and mine too have changed somewhat in the course of writing, partly in response to feedback. Still, of course, I hope this report will be of interest. My own, recent book, *Forever for All*, is included for completeness, though it is reviewed at greater length in this issue by Jerry Lemler. Some of the books are freely available online, as noted in the Bibliography.

One final issue concerns the term *cryonics* itself. With new and, we think, substantially better cryopreservation techniques, this venerable heading now seems increasingly outmoded to some (though I happen to still favor it, old traditionalist that I am). In any case, I think *cryonics* well applies to nearly all of the historical period dealt with here, so I've retained it, hoping thereby to minimize any confusion.

**Robert Ettinger.** The principal founder of the cryonics movement and continually active since, Ettinger is well known for his book, *The Prospect of Immortality*, which was commercially published in 1964 and started a wave of publicity. The main concepts and rationale of the freezing idea are laid out clearly and concisely, and some philosophical issues and other implications are explored. In all, a fine sendoff for a fledgling movement, perhaps better than we had any right to expect. Through it a lot of people heard about the freezing idea, though there weren't many takers (and there still aren't, though more than in the 1960s). Ettinger's other completed book, *Man into Superman* (1972), is an alluring excursion into a fairly near but still more-than-human future, the sort of world in which a frozen cryonicist might be revived. A third book, *The Youniverse*, is now in progress.



**Evan Cooper.** At the same time that Ettinger was writing *Prospect*, Cooper was independently working on a book of his own about the freezing idea, under the pen name Nathan Duhring. A little volume with a pretentious title, *Immortality: Physically, Scientifically, Now* was only privately published in a limited edition, but it contained some interesting thoughts about survival, identity, and the future, and has often been referred to in later writing on cryonics. One passage especially has captured imaginations: “For we'll go out of this world, if we must, with neither a bang nor a whimper but a stratagem.” Cooper was also instrumental in setting up the first organization to promote the freezing idea, the Life Extension Society, based where he lived in Washington, D.C. Later he became disillusioned and left the movement he helped to start. Tragically, he was lost at sea in 1982 (presumed); his remains were never recovered.





**Robert Nelson.** Nelson was among the first to actually carry out freezings with the purpose of eventual reanimation. Unfortunately, his enterprise came to such an inglorious end that it is difficult to approach that topic today, though I will do so since he was also a cryonics author and clearly belongs on this list. Briefly, over a period of nine years, 1970-79, a total of nine frozen patients were interred at his cemetery crypt in Chatsworth, California, then abandoned, thawed, and lost, allegedly from lack of funds. The courts sided with relatives who filed suit; Nelson and an assistant were ordered to pay about half a million dollars each. (Though the assistant paid through insurance, Nelson, claiming hardship, refused to pay and was not pursued.) The legal and other repercussions would adversely affect cryonics for years afterward and probably still taint perceptions today. Before all this, though, Nelson wrote a book, co-authored with attorney Sandra Stanley, about the freezing of James Bedford under his direction in 1967. Bedford's was the first controlled, human cryopreservation for the purpose of eventual reanimation (and it fortunately continues today). Nelson's book, *We Froze the First Man*, claims to be a factual account with pseudonyms to protect confidentiality, though it is inaccurate on the procedure used prior to freezing,<sup>1</sup> and, of course, gives one side's point of view on matters of personality conflicts. But judged on purely literary grounds it is certainly an entertaining read and presents the cryonics premise in an engaging way. It is unfortunate that bad is sometimes confusingly commingled with good as in the Nelson case, but such is life, as we well know.

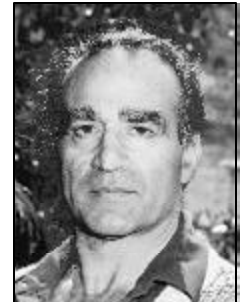


**Fred and Linda Chamberlain.** Fred and Linda's involvement in cryonics began in the 1960s with Nelson's group, but they soon broke with Nelson and, in 1972, started their own cryonics organization, Alcor. Others wrote about cryonics as a means of reaching the future, speculated on what sort of future to expect and what social and other challenges would have to be met, or recounted tales of particular freezings. The Chamberlains, though also interested in these subjects, focused especially on cryopreservation itself: equipment, procedures, dealing with hospitals, reliable, long-term storage, and so on. Their book length, technical manual, *Instructions for the Induction of Solid State Hypothermia in Humans*, was published in 1973, and still ranks as the most comprehensive work of its kind in the public domain. Over the years their commitment has continued, and the two, still prominent in the organization they founded, are now battling hard for the best that develop-



ing technology can offer. But even so, the technical side is not their only interest. In addition they have hosted cryonics gatherings, written fiction, created organizations, attracted talented people, stirred up some controversy, and infuriated a few—but generally accomplished an incredible amount to help rescue us from being born too soon.

**F. M. Esfandiary.** Esfandiary, who changed his name to FM-2030 and liked to be known as "FM," was a novelist of some note when, in 1970, he started new a series of nonfiction books offering a philosophy for the future. *Optimism One*, *Upwingers*, *Telespheres*, and *Are You a Transhuman?* forecast the end of aging and diseases and the immortalization of the human species, accompanied by a radical transformation of our social institutions. No more must there be national boundaries, which FM likened to the territorial urine tracks of dogs. No more will there be family boundaries either; children will be raised in special, optimum facilities in the absence and ignorance of their biological parents, brought up as enlightened citizens of the world. Persons today, FM argues, have a chance of reaching the utopian dream through having their remains frozen at death, an option he himself would exercise when cancer claimed him last summer at age 69. (The "2030," chosen before the terminal condition developed, was for the year in which FM would have celebrated his 100th birthday.) Some of his futuristic visions are unsettling to many even in the immortalist movement, but his sincerity and commitment to a world beyond death are beyond dispute.



**Saul Kent.** Kent's active involvement in cryonics dates back to 1964, when he read *The Prospect of Immortality* and thought it contained the greatest idea he'd ever heard of. He was a cofounder, with Jim Sutton, Karl Werner, and Curtis Henderson, of Cryonics Society of New York, and served voluntarily for years as its corresponding secretary and newsletter editor. (The word *cryonics*, specifically coined by Werner for this organization at its startup in August 1965, became the generic term for the practice of freezing the newly deceased for a possible future life and is now found in many dictionaries.)<sup>2</sup> In the 1970s Kent began a series of futuristic books that offered both a vision of a future worth coming back to and practical advice for attaining the goal. *Future Sex* speculates on the many ways that sexual expression might be enhanced, for those so inclined. *The Life Extension Revolution*, probably his best-known book, is mainly devoted to treatments to delay aging and make you feel and look younger, but also contains a chapter on cryonics. The life extension themes (minus cryonics) are taken up again and personalized in a third volume, *Your Personal Life Extension Program*. Today Kent remains one of the most active people in



cryonics and meanwhile has cofounded and developed a highly successful business, the Life Extension Foundation, which offers nutritional supplements and other aids to improving health and life span. With business partner William Faloon, Kent is now donating millions of dollars per year to research in cryopreservation.

**K. Eric Drexler.** Drexler's first and best-known book, *Engines of Creation*, appeared in 1986 and established a new term in the popular lexicon, *nanotechnology*, meaning the controlled manipulation of matter at the atomic and molecular scales. Molecule-sized devices will dominate the future, it prophesies, tiny machines for manipulation guided by tiny but powerful computers. Among the many applications should be the repair of individual, damaged cells so that tissue that seemed dead can be restored to function. A pathway is opened for reanimating frozen people—provided, of course, that the preservation is good enough to begin with. (The brain's information in particular must be inferable so that memories can be restored. Also, methods must be developed to operate at low temperatures and to carry out appropriate warming and reinvigoration when repairs have been made, or in combination with repair work.) Nanotechnology, seen today in biological organisms and thus clearly accessible to human research and development, made the cryonics premise more plausible and converted some scientific skeptics. You can't please everybody, of course, and some critics have charged that the popularization of nanotechnology made it all seem *too* easy, creating a false confidence in existing cryopreservation techniques and an unconcern with pursuing better ones. But many of us feel that the best stance on this issue is a middle ground between the extremes of total despair and unbounded confidence. Present methods may *not* be good enough, especially for all we would like to accomplish by way of restoring memories and personality traits. Thus research is very much called for (and is also needed to inspire more confidence and sign-ups)—but still there is hope for today's frozen patients. Meanwhile, exciting progress continues in nanotechnology, and Drexler's promotional work goes on through his brainchild, the Foresight Institute.



**Paul Segall.** Like Kent, Ettinger, and the Chamberlains, Segall has been involved in cryonics since the 1960s. He has a Ph.D. in biology and has long applied his talents in cryonics-related work, including the resuscitation of rodents, dogs, and primates from deep hypothermia and the recovery of beating, mammalian hearts from conditions of partial freezing. His book, *Living Longer, Growing Younger*, written with Carol Kahn more than ten years ago, offers a still-serviceable introduction



to life-extension research and philosophy, with sensible advice on how to go about extending your own life. Refreshingly, this includes signing up for cryonics, but the reader is also encouraged to simply enjoy life—to better appreciate why it should be extended in the first place.

**David Pizer.** In his 1986 novel *Ralph's Journey*, revised and republished in 1999, Pizer's heroes recapitulate much of the real-life struggles cryonicists have encountered in their efforts to reach the future through biostasis. The emphasis is on getting there—what happens afterward is only briefly treated. This may disappoint those who are looking for escapist fiction, but it appeals to people like me who are seriously trying to “get there” ourselves. Aside from the novel, businessman Pizer's other cryonics involvement is extensive. He has served on the board of directors and as vice president of Alcor, helped them acquire their present location, is the principal founder of the pro-cryonics Society for Venturism, and is now working to establish a retirement community for aging cryonicists and their friends.



**Klaus Reinhard.** A longtime cryonicist and Alcor member in Germany, Reinhard offers his own immortalist perspectives in his 1987 book, *Wie der Mensch den Tod Besiegt (How Man Conquers Death; German only)*. While advocating cryonics, the book does not overlook other possibilities that might have to be employed if one's suspension is compromised or inadequate. The uploading premise is taken seriously: that computational devices of the future will be able to “run” persons as software is run today, so that our identities can be transferred to a nonbiological substrate, thereby obviating diseases and aging. By collecting information about a person, including what has survived outside of preserved remains, a better reconstruction of that person might be instantiated in software—or possibly in a newly cloned, protoplasmic body—than could be had from the preserved remains alone. Moral: save your information! Write down or otherwise record your recollections, likes and dislikes, and so on, to improve the quality of your reanimation, or at least provide a backup. While this has long been advocated by others (myself included), it seems especially important in locations such as Germany that currently lack cryonics facilities of their own.



**Gregory Benford.** Physics professor and noted science-fiction author Benford, writing as Sterling Blake, spins an exciting tale in the ample



novel *Chiller*, based on the struggles of Alcor during the Dora Kent crisis. With more of the action in the future, and sharpened by a pro's ability to spellbind the reader with scenes of the chase and combat, it makes an interesting contrast with *Ralph's Journey*, not necessarily to the latter's detriment. *Chiller* is better as entertainment, but *Journey* is stronger on the philosophical end, and, being more conservative, is also more realistic.

**Charles Platt.** Author of both fictional and nonfictional, futuristic or science-oriented books, a journalist, and a noted science-fiction critic, Platt has a rare combination of writing abilities, plus a strong interest in cryonics. Having once gotten involved in the field, he has applied his talents extensively, taking part in several suspensions, serving as the president of a cryonics organization, and editing a newsletter. Platt's science-fiction novel, *The Silicon Man*, explores the theme of uploading with a vivid depiction of what it might be like to be "run" as software in a virtual reality setting and not have to worry about bodily ailments or infirmities. Cryonics plays a subordinate role in the book, allowing some to survive from a time (like now!) when uploading is impossible. Ironically, Platt has become a critic of the use of Cryonet, the principal electronic forum for cryonics topics, for discussions of uploading and other speculative possibilities, feeling it should instead focus on matters of more direct relevance to cryopreservation.



**Brian Wowk.** Wowk is the principal coauthor, with Michael Darwin, of *Cryonics: Reaching for Tomorrow*, Alcor's illustrated cryonics handbook and still the best single-volume source on the subject. (The current, fourth or 1993 edition was also edited and expanded by Ralph Whelan. Jerry Lemler is now working on a new edition.) Cryopreservation protocols, efficacy of preservation, funding, and philosophical and religious issues all receive their due. The overall approach is to present cryonics as a medical practice: to provide a kind of ambulance to the future for people who should not be considered dead but potentially still alive and curable.



**Bob Russo.** Psychologist, musician, piano technician, and writer, Russo published *The Meaning of Life: Part I* in 1992, and tells us there that he intended to write Part II after his reanimation. Does your life have meaning? Only if you give it meaning, he says, and makes clear his disbelief in divine or other authorities who might do the job for you. As an aid in the



quest for a meaningful existence, the author proposes libertarian and sometimes libertine alternatives to what he sees as society's repressive laws, customs, and mores. Much of this feisty writing would infuriate religious, social, and other conservatives, if they should ever read it, and a few of the opinions may turn off just about everybody. But shining through the pages is an intense devotion to bettering the lot of humanity through peaceful means, with primary emphasis on the individual rather than institutions of any kind. A chapter on cryonics reveals the author's own intentions and plans for a future life, as usual, by way of a scientific process rather than appeals to a higher power. Unfortunately, Russo let his cryonics arrangements lapse as he grew older. When he died suddenly at 75 in 1999 he was not frozen; his brain instead was chemopreserved. This may still offer hope, but his case is one more reminder of the need for a cryonics community, where like-minded individuals could offer support to older or ailing residents, to help them keep their arrangements in place and ensure a high quality of service when needed.

**Thomas Donaldson.** A Ph.D. mathematician and longtime cryonicist, Donaldson is best known to the public for a legal battle fought a decade ago, when he had been diagnosed with a brain tumor of a particularly virulent sort that had a low survival rate. Quite reasonably, he sought permission in the courts to have his suspension begin at a time of his choosing, while he was alive and still mentally competent. He was denied the right—the law could only view such a choice, even if voluntary, as homicide. Fortunately the tumor stayed in remission, and Donaldson remains active today. One of his strong immortalist interests is reflected in his book, *A Guide to Antiaging Drugs*, offered in a looseleaf notebook form to allow for updates. The treatment is sober, balanced, and informative. Donaldson makes a particularly effective author, both because of his scientific grasp of the subject and because he does not stand to profit from sales of the drugs he is describing. Don't expect miracles—the cure for aging isn't here yet—but at least you can see progress in understanding and some modest gains in intervention.



**Bart Kosko.** Immensely talented, with recognized achievements in such diverse fields as math, music, science fiction, and the martial arts, Kosko is also a cryonicist who advocates the practice in some of his books, such as *Fuzzy Thinking* and *The Fuzzy Future*. Professionally he is best known for mathematical work on fuzzy logic, but he has also authored three volumes for popular consumption: the two, nonfictional works just mentioned, and the science-fiction novel, *Nanotime*. The latter deals with persons who are uploaded to implantable computer hardware that enables them to think many times faster (thus in "nanotime")—and also features cryonics.



**Wesley M. Du Charme.** Du Charme's book, *Becoming Immortal*, covers much the same ground as Alcor's cryonics handbook but is pitched specifically toward the skeptical outsider who, despite misgivings, might be amenable to taking the practice seriously. (The book is also not tied to a particular organization but offers an independent review of its subject, though a highly favorable one.) A dialog format is used throughout, in which a fictional interrogator's objections and questions are answered in turn. "Top Ten Reasons Not to Read This Book," chapter one, opens with "I figure this is some tricky way to get me to read a religious tome about how I can attain life everlasting in the bosom of the Lord." This is reassuringly denied, then the interrogator counters with "OK, so it's a trick to get me to read a book about how to eat right and exercise and lead a disgustingly healthy life." And so on. As a longtime member of the cryonics "choir" I found this approach a bit tedious, but the book is informative and might go well with the "show me" mentality who is not involved already.



**Max More.** More's Ph.D. dissertation, *The Diachronic Self*, offers an appeal, couched in the scholarly idiom of academic philosophy, to take cryonics seriously and respect its life-extending potential. In keeping with this position and contrary to some modern philosophers it is maintained that life has deep meaning and that issues of identity and survival are important and amenable to an adequate, rational treatment. Besides being a longtime cryonicist with a doctorate in philosophy, More is the principal founder of Extropy Institute, "a networking and information center for those seeking to foster our continuing evolutionary advance by using technology to extend healthy life, augment intelligence, optimize psychology, and improve social systems."<sup>3</sup>



**James Halperin.** *The First Immortal* by Halperin is possibly the finest cryonics novel yet written. Starting in the mainstream-fictional recent past, the action progresses to a fantastic future based on sober scientific projections. Among the predicted amenities are that cryopreservation will permit reanimation—if done well and not tampered with on the way. Otherwise there are interesting philosophical angles to consider, as the Smith family protagonists find out. Overall, this is a family story that will appeal to those who wonder where and how they would fit into a society of the future and who worry that their friends and loved ones might not be there. The future envisioned isn't Heaven, but generally it's better than here and now, sometimes

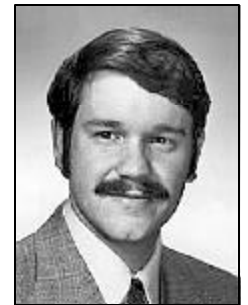


considerably. This is Halperin's second novel; otherwise, he is a rare coin dealer with a highly successful business in Dallas, Texas. His first novel, *The Truth Machine*, is also about the near future and is optimistic overall, again without being shallow. Halperin as a writer may be described as a gifted amateur who puts so much effort into his works that they tend to outshine the pros' best efforts, at least in his areas of special interest, among which is immortality through science.

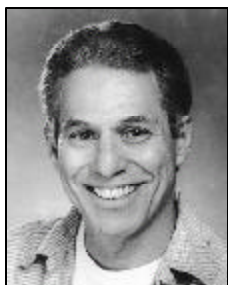
**Natasha Vita-More.** Though she is best known as an artist, the wife of Max More is also a futurist philosopher in her own right. Her book, *Create/Recreate*, seeks to tie together the transhumanism of FM-2030 with her hubby's extropianism (and there are important differences, extropianism placing more emphasis on individuality rather than a global community). In addition there is emphasis in the book on art, culture, and creativity along with life extension, so, in short, we are prodded to contemplate a world where the individual is, and ought to be, immortal.



**Robert Freitas.** With university degrees in physics, psychology, and law, Freitas combines substantial scientific and other talents with a visionary outlook and a willingness to work very hard.<sup>4</sup> His goal is a future to see and enjoy even as we help shape it, assisted in turn by tiny devices that keep us alive and healthy indefinitely. He first explored concepts of nanotechnology in the 1970s, well before they were popularized by Drexler, then read *Engines of Creation* when it came out in 1986. But it was in 1994 that his real awakening occurred, when he read more of Drexler's books, then spent six months devouring every other nanotechnology-related writing he could find. Surprised and disappointed at the limited attention being given to the requirements of actual nanodevices, particularly those that would perform useful functions in the body, he set out to remedy the deficiency himself. The first volume of his massive, technical study, *Nanomedicine*, which is subtitled *Basic Capabilities*, appeared in 1999; two other volumes are in progress. Though "basic," volume one is replete with sophisticated arguments and supporting equations, all to show that the use of nanotechnology in medicine would violate no known physics and to answer objections that have been raised. Closely printed in double-column format, the big book is also expensive (list price: \$99), but in the interest of spreading his ideas the author has generously made it available free online. A member of the Foresight Institute, Freitas is now employed at Zyvex, a company devoted to producing the first general-purpose, nanotechnological assembler, a device that would be able to create an arbitrary, stable structure when suitably instructed. Zyvex now supports Freitas' remaining work on the volumes of *Nanomedicine*.



**Terry Grossman.** As principal author of *The Baby Boomers' Guide to Living Forever*, Grossman offers practical advice on staying healthy at a time when knowledge in the field is advancing rapidly. Nine others assist with expertise in their various specialties, and the book is both entertaining and optimistic in a way not possible until recently. With the rising tide of research into the causes of and possible cure for aging, we can at last glimpse the end of this universal death sentence—but we aren't there yet. Many treatments now being offered remain controversial, and the wise reader will benefit by keeping an open mind and not attaching certainty to possibilities in a fast-changing field. Present inadequacies in antiaging therapy are acknowledged, and the book continues with a section on "immortality medicine," for those not interested in giving up. Cryopreservation is advocated as a backup, in case the necessary medical breakthroughs happen too slowly to save *you*. Can anything be more sensible?



concerned with the deep nature of reality and whether literal immortality might be possible and for whom. I uphold optimistic conclusions similar to those of Frank Tipler and Hans Moravec. Everyone who ever lived, even the long deceased whose remains were not preserved, can expect eventual reanimation and immortalization in some form. If nothing else it will happen through the activation of replicas whose eventual occurrence seems inevitable given the randomizing nature of reality and, arguably, the existence of multiple, parallel universes. In this way my effort meets what I consider minimal requirements for a satisfying, rational philosophy of life. There must be no appeal to supernatural or paranormal elements, but the individual must have permanence, and not merely in terms of abstractions or achievements but as an entity with continuing, personalized, remembered experiences. Yet, while the idea of survival through random replicas and other such means is defensible, such survival has its drawbacks, and I also argue that, when possible, a better approach is to provide for one's preservation after clinical death so that a more straightforward reanimation can follow.

**R. Michael Perry.** Though active in cryonics for many years now, it's only recently that I've entered the ranks of authors I'd list here, with my book, *Forever for All*, published last summer. In this I try to unite two strands of immortalist philosophy, one dealing with cosmological perspectives, the other with more immediate issues such as cryopreservation. With cosmology we are



Notes:

1. In particular Bedford was not perfused but only injected with perfusate, as Nelson confirmed in an interview *Venturist Monthly News* 2(5) 4 [May 1990].
2. See "Interview with Saul Kent," *Cryonics* #16 13 (November 1981).
3. Quoted from the web site <<http://www.extropy.com/about.htm>>.
4. Much information in this paragraph was obtained from an interview with Freitas, <<http://www.foresight.org/Updates/Update38/Update38.2.html#Interview>>, which also has links to other related sites. Other, corroborating material for this article will be found in newsletters such as *Cryonics*, *Cryonics Reports*, *American Cryonics Society Journal*, and *The Immortalist*, available from the author or Alcor's files.

**Photo credits:** Ettinger: *Cryonics Reports* 2(5) front cover (May 1967). Cooper: Macleans, Apr. 2, 1966. Nelson: *Cryonics Reports* 4(4) 9 (Apr.-May 1969). Esfandiary, Drexler: widely available photos—see, for example, <http://www.transhuman.org/> (Esfandiary); <http://foresight.org/Fl/Drexler.html> (Drexler). Kent, Segall: brochure for Life Extension Breakthrough Conference (1986). Benford: <<http://www.twbookmark.com/authors/25/1807/index.html>>. Platt, Russo, Halperin, Donaldson: Alcor's files. Du Charme, dust jacket of *Becoming Immortal*, with author's permission. Freitas: <<http://www.foresight.org/Updates/Update38/Update38.2.html#Interview>>. Grossman: photo supplied by author, used with permission. Other photos, writer's personal collection.

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# *You Only Go Around Twice*

by Jerry B. Lemler, M.D.



## **With a Banjo on My Knee**

Though the recently quoted words of Miss Alabama opining her views on life extension were indeed puzzling to this enthusiast, one must excuse them to some degree, when properly placed in the context in which they were uttered. Understandably frayed by “pageantitis,” a most selective form of stage fright, the poor young lass was no doubt blindsided by a dumb luck-of-the-draw question. Do recognize this was hardly your run-of-the-mill question about international tensions, who you most admire, your favorite book, or what you’d like to accomplish in your reign. (Note: stock answers are most obviously, “I’d work for world peace,” “My Mom,” “The Bible,” and “I’d like to bring people together for better communication and world peace.”)

I’m certain, much to her chagrin, the pageant sponsors threw in this ringer of a life-extension question to forcibly trap one unsuspecting and unwary nubile contestant into the dreaded universe of impromptu thinking. Make no mistake, there’s a lot of scholarship money, product endorsements, and entertainment contracts up for grabs at these “cattle shows,” and advancing to the state level is no easy task. The aspirants, for the most part, have been assiduously coached (often by paid professionals) and are meticulously groomed, from the proper hemline to the precise verbiage required to capture the judges’ approving eyes and ears. One politically incorrect comment, or one fashion faux pas, and you can pack your bags and catch the next bus back to Sylacauga in a jiffy.

So, have pity on that gentle southern flower, when the Master of Ceremonies asked her, “If you could live forever, would you, and why?”

To wit, Miss Alabama replied, “I would not live forever, because we should not live forever, because if we were supposed to live forever, then we would live forever, but we cannot live forever, which is why I would not live forever.”

Please believe me, my intention is not to rationalize the beleaguered contestant’s misguided response. I will likewise not apply any tests of deductive reasoning to the functionality of her internuncial neurons. She did win the pageant, after all!

\* \* \* \* \*

## **Lord, I’m Comin’ Home to You**

I’ll actually admit I have a fair share of knowledge and experience with both the state of Alabama and the world of pageantry. I entered each willingly, had my share of successes and failures, and withdrew of my own accord without fanfare or bitterness. Am I a better person for these ventures? Perhaps, though I’ll defer to others to make that determination.

No one put a loaded gun to my head, demanding my ransom price be seven years of self-imposed exile in the original Mardi Gras city of Mobile, Alabama. Paula (my bride) and I departed Philadelphia International in 20 degree blustery snowy weather, arriving in early December 1983, on the Gulf Coast but a few hours later, where the Bates Field thermometer registered 78. I was scheduled to complete my psychiatric residency training in May of the following year, and we’d been invited by an expanding hospital chain to check out the practice opportunity they were offering in Mobile. I’d been fortunate enough to have already been tendered several solid offers in more familiar surroundings, but the chance to see new (and decidedly warmer) territory at no personal expense was too enticing for us to pass.

So, we stepped off the plane onto the tarmac, felt a warm gust of air against our faces, rejoicingly gazed at each other as we hadn’t done since our wedding day some thirteen years previously, and from that delicious moment we were little more than fresh meat. I signed the contract within a week, and we were off to the “Heart of Dixie” six months later.

Now, do recognize, there’s six important annual activities the vast preponderance of Mobilians either directly participate in, or at a minimum have a solid working knowledge of. Not necessarily in any particular order, they are: hunting, fishing, God, football, Mardi Gras, and beauty pageants. I confess I’m not much enthralled by the first three.

I went hunting once in my life, and reflecting back on the experience, I can unequivocally state it was once too many. I reluctantly agreed to tag along with my future father-in-law, Paul Hicks, a man I loved and admired in so many ways. He outfitted me in new hunting boots, orange jacket, felt hat—made this Jewish kid from New York look like a regular Daniel Boone (if not a well-equipped, stunningly attired school crossing guard).



Paul tossed me out of slumber at the ungodly hour of 5:30 (a.m.!), and we drove around town picking up our sporting companions Bill Bailey, Nish Clodfelter, and finally Henry Malone and his eager for the fray, though rancid to the nostrils, dogs. Once loaded into Paul's wagon, we opted for the traditional breakfast of country ham (with red-eye gravy, of course), eggs, toast, juice, and coffee at Birdwell's (where else does one go for such a spread in Alcoa, Tennessee?).

Provisions intact, our party was off to the killing fields of Sweetwater, a forty-five-minute jaunt to the south. Okay, yes I realize I've led us into a wee bit of a digression here. I'm certain by now you're wondering what a day, more than thirty years ago, of seemingly endless tromping in the woods and hills of Monroe County, Tennessee, could possibly have in concert with some ill-fated immortality comments of an Alabama beauty queen. Perhaps not much, I'll admit. The lone shot I fired, though, came a might closer to felling Paul Hicks than the rabbit that momentarily darted across his path. Fortuitously, forgiveness was Paul's strong suit, clearly demonstrated by him relinquishing his one and only daughter to my trust a year or so later.

Fishing is quite another matter. Aside from scooping up minnows, my lifetime grand total of captured fish is one. It was truly such a unique event I even recall the year (1957) it happened and where it occurred (Brant Lake, New York). Over the years, I can safely state that *Field and Stream* has never adorned the racks or coffee tables of my office waiting rooms.

God is really big in Mobile, as the city is positioned as the southern boundary of the oft-labeled Bible Belt. In fact, God is perhaps *the* vital centerpiece of life in L.A. (Lower Alabama). And, while I was not a particularly frequent worshipper of any deity, I cannot deny its provincial prominence, especially when invoked upon another Alabama staple—football.

Autumn Friday nights in the Yellowhammer State belong to God and the pigskin, and not necessarily in that order. The evening's festivities are customarily ushered in by the home-standing school's marching band (with accompanying scantily clothed young ladies posing as majorettes) taking to the gridiron under the baton, with a varying amount of precision.

Then, it's Pastor (or Brother) Jimmy Jack Taylor's turn at the mike, as he asks the assembled to bow their heads in prayer. "Oh Lord. We have so much to thank you for. The food we eat, our beloved families and churches, and the great crowd here tonight at Thomas D. Stapleton Jr. Stadium for our Hornets' season opener."

Pausing to acknowledge the smattering of applause precipitated by the subtle partisan inference, Preacher Taylor continues, "Oh God, holy is your name, bless these two fine educational institutions, and all those who guide these young people in their studies by bringing them closer to you. We humbly ask you to bless the players, and keep them free of serious injury or harm. May your loving hand touch us all gathered here tonight, and may the spirit of good sportsmanship lead us to revere your holy name. And, if it pleases you, as it would please us, a victory this evening for your people and the Hornets would surely glorify your presence on this sacred field of battle. In the name of your Son, who gave his life for us

sinners here on earth, we say, Amen."

Following the band's rendition of the Star Spangled Banner in a curious blend of atonal keys (none of which would faintly resemble those of Francis Scott), the referees would summon the team captains, typically eight or so seniors per squad, to the center of the field for the ceremonial coin toss. The head official would remind the eager combatants about fair play and preside over the choice of which squad would be first to go on offense, and in which direction they would proceed. Having accomplished this perfunctory task, he'd instruct the captains to shake hands (a rather time-consuming obligation amongst sixteen lads, who more than occasionally felt it necessary to make derogatory comments about the footwear of their opponents' mothers).

An hour and a half later the party was over. The dirty uniforms would be washed, the pom-poms would be carefully stowed away, the hot dog wrappers and Coke cups would be carried to the dumpster, and the entire ritual would be repeated in encore fashion week after week, season after season. God, how Alabamians love their Friday night football!

While the much grander parades and reckless frolicking of "Fat Tuesday" no doubt are the province of New Orleans, the raucous celebration of Mardi Gras was given its nascence in Mobile, Alabama. It all started in 1866 when a local roustabout, Joe Cain (who bequeathed to us the expression "raisin' Cain"), dressed himself as Indian Chief Slacabamorinico and led a small band of "braves" down Dauphin Street, past some rather astonished Union soldiers.

Mardi Gras in Mobile has since blossomed into two weeks of endorsed, organized mayhem. Nightly parades feature the comely and outrageous floats of the various secretive Mystic Societies, each attempting annually to outdo one another. Bystanders, young and old alike, scramble madly against all comers on the pavement, battling for worthless doubloons, cheap colorful beads, and stale Moon Pies haphazardly projected earthward from the hands of the soggy, masked revelers. All through the fortnight, King Felix merrily reigns over the debauchment, until his symbolic removal heralds the arrival of Ash Wednesday and the Lenten season.

I tell you now, I've had my fill of Mardi Gras. True, I'm not especially enamored with marshmallow in the first place, but it's much more than that. I've squeezed myself into too many confining tuxedos, sat through far too many endless callouts of masqueraders I didn't know, and stood on too many lengthy queues for a small plate of tasteless finger food. Smart Mobilians get out of town for the holiday, which in no small way accounts for why hardly anyone leaves.

\* \* \* \* \*

So now, at last we come to beauty contests. Mobile has been the traditional host city of the America's Junior Miss Pageant. Embodying the laudable platitudes of beauty, charm, physical fitness, poise, and community spirit, each June, fifty lovely, very young ladies from across the land would make the pilgrimage for a week's competition in the hope of being named America's Junior Miss and garnering the grand prize of

a full scholarship to that academic mecca in southeast Alabama, Troy State University, in Pike County.

And yes, each year they'd descend upon us bearing gifts. One midweek evening the girls would set up booths in the Bel Air Mall, where they could greet the adoring public, practice fabricating plastic smiles, and dole out mini souvenirs emblematic of their home state. My personal favorites were the tiny salt shaker from Utah's Junior Miss and a bag of reasonably crisp potato chips from Idaho. I even attended the finals one year. It made such an indelible impression on me, though regrettably I can't recall who wore the crown.

My baptism into pageantry, however, actually occurred back in 1980 at the Mrs. America competition, though I proved to be more facile at coaxing than coaching. I prevailed upon my bride, Paula, to enter the contest at the state level in the Diamond State of Delaware. Reluctantly, she relented, bought a new wardrobe, and strutted her stuff on stage. It was precisely then and there I first learned of the pervasive culinary power and universal appeal of macaroni salad.

In the Mrs. Pageant, the aspirants were given a unique question, where the response, "world peace," would likely have been noted as being more than a wee bit tangential. One by one, the ladies were asked to name the dish they best prepare. Even as a neophyte pageant coach, I was well aware this particular question might arise, and so, in my infinite wisdom, I urged my charge to offer "Oysters Rockefeller." Well, okay, she'd only "made it" one time, and it was a lot tastier at the Green Room in the Hotel DuPont, but I reasoned it would show off Paula's haute culture side, and thus resonate a favorable chord among the judges, making their deliberations that much easier. Coupled with the remainder of the perfunctory interview, swim suit, and formal wear competitions, I felt assured we were off to Vegas for the nationals and a spot on network television.

I couldn't allow myself to watch it from our home in Wilmington, and I don't even like macaroni salad. Fully eight of the ten finalists (and the eventual winner among them), tabbed the heterogeneous amalgam as their personal specialty of preference while we were sent packing, with a mere, "thank you," stopping by our favorite seafood restaurant for some hors d'oeuvres on the way home.

\* \* \* \* \*

### **Walk, Don't Run**

If you are under the misinformed impression that all there is to walking is but to alternately put one leg in front of the other, you likely have yet to encounter the living "Walkman" himself, the flappable Martin Snarek. Don't be alarmed. I'd never heard of him either; that is until I observed him in action, conducting his classic walking workshop at the 1996 Models International Convention at the Marriott Marquis Hotel in New York City.

Recently recovered from an undisclosed incapacitating illness, Snarek put the models (literally) through their paces, illuminating and correcting each of their missteps along the runway. "Glide, Melissa, glide. Good. Now, walk like you've

got a quarter stuck in your butt!" he'd rant, oscillating his own gluteals for emphasis. And, if you've a mind to eclectically expand your video collection, I'd surely recommend his instructional masterpiece, entitled (what else?) "Walk, Walk, Walk."

So, just how, you may ask, did I chance to meet the matchless Martin Snarek? The Cliff's Notes answer is I got on a bus in Knoxville, Tennessee, and rode through the night with a former Miss Virginia and eighteen beautiful young models to the Big Apple to meet a thousand more. Permit me, then, to embellish just a bit.

East Tennessee's premier modeling agency is owned and operated by my good friend, the remarkable Betty Rasnic Justice. Three decades removed from her reign as Miss Virginia (and an appearance at Convention Hall in Atlantic City), Betty's nonstop, hands-on management has catapulted Rasnic's to the top of the profession (or, more properly, to the zenith one can realistically reach within the hotbed of Appalachian modeling).

Betty conceived of and still finds time to chair the Modeling Hall of Fame in addition to her ongoing managing and teaching. The New York convention was an annual showcase for both models who had already made their mark as well as those who desperately yearned to, and the Rasnic Agency was suitably represented. The Marriott Marquis was abuzz with fashion designers, agents, photographers, beauty consultants, magazine executives, and talent scouts.

And, thus it was in '96, when my bride (again) was approached by Betty herself and asked to compete on stage in Fun City. Well sure, she'd done some local runway work at Expo and for J.C. Penney. But the beckoning power of Times Square proved irresistible. I couldn't miss the opportunity to tag along, but this time I vowed to leave the strategizing to the pros, in favor of kicking back and enjoying the scenery.

Rasnic's did quite well that year in the overall standings, and I was proud of Paula, who placed third in the Best Hair category. I had a marvelous time of it—going to upscale Manhattan discos in the company of so many gorgeous ladies, and, of course, watching Martin Snarek put in his two bits.

I also sat in on the preliminary interview competition. One particularly ravenously attractive young model caught my attention. She was asked how New York compared to her hometown.

Cautiously, she gripped the microphone, smiled, turned to the audience, and said, "I guess it's bigger, you know. I mean it's lots bigger, and it's got lots of big tall buildings. And the people here are nice and they're sorta bigger too, you know. And, when I get on back home, it won't be as big."

I glanced at my program and searched for the short bio for contestant 442. Unlike Bono, I found what I was looking for.

"Sally Sue Preston, 19, 4 yrs mdl exp, Belle Faire Agency—Louise Anne Dennis 0/0, 5 f 11 i, 121 p, h- aub, e- bl, dr-6, sh-10, Gr Culver H.S., 1 sem Yancey Bs Col, tap-2, bal-1, tal- voc, Amazing Grace, Opelika, AL."

Pass the macaroni salad, please!

## New Technique to Pinpoint Sources of Memory Loss.

A technique based on functional magnetic resonance imaging (fMRI) offers a way to precisely locate brain regions involved in memory loss. Conventional fMRI detects variations in brain oxygen uptake and is thereby able to identify regions of the brain involved in cognitive tasks such as thinking and speaking, while these activities are in progress. To do this, though, it must rapidly track the relevant changes; the need for high time resolution limits the achievable spatial resolution. On the other hand, brain pathologies, such as those involved in memory impairment, will generally develop slowly over time. To monitor such changes high spatial resolution is desirable but time resolution is not a priority. To sharpen the spatial resolution, the new technique measures only the resting oxygen level (ROXY), and analyzes the data over a longer period of time. Possible applications include earlier detection of Alzheimer's disease and more reliable diagnosis of memory disorders in general. One hope is to complete a diagnosis before any structural damage occurs, so that treatment can begin at the earliest possible stage.

The research, conducted by Dr. Scott Small and colleagues at Columbia University College of Physicians and Surgeons, has used both human and animal models. Human studies have focused on the hippocampus, a brain region important in memory and learning, and one where precise mapping of subregions is important. Studies with mice, on the other hand, have identified memory abnormalities depending on genetics rather than pathology or structural loss. The use of the resting brain state does not require a subject to understand and follow directions as with conventional fMRI. Studies can thus involve animals and severely impaired humans. The technique is also less expensive and easier to apply than conventional fMRI; commonly available MRI facilities should be adequate, so that patients nearly everywhere in the U.S. could benefit.

## "Smart Bomb" Cancer Killer Shows Additional Promise.

A drug that seems to deliver a knockout blow to a certain type of leukemia is now showing promise in treating a solid malignancy. The "smart bomb" compound, known as STI571 or glivec, has the great advantage over conventional chemotherapy that it specifically attacks disease products in the body—tumors or other abnormal cells—while leaving other cells and tissues unharmed. In a recent milestone case, a 50-year-old Finnish woman with a GIST or gastrointestinal stromal tumor faced a grim prognosis. Starting in the supportive tissue (stroma) of the stomach, the malignancy had spread to her liver and abdomen. Despite heavy chemotherapy, new tumors were cropping up faster than doctors could remove them. Two drugs

that sometimes shrink tumors by cutting off their blood supply were also ineffective. The woman was then given STI571 in the form of four oral capsules per day. Within a month her tumors had shrunk by a half, and within eight months many of the lesions were gone. More than a year later she continues to do well, according to Dr. Brian Drucker, an oncologist at Oregon Health Sciences University in Portland whose research was pivotal in developing the drug. Another big plus is that side effects have been almost nonexistent.

Meanwhile, the drug continues its spectacular success against chronic myelogenous leukemia (CML), achieving 53 total remissions in 54 patients tested. There it works by targeting an enzyme, bcr-abl, that results from a genetic defect and causes the patient's cells to divide uncontrollably. GIST produces a closely related molecule that makes it also responsive to the same treatment. Brain cancer, which again involves a similar molecule, is another possible treatment candidate. Tests are continuing, with emphasis on "simpler" cancers such as CMU and GIST that are driven by only one or two genetic abnormalities and can be strongly impacted by this agent. The drug is not expected to be as effective against many other malignancies such as lung and prostate cancers, where the enabling mechanisms are more complicated and more robust. It also is less effective in the later stages of some illnesses it does treat, and naturally, will not work for the many diseases that do not depend on the molecules it attacks. Its limitations, however, do not negate the very positive development it heralds: chemical cancer treatments that are highly specific to the disease in question and otherwise have minimal effects.



Dr. Brian Drucker

## Gene Therapy, Cell Transplant to Combat Alzheimer's.

A California woman in the early stages of Alzheimer's disease has become the first recipient of gene therapy to slow or reverse this progressing dementia. The 60-year-old patient, who wished to remain anonymous, had a small hole drilled in her skull April 7 and millions of her own, reconditioned skin cells injected deep in the right hemisphere of her brain. The target area, a thumbnail-sized piece of tissue known as the nucleus basalis, produces acetylcholine, a substance that nourishes areas of the brain thought to control such higher functions as memory, attention, and spatial navigation. To perform its own function, however, the nucleus basalis requires nerve growth factor, a substance in short supply due to nerve damage from the disease. The skin cells were modified by inserting a gene to produce nerve growth factor and adding substances to promote

gene expression and activate the newly acquired capability. The woman will now be monitored to see if her brain function improves, stabilizes, or degrades but less rapidly than would otherwise be expected. Only the right brain hemisphere has been treated. The left hemisphere has its own nucleus basalis, which in this case will not be benefited. One other patient is to be treated in one hemisphere only, then, if all goes well, bilateral treatments will be offered.

The research effort is being led by Dr. Mark Tuszynski at the University of California, San Diego, which also hosted the surgery. Dr. Hoi Sang U was the neurosurgeon who performed the operation. The work is based on research with aging monkeys, whose atrophied nerve cells were revitalized and restored to function by a similar procedure.

### **Stem Cells Show Promise for Heart Repair.**

Three experiments with animals make the prospect of repairing ailing human hearts with stem cells seem tantalizingly near. Stem cells are unspecialized cells that are able to give rise to many different tissues as well as replenish themselves by division. All the experiments used adult stem cells from bone marrow, and in one case human cells, which can survive and function for extended periods in animal hosts. Bone marrow stem cells are mainly used by the body to form blood cells, but an exciting new finding is that they can apparently form a wide variety of other tissues too. Whether there is, in addition, a special stem cell for the formation of heart tissue is unknown. But the use of adult cells bypasses the ethical problem some have expressed over embryonic stem cells, which in their natural setting develop into fetuses and eventually whole human beings.

In one experiment functioning heart tissue was apparently created, the first time this had ever been done. Another experiment used human angioblasts, a special type of marrow stem cell, to form blood vessels in mouse hearts. A third experiment used stem cells to strengthen pig hearts.

A team led by Dr. Piero Anversa of the New York Medical College in Valhalla and Dr. Donald Orlic of the National Institutes of Health achieved success in creating mouse heart tissue. Marrow cells from a donor mouse were carefully screened to isolate the most primitive stem cells and exclude those that had already progressed toward becoming blood cells. The stem cells were then injected into hearts of mice that had been given heart attacks by tying off an artery, and they produced an amazing revitalization. New heart tissue was formed, consisting of muscle mass and blood vessels with linings. Ventricular performance improved by 40 percent. The new cells produced a special protein typical of heart cells bound by a connective network so as to beat in unison, further evidence that the new tissue was functioning, though more testing is needed to establish this important property beyond doubt.

The second experiment, conducted and reported by Dr. Silviu Itescu and colleagues at Columbia University, used a special type of human marrow stem cell they call an angioblast, which, they say, has the specific function of forming fine blood vessels. Isolated for the first time, the angioblasts were injected

into the blood stream (not hearts) of rats that had again been given heart attacks by tying off an artery. The damaged hearts had regenerated muscle tissue to replace what had been lost, but the new tissue was deficient in blood supply. This effect is also seen in humans who survive heart attacks (as most do, and indeed this mechanism itself is largely responsible). Over time the blood-deficient replacement muscle is likely to degenerate into scar tissue, so that serious heart problems recur. But in the experiment the angioblasts homed in on the damaged hearts and proceeded to develop into fine networks of blood vessels to provide extra metabolic support. That this effect was seen at all is remarkable enough, but that it happened between two species as different as rats and humans seems all but miraculous and perhaps can be taken as a sign that human-to-human cell injections for the same purpose are not far away.

The third experiment involved a Maryland-based private company, Osiris Therapeutics, Inc., and was carried out by Dr. Robert Deans. A second type of stem cell known as a mesenchymal cell was used; pigs furnished both the cells and the experimental model. A roughly human-sized pig is large enough that its heart function can be much more accurately measured than in rodents. In this case, the function improved after cells were injected into the region of a heart attack. Deans hopes to begin clinical trials of his technique within a year.

### **Implantable Artificial Heart Nears Clinical Trials.**

Based in Danvers, Massachusetts, and also in Eindhoven, Netherlands, Abiomed, Inc., has developed an artificial heart that may at last make a worthy substitute for the natural organ. In use, the new battery-powered heart has no physical connections piercing the skin; power to recharge the battery is transmitted through the intact skin, minimizing the risk of infection. Patients can be fully ambulatory and disconnected between recharges. Like the natural variety, the artificial heart consists of two blood pumping chambers, one to supply the lungs, the other, the rest of the body. Each pump can deliver eight liters of blood (2.12 gallons) per minute. The device is about the size of a grapefruit, and is quiet. The pump rate is adjustable depending on the body's needs, and an internal monitoring system determines when the battery should be recharged. Heart valves are made of a flexible plastic and coated with an anti-clot-forming material, to minimize the risk of strokes that so plagued the Jarvik-7 heart of two decades ago. Clinical trials of the new heart are to start very soon (and may be under way as you read this). Reportedly the FDA, with mixed feelings, has set very high standards for the device to be approved, but Abiomed is confident of its product and very determined to succeed. Let us wish them well!



Abiomed's artificial heart

### **Desiccate, Estivate, Reanimate.**

Exposed to drying conditions, our cells usually die within seconds. A new technique, however, has reanimated dried

human cells after eight days' storage at room temperature. Researchers Malcolm Potts and David Helm of the Virginia Tech Center for Genomics in Blacksburg report an experiment in which human kidney cells were protected with glycan, a substance used by a single-celled organism, the cyanobacterium *Nostoc commune*. Slimy when wet, glycan dries to form a protective, woolly covering that enables the cells of *N. commune* to survive for centuries without water. In the experiment, half the dried human cells recovered function on moistening, a most encouraging result at this very preliminary stage. Possible applications are numerous. Dried blood for transfusions, for instance, would have an indefinite shelf life, as would various antibodies and vaccines. Cell-based biosensors could be stored until needed, then activated by moistening. More ambitiously, it may be possible to develop protocols for storing whole organs in a desiccated state. Might this ultimately extend to the brain, obviating the need for cryopreservation?

### **Gene Therapy Cures Blindness.**

The Foundation Fighting Blindness, based in Hunt Valley, Maryland, reports success in curing an inherited form of blindness in dogs through gene therapy. Lack of a gene prevents the animals from making a pigment needed to perceive light. A virus is used to deliver the gene to the retinal pigment epithelium, a layer of cells supporting retinal function. Only one eye of each subject is treated. The animals are then observed to perform much better at avoiding objects on the treated side than on the other, and to look back at observers watching them. Dr. Gerald Chader, Chief Scientific Officer of the Foundation, commented, "With this study, gene therapy has overcome a major hurdle. Previously, researchers have restored vision in rodents. However, the Food and Drug Administration wants to see evidence that a treatment is safe and effective in a large animal model before granting permission to begin clinical trials in humans. Genetic medicine is now making things we could only once dream of a reality." The dogs have a canine version of what is known clinically as Leber congenital amaurosis (LCA), actually a family of disorders that cause near total, lifelong blindness in humans. LCA occurs only rarely, but the prospect of reversing any previously incurable condition is exciting and in this case may generalize to a broader class of genetic vision disorders, known collectively as retinitis pigmentosa, which up to now have resisted treatment.

### **Tinier Computers through Nanotubes.**

For the first time a vast assembly of transistors has been created using carbon nanotubes, tiny structures made, like buckyballs, of atoms in a hexagonal or "chicken wire" pattern, only stretched out in this case to form thin pipes. In this way the thickness of wiring in the components has been reduced by more than a factor of 300, from 500 to 1.4 nanometers. Three IBM researchers, Philip G. Collins, Michael S. Arnold, and Phaedon Avouris, first painted a slurry of nanotubes on a conventional computer chip, creating many electrical connections across various contact points. Nanotubes come in different varieties depending on structural features such as the

"wrapping angle" of carbon atoms around the cylindrical surface and the number of concentric shells or walls of the tube. By applying electric current, the researchers were able to vaporize unwanted varieties such as strong or metallic conductors and leave intact a single-walled, semiconducting tube useful for building circuits. In the process they created many tiny electric switches, opening the door to a possible mass manufacturing technique. The researchers meanwhile think they can also develop a method for precisely controlling the length of the tubes, which will be important in reducing and standardizing the speed of the switches. It is significant that Dr. Avouris, who has often been critical of claims made by other researchers in the budding field of molecular electronics, is now more optimistic.

For more than three decades, the number of transistors that can be placed on a chip has doubled about every 18 months, a property known as Moore's Law after Intel cofounder Gordon Moore who proposed a version of it in 1965. Moore's Law (really more of a lucky break than a "law") has helped spur the global economy and brought a cornucopia of wonderful new capabilities, as computers have become ever more powerful, versatile, widespread, and affordable. We want to keep it going as long as possible, knowing, however, that it must eventually bump up against laws of physics that limit just how fast and powerful computing can be. Developing nanotechnology, as is seen in the work with nanotubes, is one way to get the most out of Moore's Law and keep it from terminating prematurely.

### **Revolution in Wireless?**

Larry Fullerton is a lone inventor with a dream that wouldn't die. The dream: to send radio communication by means of time-coded pulses—little blips of electromagnetic intensity without a well-defined frequency, rather than the conventional sine waves whose frequency is well-defined but which, for that very reason, cannot be so localized in time. Can't be done, he was told by learned voices, at least not in a practical way. But today, after more than a quarter-century of effort, he stands poised with his Huntsville, Alabama-based company, Time Domain, to launch a revolution in wireless. A key to his success is a very accurate timing system for sending and receiving electromagnetic pulses. A timer chip, accurate to 12 picoseconds (12 trillionths of a second, an eightieth of a nanosecond) determines when a pulse is sent, and another, similar chip, when it is received. By slightly advancing or delaying a pulse, a "0" or "1" can be encoded. Overall, digital information can be sent at a staggering rate with low power output, up to 40 megabits per second at half a milliwatt. Interference is also reduced for this ultra-wideband (no well-defined frequency) approach. A possible hurdle is that indeed the operating frequencies are spread over a large part of the radio spectrum, and thus will encroach on frequencies already in use by conventional traffic. The encroachment, however, is minimal at any given frequency and should pose no problem. Among the possible applications is a global positioning system accurate to within inches rather than dozens of feet. Other projected uses are numerous and include better cell phones, systems that accurately detect and warn of intruders, smart air bags that detect and adapt to a passenger in

the event of a crash, devices for tracking personal belongings, and systems for finding people trapped behind walls in buildings. Of special interest to immortalists would be systems for locating people and reporting vital signs.

### **Modern Technology Restores Ancient Texts.**

In the year 79 C.E. Mt. Vesuvius erupted, spewing many tons of hot volcanic ash into the air and burying the cities of Pompeii and Herculaneum. In the 1700s, excavations at a villa in Herculaneum that had belonged to Julius Caesar's father-in-law uncovered what at first seemed to be sticks of charcoal but proved to be charred rolls of hand-inscribed papyrus. A most priceless ancient treasure had been found: a library! In this case it included many writings of epicurean philosophy that are otherwise unknown or poorly represented. (Epicurus was a rationalist who cautioned against expecting help from divine sources and advocated a scientific approach instead. His point of view aroused opposition in ancient times as it still does today and in part accounts for the scarcity of his writings and those of his followers.) Deciphering the badly damaged texts, however, has proved very difficult.

Recently a technique has been developed, using infrared and other invisible radiation, that should make this task much easier. It is very hard to read a blackened page originally written in black ink, but by imaging in light of the right wavelength and adjusting for contrast, the page brightens up while the ink stays black. The technology was originally developed by NASA's Jet Propulsion Laboratory to study minerals on planet surfaces.

The texts consist of some 1,700 papyrus rolls in a Naples museum. The project to decipher them is being led by Steven Boorhas of Brigham Young University. The villa where they were found is buried under many feet of concrete-like material that is difficult to remove and has not been thoroughly excavated; many more papyri could still be buried there. The imaging technique is also being applied to materials found at other sites. Finally, it is worth remarking that there is a parallel in the preservation of the ancient documents and what we are attempting through cryopreservation. The excavators of the 1700s saved many texts they could not read, just as we save people who cannot now be resuscitated. Technology has vindicated them, and we hope it will vindicate us, too. 1

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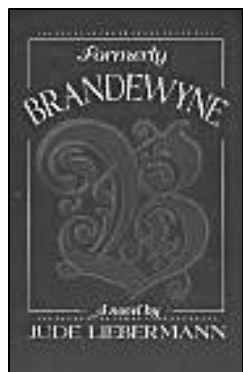
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# *Formerly Brandywine*

By Jude Liebermann

Lee Books, 1998

Book Review by Jennifer Chapman



At the end of the twentieth century, Brandywine Parker is a successful businesswoman struggling with the typical difficulties of being middle-aged and single. Over the years, she has gained more weight and wrinkles than she would prefer but she has also gained an unwavering devotion to advancing her career. Although the achievements of her professional status are rewarding, the ongoing battle to overcome discriminatory behavior and earn the respect of her colleagues has left Brandywine questioning whether intellectual equality will ever be a reality during her lifetime—or was she just born in the wrong century?

With the life of her character drastically changed by a tragic accident, the author of *Formerly Brandywine*, Jude Liebermann, introduces her readers to an imaginative world in the year 2078. As can be expected, there are advanced modes of transportation and communication to explore as well as economic and social changes to consider. However, it is the unique perspective of her character that makes this publication most intriguing.

With the memories and experiences of a 39-year-old woman, Brandywine finds herself in the body of a teenager. From fear and anger to excitement and curiosity, the character undergoes a range of emotions as she confronts the reality of her existence. Likewise, the reader is faced with a series of compelling questions as the implications of the plot are revealed. How can a person be alive if she is able to visit her

own gravesite? Can a person change so much that she ceases to be herself? Is a clone a separate individual from the DNA donor if she has the exact same memories? When reading this book, did you think of Brandywine before and after her death as being two different people? If you accept her as the same person, then you must also accept that she is simultaneously both alive and dead.

Overall, the storyline of *Formerly Brandywine* is both entertaining and easy to follow. Being a love story, it will likely be more appealing to female readers. However, the scenarios presented in this book could easily spark an interesting discussion between a variety of participants. Certainly, this book is a particularly beneficial reference for those individuals who are uncertain about how to introduce their spouse or friends to the concept of clinical cryopreservation. Even if cryostasis is not immediately embraced after reading the book, the reader will certainly gain an enhanced appreciation for the many interesting aspects of life it brings to light.

Reading the book from cover to cover only takes a couple of hours. So why not spend an afternoon enjoying this heartfelt novel created by the imagination of Jude Liebermann?

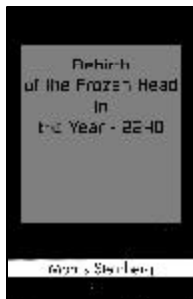
Visit <http://read.at/leebooks> to receive a discounted price on your order of this book. Any comments regarding this review can be directed to [jennifer@alcor.org](mailto:jennifer@alcor.org) for possible publication in future issues of *Alcor: Reaching for Tomorrow*.

# *Rebirth of the Frozen Head in the Year 2240*

By Morris Steinberg

Xlibris, 2000

Book Review by R. Michael Perry



These days publishing a book is easier than it used to be, with web-based services that are like the old vanity presses but operate at a far lower cost. New printers make it economical to produce single copies of a book on demand, obviating the need for an expensive inventory. (Indeed, this is how I was able to publish my own book, *Forever for All*; the web-based company I deal with charges about \$500 for its basic service versus about \$20,000 for a vanity press I also investigated.) The printers start with the books as electronic files, which can also be propagated almost instantly, at very low cost, by the click of a download button. Advertising can similarly be handled electronically. All this is well and good, for the most part, but there are downsides too. The web-based publishers do make an effort at quality control, but amateur productions are finding their way into print that would never have seen the light of day without considerable editing.

The book before us, published by web-based Xlibris and ponderously titled: *Rebirth of the Frozen Head in the Year 2240*, is clearly one such amateur production. The author, it appears, is a retired chemical engineer who has taken up writing as a pastime. The novel is not likely to make any bestseller lists without a rewrite, but it does at least have some interesting plot elements, among which is cryonics and the revival of frozen humans in a future time. Mark Marshall, eighty and dying, is frozen in 1999 as a neuro or head only by “Alcor,” an organization in the Phoenix, Arizona, area having some affinities to the real Alcor in the same area, though also some disturbing dissimilarities. Four decades later his daughter Judy joins him in the cold. The two are finally revived two centuries later, their bodies recreated by cloning techniques,

their health and youth restored, their aging halted for good.

The world they come back to, however, is not post-Singularity paradise but a still-human society with its fair share of defects. Among them is that immortality is so far limited to cryonic resuscitees or “revivers.” An evil scientist is in charge of things and determined to extend unlimited life to others including himself, for which he plans to dissect and otherwise experiment on the revivers. To forestall this the Marshalls must scramble but they have one major advantage: psychic powers, through which they have contacted an advanced intelligence who is guardedly sympathetic to their cause. In the end the good guys win, the bad scientist is sent to another dimension (though his life is spared and he is not made to suffer beyond the separation from earthly civilization), and the repressive society is reformed.

A fantasy, basically, to be read as entertainment but not taken too seriously. Steamy sex is not really a major theme, but there is enough of it, as Mark and Judy (separately) explore the possibilities of their newly recovered youth, that I wouldn’t classify it as a children’s book. It is also the type of story that Hollywood movies can be based on and often are—all too often, I would say. We immortalists would like something we would consider more authentic and mature. The requirements for this are difficult, however. As we envision it, the future will not merely contain more advanced science and gadgetry, but the very people—hopefully including ourselves—will have advanced beyond the human level. We can assume that no small effort will have gone into precluding the sorts of scenarios that present-day fiction writers and movie makers and their fans find appealing. What will be left? To anticipate such a world at all is hard enough. To also write fiction about it, realistic but entertaining fiction with plots and characters and conflicts that can be taken as the sorts of things one might actually encounter, is much harder still.

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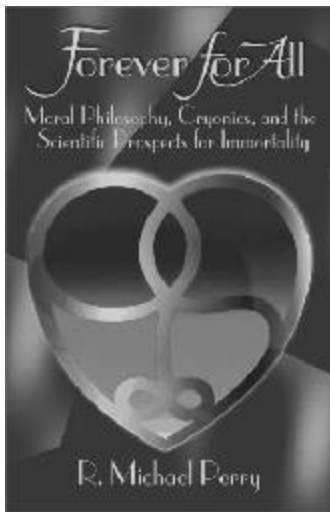


# *Forever for All:* *Moral Philosophy, Cryonics, and the Scientific Prospects for Immortality*

By **R. Michael Perry**

Universal Publishers, 2000

Book Review by **Dr. Jerry Lemler**



Forever may indeed be for all, but this reviewer can unequivocally state, with more than a modicum of erudition, Dr. R. Michael Perry's monumental new manuscript, *Forever for All*, is not. Dr. Perry's treatise, subtitled *Moral Philosophy, Cryonics, and the Scientific Prospects for Immortality*, presupposes the reader brings to the table a requisite familiarity with several diverse and complex disciplines, inclusive of cosmology, quantum

mechanics, molecular engineering, advanced computer science, metaphysics, and theology. No, this epic work doesn't qualify as a stocking stuffer or coffee table ornament, but for the hearty *and* heady, it's a genuine treasure.

Filled with the author's unbridled optimism for a future ideally created and thence justifiably inhabited by ourselves in a yet-to-be fully delineated post-human form(s), we are, in more than 600 scintillating pages, transported from our present circumscribed existence to an unbounded universe(s), whenever and wherever it (they) may originate.

*Forever for All* is launched by a recitational tracing of the history of the biostasis movement, painstakingly building to Dr. Perry's suggestive explanation for its failure to generate large-scale enticement. The cultural anxiety buffer, opines the author, is the foundation of immortality repudiation, as it draws (consciously and unconsciously) upon religious and philosophical systems. Adherents, lemmings of a sort, in detached obligatory fashion, profess and "execute" their lives (and then themselves), seemingly satisfied with their terminal existence and programmed self-destruction, all the while seeking little more. To yearn for meaningful life extension, and to actively pursue it via biostasis, might invoke a disavowal of such magnitude, the intra-psycho G-forces of imbued stagnation could be and would be summoned to quash the uprising.

Perry is verily the optimist's optimist. A convincing proponent of Unboundedness (the principle that in the whole

of existence, all possible, finite histories actually happen), he argues, expanding on Fedorov, how the premise of Many Worlds allows for the eventual resurrection of all human beings who have ever lived. Biostasis, naturally, is the process cited as offering any given individual the optimal chance at successful reanimation, and in egalitarian fashion, Perry notes how "lower creatures" will not be exempt. Schrodinger, therefore, may well rejoice upon his return, but this reviewer selectively places his reunion fantasy bet on the author and his own pet cat, Aido (personal communication).

Respectable lip service is given to synthesizing quantum mechanics and gravitational forces (allowing for String Theory), yielding a digital substrate in consciousness. This fusion, postulates the author, is a "happy one," in that it facilitates the possibilities of resurrection and immortality. Notes Perry, "A person could survive as a computer program rather than a 'meat machine'" (195).

A devotee of nanotechnology and the seemingly miraculous promises it may occasion in our future lives, Dr. Perry scoffs at those who contend the members of an advanced civilization would lack the interest to resurrect a suspended human. "The first successful airplane is the Wright Flyer I, a single-passenger craft that first flew in December 1903. It now rests carefully maintained, in the Smithsonian Institution. It continues to hold our attention today, not despite but largely because of the great advances in aviation that have occurred since its first tentative lift-off. True, in its own day it was a technological marvel too, but part of its importance lies in how greatly it has been superseded by improvements in the very features it prototyped" (314).

True to form, the question "Will the Good Prevail?" is answered in the affirmative. "In general it seems reasonable to conjecture that more-than-human persons of the future through growing understanding and benevolence, will advance to states of greater overall meaningful happiness. All must realize, at some level, that this course of advancement is in their best interest—so the evil person must inevitably change for the better" (319).

The troika of Perry's philosophical constructs, enumerated in three consecutive chapters ("The Philosophy of Assurance," "The Philosophy of Aspiration," "The Philosophy of Action"), is abundantly beyond Barmecidal. As he affirms, "Increasingly, we are in the position of infants in a small room playing with

hand grenades. The small room, now our globe, is not likely to get much bigger, at least as long as we remain 'infants.' And the 'grenades' are not getting less powerful, but if anything, more so, and more obtainable all the time. So we must elevate ourselves out of infancy somehow, become more than what we have been, more-than-human, to diminish the risk. If we do not succeed in immortalizing ourselves, it may well seal our doom" (461).

Buttressed by a metaphorically insidious Objectivist doctrine that would have coaxed an approving nod from Howard Roark, Perry regales upon the virtues of self-interest, averring it to be, "—the rational foundation for why we live life or do anything whatever, especially in a more enlightened form that takes the future into account" (464).

Employing an encomium of joy and benevolent self-perpetuation, Perry imagines a future immortal will have three principal interests: contemplation, creativity, and community. Most of us today, he argues, are overly focused on the latter pursuit, being the mere social animals we are. In the future, however, Perry believes this stagnated condition, like Kafka, will change. And, as for getting there, the author delivers a parting shot at those (we all personally know some), who attack biostasis as a selfish endeavor. Perry replies, "Of course it is, but not unduly so—instead, rightly so! This is based on the premise that attaining immortality and a more-than-human status is the rightful destiny of each individual—which of course it is" (532).

Undeniably, it would be a source of great comfort for any of our legions to bask in the assuring proclamations of a latter-day secular prophet—but only if that oracle has demonstrated a certifiable track record of veracity. Dr. R. Michael Perry has established himself as a sibyl of exactitude. Responding in

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(continued from page 11)

We, at Alcor, wish to thank everyone who participated in this most successful cryotransport, as well as all our volunteers who offered us their time and expertise, who weren't called in. The case of A-1705 illustrates the value of terminal hospice care in a skilled and empathetic environment close to Alcor Central. Additionally, the low temperatures recorded so soon following pronouncement attest to the intrinsic viability of Alcor's cryotransport protocols. Details of the cryoprotective phase of A-1705 will be placed on our web site, ([www.alcor.org](http://www.alcor.org)), with hard copy to be published at a later date.

### Toothing Our Own Horn

We didn't say it first, but we don't deny it either. Alcor patient A-1705, in our estimation, received the highest quality suspension performed anywhere, anytime, by anyone! His chances of reaching the distant future are better than any person who has ever lived. Many factors support this proclamation, not the least of which was the instant availability and especially high quality of local terminal hospice care.

Alcor has initiated (and plans to maintain), a superb working relationship with a large, well-established, Phoenix-based hospice organization. The groundwork for this coopera-

tion was swiftly and painstakingly laid by Alcor Medical Director Dr. Jerry Lemler via personal visits to the hospice administrative offices and numerous telephone conversations with their Medical Director and intake coordinators.

As mentioned in the accompanying A-1705 Suspension Report, hospice personnel (prior to, during, and following our five-day presence), were appropriately inquisitive and solicitous in assisting our staff in optimally carrying out our (and A-1705's) desires. In fact, they demonstrated a level of enthusiasm rarely seen these days amongst health care workers.

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If you desire more detailed information about Phoenix-area hospice services, give Alcor a call! Ask for Dr. Lemler at extension 102.

While *The Prospect of Immortality* (Ettinger, 1964), *Engines of Creation* (Drexler, 1986), *Nanomedicine Vol. 1* (Freitas, 1999), *The Baby Boomers' Guide to Living Forever* (Grossman, 2000), and the impending *CRFT* rewrite (Lemler, scheduled 2001) more than adequately convey the nuts and bolts of mankind's singular greatest undertaking, (avoiding the undertaker), most assuredly *Forever for All* (Perry, 2000) is "The Word." My exhortation is pellucid: buy it, read it, pass it on.

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# Letters to the Editors

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Please send letters and/or articles to:

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