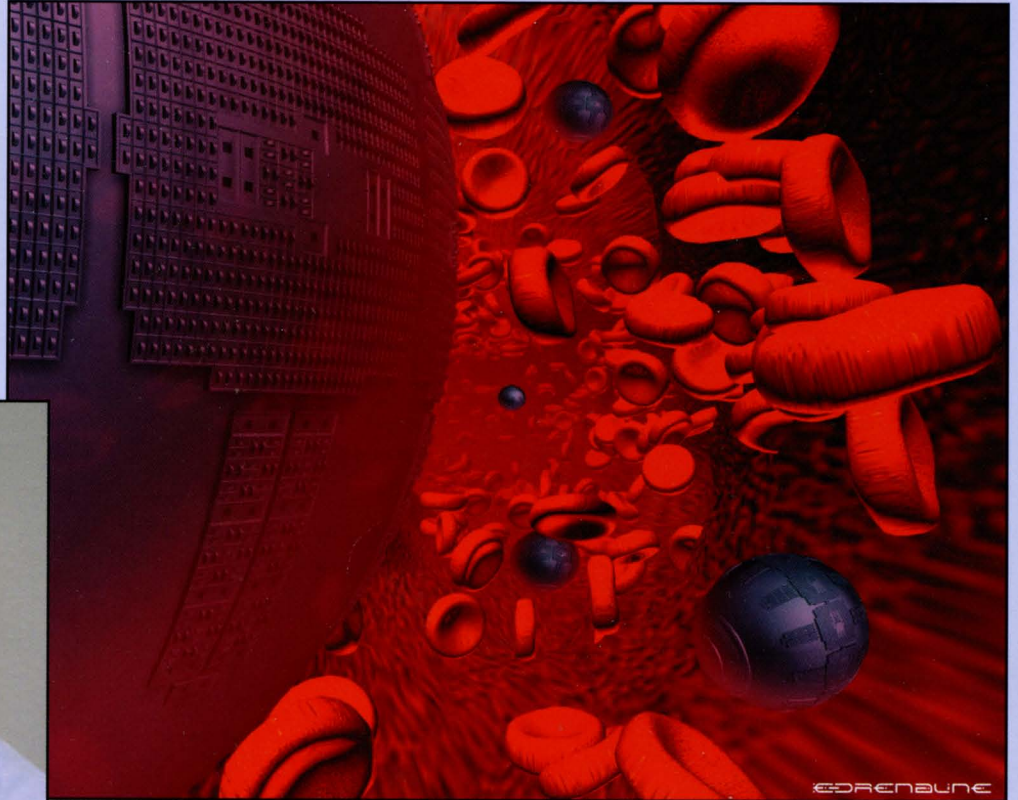


CRYONICS

2nd Qtr. 2002 A PUBLICATION OF THE ALCOR LIFE EXTENSION FOUNDATION Volume 23:2

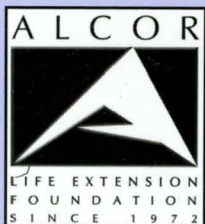
**Register today to
reserve your space
at the conference!**

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**Ralph Merkle, Ph.D.,
is Chair of Alcor's 5th
Extreme Life Extension
Conference**

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Cryonics

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2nd Quarter 2002

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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 5th 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 increasingly 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 *Cryonics*, August 1984.



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

Cryonics
Alcor Life Extension Foundation
7895 E. Acoma Dr., Suite 110
Scottsdale, AZ 85260

Visit us on the Web at www.alcor.org

How to Join Alcor

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

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

Most people use life insurance to fund their suspension, although cash prepayment is also acceptable. If you do not already have an insurance policy, Alcor recommends that you apply for one at your earliest convenience, as the underwriting pro-

cess can last several weeks. Jennifer Chapman, Alcor Membership Administrator, can provide you with a list of insurance agents who have previously written policies for this purpose. These agents can assist you with satisfying Alcor's various funding requirements, such as naming Alcor as the owner and irrevocable beneficiary of your policy and ensuring that your benefit amount is sufficient.

With your membership documents completed and your funding approved by Alcor, you will be issued emergency identification tags engraved with your personal Suspension Number. This is your confirmation that Alcor will provide you with suspension services, should our emergency technicians ever receive a call on your behalf. Certainly, Alcor hopes that you will not need our services anytime soon, but as a member of Alcor you can feel confident that our organization will care for you and your future. Please call 480-905-1906 ext. 113 today to request your application.

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

Please! Please! Please!

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

Too many times we have tried to contact our members and found out the contact information we have is no longer valid.

Other times we find out well after the fact that a member has undergone a medical procedure with life threatening potential.

*Help us to serve you better!
Keep in touch!*

Of Conferences Past...

**The First Alcor Cryonics Technology Festival
1996
February 16–18
Scottsdale, Arizona**

This first gathering began in Ventureville, a 1.6-acre rural parcel in northern Phoenix, on Friday and continued Saturday with a tour of the Alcor facilities. President Steve Bridge hosted and Ralph Merkle gave a report on the Foresight Institute Conference. There followed talks by Ben Best (Cryonics Society of Canada), Thomas Donaldson (memory and repair of the brain), Paul Segall (hypothermic blood substitutes), Hal Sternberg (recent work on control animals taken to temperatures below freezing), Bob Ettinger (review of philosophical issues), and Mark Voelker (recent initiatives to redesign dewars). There were 57 participants.

**Alcor's Second Cryonics Technology Festival
1997
February 1–2
Scottsdale, Arizona**

This conference kicked off with a party at Dave and Trudy Pizer's on January 1st. Featured speakers included Linda and Fred Chamberlain (transport improvements and Alcor's future plans), Ralph Merkle (developments in nanotechnology), Paul Wakfer (his current project to suspend and revive brains), and Mark Muhlestein (tissue engineering). There were approximately 50 attendees.

**Alcor's Third Annual Cryonics Conference
1998
April 4–5
Phoenix, Arizona**

Mike Darwin "captivated the audience with his work on the recovery of animals from long-term ischemia, Brian Wowk brought attendees up to date on research toward improving suspension procedures, and Fred and Linda Chamberlain discussed their new wash-out suitcase for field procedures." Additionally, there was a panel of notables, consisting of Marvin Minsky, Ralph Merkle, Max More, and Jim Halperin. Tours were given of the Alcor facility, and Jim Halperin signed copies of his book *The First Immortal*.

**Alcor's Fourth Conference on
Life Extension Technologies
2000
June 17–19
Asilomar, California**

This gathering was the largest, with 160 people attending. The keynote speaker was Eric Drexler, renowned author and scientist. Other speakers in the impressive lineup included James Hughes, sociologist and bioethicist; Gregory Stock from the UCLA School of Medicine; Robert Newport, M.D.; Glenna Burmer from LifeSpan BioSciences, Inc.; Michael West from Advanced Cell Technologies; Brian Wowk and Gregory Fahy, scientists from 21st Century Medicine; Ralph Merkle from the Zyvex Corporation; Richard Morales, M.D.; Fred Chamberlain, B.E.E.; and Tomas Prolla from the University of Wisconsin. A second-day feature was a panel discussion by Natasha Vita-More, Max More, Greg Fahy, and Ralph Merkle.



Conference Chair
Ralph Merkle

Join Us

for the Fifth Alcor Conference on Extreme Life Extension

...You'll be in great company!



Conference Co-chair
Kat Cotter

Join Michael D. West, speaking on Human Therapeutic Cloning; Ray Kurzweil—winner of the National Medal of Technology; Gregory Benford who will cover “Cryonics in the Long View,” Robert Freitas, who wrote the book on nanomedicine; Michael Rose, who is world renowned for his work in extending the life span of fruit flies; Aubrey de Grey, who will talk about how we might modify and improve our natural maintenance systems to slow aging to a crawl; Stephen Spindler, who is investigating caloric restriction using modern gene chips; Greg Fahy who has spent a lifetime of study in the cryopreservation of organs and tissues and is the acknowledged pioneer of vitrification; and many other experts in their fields. The Fifth Alcor Conference on Extreme Life Extension will bring together the latest information from the world’s leading researchers.

The Alcor conference unites the entire Alcor community, along with everyone else who shares our interest in life extension. Alcor clients, clients of other cryonics organizations, people who are thinking about joining, people who are simply curious, and people who have no particular interest in cryonics but do share our interest in living longer, healthier lives—all attend, all are welcome, all make this an event to be relicted.

This will be the most well-attended event in Alcor’s 30-year history. Is there an expert speaker or Alcor associate you’ve always wanted to meet? Have you made some friends on CryoNet or other Cryonics newsgroup? Well, many of them will be at the conference. This is your chance to make new friends and get together with old and dear ones.

Alcor’s 5th conference kicks off with a gala reception on Friday evening. It will be a lively “meet and greet” party to celebrate Alcor’s 30th anniversary. This is something Alcor clients and associates will not want to miss. Formal attire is appropriate but not required. Join us at this festive event!

The VIP dinner on Saturday evening is by invitation only. This dinner is to show Alcor’s appreciation to those clients and associates who have gone above and beyond to make Alcor the best Cryonics organization in the world. Again, formal attire is appropriate but not required.

Alcor’s Extreme Life Extension Conference is the place to be this autumn for individuals interested in extending their life span. The entire spectrum of life extension technologies will be covered, and conference attendees will learn the most cutting-edge information in many areas of longevity.

Everyone will have the chance to learn, to ask, to network, and to enjoy the company of so many others who share the dream

of a very long and happy life.

This year we’ve added something new: an all-day Friday Tutorial on Fundamental Issues in Life Extension. Four in-depth sessions exploring some of the critical subjects influencing our lives in the coming decades and centuries. These tutorial sessions will be smaller and offer more time for the attendees and the tutorial speakers to explore, together, areas that the speakers have devoted their lives to understanding.

Speakers: The conference itself has a string of stellar speakers, most obviously our keynote speaker Michael D. West. Speaking on “Human Therapeutic Cloning: Opportunities and Challenges,” Dr. West, President and CEO of Advanced Cell Technology—the company so much in the news because of its string of ground-breaking experiments that are opening up new avenues in therapy and tissue replacement—will tell us about this revolutionary technology’s ability to replace damaged or missing tissue, whether it be pancreatic cells to treat diabetes, brain cells to treat Parkinson’s disease, or more ambitious organ replacement therapies.

Next on our list of famous speakers is Ray Kurzweil—winner of the National Medal of Technology and founder of a series of successful companies that have ridden the successive crests of new technologies with a timing like a champion surfer picking the big waves and riding them with a skill and a flare that we can only applaud. Find out where the trends of technology are taking us, not only in the next few years but also in the coming decades.

Then we’ll hear from Gregory Benford—dubbed by *Science Magazine* “...a mild-mannered professor who doubles as the working physicist’s science fiction writer.” As a professor of Physics at U.C. Irvine and the author of so many (and such engaging) science fiction stories, he can provide us with a well grounded perspective on what might lie ahead—“Cryonics in the Long View.”

Robert Freitas, the man who, quite literally, wrote the book on nanomedicine—will give us an overview of life and death and why the latter is an outrage. For so long we have been able to do so little to save so many who die so young that now, when the opportunity lies almost within our grasp, we hesitate. We should hesitate no more, but boldly explore and boldly develop this now realm of molecular machines able to heal and cure when today’s medicine falters. Find out how medical nanodevices could gobble up bacteria, zap cancer, and oxygenate our cells even if our heart stops.

Michael Rose, professor of the Evolutionary Biology of Aging and Evolutionary Genetics at U.C. Irvine, dares to use the “I” word as he explains the prospects for biological immortality. World renowned for his work in extending the life span of fruit flies, we’ll find out the broader implications of this and related work.

Aubrey de Grey explains negligible senescence and explores how we might modify and improve our natural maintenance systems to slow aging to a crawl. This approach is now gaining support from other biogerontologists and the idea that we might greatly extend human life span is starting to enter the mainstream.

Stephen Spindler is investigating the one well-known and well-established way to live longer: eat less. Using modern gene chips, he can identify changes in gene expression that occur in calorically restricted animals. Find out how far Steve has gotten in figuring out how caloric restriction works and whether there might be a pill in your future that will let you live longer without having to endure life-long semi-starvation.

Greg Fahy has expertise developed over a lifetime of study in the cryopreservation of organs and tissues. The acknowledged pioneer of vitrification, Fahy and the researchers at 21st Century Medicine have developed new techniques and methods to control ice formation, chilling injury, cryoprotectant toxicity, and other barriers to successful cryopreservation of whole organs, including the brain. Find out the latest from the world’s leading researcher.

Brian Wowk, drawing on his work on ice blockers and perfusion systems, will explain the benefits of crack-free storage systems and how we could develop them. It’s been known for a long time that storage in liquid nitrogen—while stable and reliable—creates thermal stress and strain as organs cool below the glass transition temperature and that, as a consequence, cracks or fractures occur. Developing safe, reliable, crack-free storage would open up new possibilities in organ banking.

Christine Peterson, the central pillar of the Foresight Institute and deeply knowledgeable about what technology is and where it’s going gives us her advice in “Judging Life Extension Technologies.” How do we decide which ones to choose, which ones to skip?

Rudi Hoffman, long-time Alcor client and Certified Financial Planner, tells us how affordable the financial arrangements for cryonics can actually be.

Jerry Lemler, President of Alcor, tells us where Alcor is today and where we go from here. We’ve been providing cryonic suspension services for 30 years, starting from just a few people and growing to about 600 clients—and future decades hold the promise of even greater things to come.

Max More—founder, President and leading philosopher of the Extropy Institute—talks about the future that lies ahead of the cryonauts and how to prepare for it. We’ll wake up after a gap and find ourselves in a future society that has changed in many ways—some expected, some unexpected. How can we best prepare for this new life? What scenarios will best prepare us for dealing with our second lives? Find out, as Max explores how to

flourish in this new world.

Harvey Newstrom looks at technology and the many calls for restricting it. Who are these people and why do they want to live in a past that is rapidly slipping away? And what course should we steer as we face new technologies and a sometimes uncertain future?

Kat Cotter, D.C., asks the questions whose answers we all want to hear: what can be done right now to help us live longer? Fresh from running “The Longevity Bootcamp” where 15 world-renowned experts in anti-aging, longevity, and life extension research shared the latest information on how to deal with aging, Kat Cotter brings you the best advice distilled from two days of presentations.

Tutorial: Four sessions of 90 minutes each will give us plenty of time to explore the subject of each session in depth.

Ralph Merkle, dubbed by the New York Times a “...leading theorist of molecular nanotechnology...” will explain what nanotechnology means for our future ability to restore good health. Can we save the lives of today’s cryonauts with the technology of the tomorrow? Find out from someone who has studied what the laws of physics permit and what future technology should be able to do.

Greg Fahy and Brian Wowk will provide an in-depth introduction to cryobiology and the art and science of keeping tissue in long-term suspended animation. With plenty of time for questions and answers, this promises to be a deeply rewarding and informative session.

Aubrey de Grey will explore the disease that seems to pose the greatest threat to life extension—cancer. The longer we live, the more likely it will strike. None of our current treatments are up to the job of dealing with this killer, but a radical new strategy might let us do the job. Arrangements for our fourth and final tutorial session have yet to be finalized, but we expect it to be just as exciting as our first three.

The Venue: The conference will be held at the Newport Beach Marriott in Newport Beach, California. Some of the nearby attractions and landmarks include Balboa Island (1 miles), Beverly Hills/Hollywood (60 miles), Catalina Island (26 miles), Disneyland (15 miles), Edison International Field (Anaheim Angels) (13 miles), South Coast Plaza—the largest shopping center in California (5 miles), Knott’s Berry Farm (17 miles), Laguna Beach (7 miles), Newport Harbor/Fishing Cruises (1 miles), and Universal Studios (60 miles). You can also enjoy the outdoor pool, full spa (nearby), health club, whirlpool, jogging, tennis, the beach (2 miles), snorkeling (5 miles), sailing (3 miles), jetskiing (3 miles), waterskiing (5 miles), and golfing (there are several courses nearby).

We are living on the cusp of radically longer and radically healthier lives—the only question is whether you and I will live long enough to benefit from the revolutions in technology that we can see unfolding all around us. Find out where we stand, join others in the quest, and attend the Fifth Alcor Conference on Extreme Life Extension. The life you save may be your own!



The Fifth Alcor Conference on Extreme Life Extension



will be held at the Newport Beach Marriott Hotel, 900 Newport Center Drive, Newport Beach, California 92660. The Conference will begin with a reception the evening of Friday, November 15 and end Sunday, November 17, 2002. An intensive Tutorial on Fundamental Issues in Extreme Life Extension will be held on November 15.

Topics Covered

We live longer and healthier lives today than in centuries past because of remarkable advances in medical technology. We've already sequenced the human genome, cloned mammals, and replaced the human heart with an artificial pump. Soon we will understand the basic mechanisms of life. Not only is our understanding deepening, we are also gaining the ability to modify, control and repair the fundamental molecular and cellular structures from which we are made. Age and infirmity will become as rare as bubonic plague and smallpox. Youthful vigor and long-lasting good health will be the norm. How rapidly these advances take place and the extent to which we as individuals benefit from them depends very much on what we do. The Fifth Alcor Conference on Extreme Life Extension is a meeting of scientists and individuals who are working toward the expansion of human health and longevity. This conference will cover topics relevant to these pursuits including:

cryobiology
tissue engineering
cryonics
nanomedicine
genetic engineering

therapeutic cloning
vitrification
cryonics estate planning
anti-aging medicine
medical nanodevices

Also offered: A Tutorial on Fundamental Issues in Extreme Life Extension

Gregory Fahy and Brian Wowk—Extreme life prolongation at cryogenic temperatures

Ralph C. Merkle—Nanotechnology: How it will transform medicine and enable repair of cryopreserved tissue

Aubrey de Grey—Cancer, telomerase, and aging

Hotel

Room Rate (Single/Double): \$119/night.
Mention Alcor conference and reserve by October 24, 2002 to obtain this special rate.

Newport Beach Marriott Hotel
900 Newport Center Drive
Newport Beach, CA 92660 USA
Phone: 1-949-640-4000
Fax: 1-949-640-5055
www.marriotthotels.com

Free Alcor Membership Application

Alcor will waive the normal \$150 Membership Application Fee for conference attendees joining Alcor. Alcor staff will be available at the conference to assist in the sign-up process and to answer any questions you may have. Check the option on the conference application form next to **'Send me an Alcor Membership Application Form'**

Conference Sponsors:

Alcor Life Extension Foundation, Foresight Institute, and Future Electronics

Alcor 2002 Conference Registration Form

Fifth Alcor Conference on
Extreme Life Extension
November 15–17, 2002

Copy, complete, then fax or mail this form to:
Alcor Life Extension Foundation
7895 E. Acoma Dr., Suite 110
Scottsdale, AZ 85260
Tel: 877-462-5267 Fax: 480-922-9027

Conference Registration Fees	Before September 15	After September 15	After November 1
With lunches, with Friday night reception	\$475	\$575	\$625
Without lunches, without Friday night reception	\$375	\$475	\$525

Tutorial Registration Fee (separate from conference fee)	\$295	\$395	\$445
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- I will attend the conference with lunches and with the Friday Night Reception
 I will attend the conference without lunches and without the Friday Night Reception
 I will attend the tutorial on Friday (Friday lunch is included)
 Send me an Alcor Membership Application Form (the \$150 Application Fee is waived for conference attendees)

The total amount of my payment is: \$ _____

My Contact Information:

Name: _____

Organizational Affiliation (for your badge): _____

Address: _____

City: _____ State: _____ Country: _____ Zip/Postal Code: _____

E-mail: _____ Phone: _____ Fax: _____

How did you hear about this conference? _____

Do not include my contact information on the attendee list.

Payment Information

Make checks payable to Alcor. Checks and bank drafts must be in U.S. dollars drawn on a U.S. bank.

Name as it appears on credit card: _____

Credit card number(VISA/MC/AMEX): _____ Expiration date: _____

Featured Speakers



at The Fifth Alcor Conference on Extreme Life Extension

Keynote Speaker



Michael D. West, Ph.D.

Human Therapeutic Cloning: Opportunities and Challenges

Michael D. West, Ph.D., is the President, Chief Executive Officer, and Chairman of A.C.T. Group of Worcester, Massachusetts—a company focused on the medical and agricultural applications of nuclear transfer (cloning) technologies. He manages the company's subsidiaries: Advanced Cell Technology, Inc.; Cyagra, LLC; and CIMA Biotechnology, Inc. He received his Ph.D. from Baylor College of Medicine and has focused his academic and business career on the application of developmental biology to age-related degenerative disease. He was the founder of Geron Corporation of Menlo Park, California, and from 1990 to 1998 he was the Director and Vice President, and he initiated and managed programs in telomerase diagnostics, telomerase inhibition, telomerase-mediated therapy, and human embryonic stem cells.



Ray Kurzweil, Ph.D.

The Singularity Is Near

Ray Kurzweil, Ph.D., was the principal developer of the first omni-font optical character recognition, the first print-to-speech reading machine for the blind, the first CCD flatbed scanner, the first text-to-speech synthesizer, the first music synthesizer capable of recreating the grand piano and other orchestral instruments, and the first commercially marketed large vocabulary speech recognition. Ray has successfully founded, developed, and sold four AI businesses in OCR, music synthesis, speech recognition, and reading technology. All of these technologies continue today as market leaders.

Ray Kurzweil received the \$500,000 Lemelson-MIT Prize, the world's largest award in invention and innovation. He also received the 1999 National Medal of Technology, the nation's highest honor in technology, from President Clinton in a White House ceremony. He has also received scores of other national and international awards.

Gregory Benford, Ph.D.

Cryonics in the Long View



Gregory Benford, Ph.D., is a working scientist who has written some 23 critically acclaimed novels. He has received two Nebula Awards, most notably in 1981 for *Timescape*, a novel that sold more than a million copies. The book also won the John W. Campbell Memorial Award, the Australian Ditmar Award, and the British Science Fiction Award. In 1992 Dr. Benford received the United Nations Medal in Literature. He has also been a professor of physics at the University of California, Irvine, since 1971. He specializes in astrophysics and plasma physics theory and was presented with the Lord Prize in 1995 for achievements in the sciences. He is a Woodrow Wilson Fellow and a Phi Beta Kappa member. Over the years, he has been an advisor to the National Aeronautics and Space Administration, the United States Department of Energy, and the White House Council on Space Policy and has served as a visiting fellow at Cambridge University. Currently he holds research grants from NASA and the Jet Propulsion Laboratory. He is the author of 140 research papers in his field and has also published in biology and climate change. His first book-length work of nonfiction, *Deep Time* (1999), examines his work in long-duration messages from a broad humanistic and scientific perspective.



Aubrey de Grey, Ph.D.

Engineering Negligible Senescence: Rational Design of Feasible, Comprehensive Rejuvenation Biotechnology

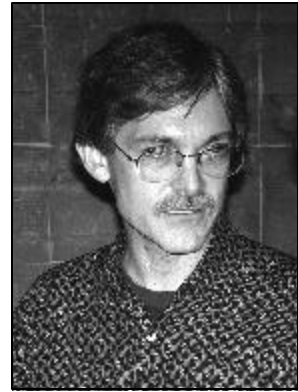
Aubrey de Grey, Ph.D., received his B.A., M.A., and Ph.D. degrees from the University of Cambridge, Cambridge, UK, where he is currently a research associate. His main research areas are the role and etiology of oxidative damage in mammalian aging, including both mitochondrial and extracellular free radical production and damage, and the design of interventions to reverse the age-related accumulation of oxidative and other damage.

Abstract

We now have a detailed understanding of where and how our natural maintenance and repair systems fail to work indefinitely and also a large arsenal of tools that can potentially be used to improve them. Hence, we can at last approach the goal of extreme life extension with a hard-headed, engineering frame of mind. I have recently joined with several noted biogerontologists to explore how extreme life extension (“negligible senescence”) can be engineered in the foreseeable future. In this talk I will describe the components of our proposed strategy, with emphasis on the two areas in which I am most heavily involved (mitochondrial mutations and lysosomal aggregates).

Gregory Fahy, Ph.D.

*Organ Cryopreservation Research at
21st Century Medicine*



Gregory Fahy, Ph.D., received his bachelor of science degree from the University of California at Irvine in 1972 and his Ph.D. in pharmacology from the Medical College of Georgia in 1977. He then moved to the American Red Cross, where he directed an organ cryopreservation program before leaving in 1994 to become the head of the Tissue Cryopreservation Section of the Transfusion and Cryopreservation Research Program of the Naval Medical Research Institute in Bethesda, Maryland. At the time he joined NMRI, he also became the Chief Scientist of two biotechnology companies, LRT (currently Life Science Holdings) and Organ, Inc. (currently Organ Recovery Systems). He left Maryland in 1997 and currently is the Chief Scientific Officer and Vice President of 21st Century Medicine in Rancho Cucamonga, California.

Abstract

21st Century Medicine is the only organization actively pursuing the cryopreservation of whole organs. Current efforts are based on a number of major advances in fundamental cryobiology, including toxicity control, ice control, chilling injury control, and carrier solution development, plus significant advances in surgical techniques and perfusion technology. The result has been the ability to perfuse whole kidneys with cryoprotectants at concentrations that formerly were uniformly fatal, but which currently produce little or even no injury, despite absence of formerly mandatory supportive drugs. 21st Century Medicine has also begun a similar, full-time program devoted to brain cryopreservation, which will be described.



Robert A. Freitas Jr., Ph.D.

Death Is an Outrage!

Robert A. Freitas Jr., Ph.D., is a Research Scientist at Zyvex Corporation in Texas, a Research Fellow at the Institute for Molecular Manufacturing in California, and author of *Nanomedicine, Vol. I* (Landes Bioscience, 1999)—the first technical book on medical nanorobotics. In 1996, he authored the first detailed technical design study of a medical nanorobot ever published in a peer-reviewed biomedical journal and has twice been a finalist for the annual Feynman Prize in Nanotechnology. Freitas is presently completing Volumes II and III of *Nanomedicine* and is consulting on molecular assembler design at Zyvex.

Abstract

Each year, medically preventable natural deaths impose terrible costs on humanity, including the destruction of vast quantities of human knowledge and human capital. Future medical technologies, especially nanomedicine, may permit us first to arrest, and later to reverse, the biological effects of aging and most of the current causes of natural death. Respirocytes (artificial red cells) and microbivores (artificial white cells) provide examples of the new capabilities that medical nanorobotics may offer in the decades to come.

Steven B. Harris, M.D.

Post-Resuscitation Cooling



Steven B. Harris, M.D., was trained as an internist and geriatrician and is now Director of Research at Critical Care Research, Inc. He has been interested in experimental gerontology and has published work in dietary restriction experiments in mice and in humans in Biosphere II. His current work is in experimental induction of very rapid hypothermia in lab animals by means of liquid fluorocarbon breathing. The goal of this work is to ultimately make possible brain resuscitation without damage, after half an hour or more of cardiac arrest and “clinical death.” Dr. Harris is a contributing editor of *Skeptic* magazine and a self-confessed enthusiast of science fiction, usenet, and scuba.

Abstract

We now



Rudi Hoffman, C.F.P.

The Affordable Immortal: How YOU Can Fund the New Science of Biostasis

Rudi Hoffman, C.F.P., is an independent Certified Financial Planner and investment and insurance broker based in Daytona, Florida. Mr. Hoffman is the leading writer of life insurance in the world for the purpose of funding biostasis, with more than 100 policies written in the last few years alone. He is also an Alcor member since 1994 and counts cryonicists among his best friends. "Ending the stranglehold that death has on us all is the most important work we can do for humanity. My passion to help show people how cryonics is affordable grows from my personal experience and my hatred of death and aging." Mr. Hoffman has been in financial services since 1978.

Abstract

Cryonic suspension immediately upon legal death may be a way to preserve individual lives. It is now possible to use the leverage of life insurance to pay for the costs of suspension. It is also possible to create an instant estate that can go to your family and can also be structured to fund a trust that can be available for you upon "reanimation." Various kinds of insurance will be discussed, and trade-offs and costs of term insurance, Universal Life, Whole Life, and Variable Life will become clear. You won't want to miss this explanation of "Why Insurance Is Not Boring Anymore!"

KatCotter,D.C.

Extending Your Healthspan Now



Kat Cotter, D.C., is Vice President of Maximum Life Foundation. Until recently, she was the Director of Lifespan Longevity Center in Los Angeles, California, and partner in the Chiropractic and Wellness group. She left private practice to dedicate herself full-time to work with the foundation and help further life extension research. She is certified through the American Board of Anti-Aging Medicine by the New York Chiropractic College as an Anti-Aging practitioner. She holds a doctorate in Chiropractic through Southern California University of Health Sciences along with certifications in several other areas. She has experience in public relations, public speaking, marketing, and in the planning and development of conferences and seminars. Dr. Cotter is President and co-founder of the virtualhealthfair.com, a health resource site. She is also the director of “The Longevity Bootcamp,” the first conference on aging designed for the general public, which focuses on what can be done right now to help people take charge of their own aging process. She is Co-Chair for this year’s Extreme Life Extension Conference. She is also a member of Alcor Life Extension Foundation and is on their Board of Directors.

Abstract

What can be done right now to help you take control of your own aging process? Hear from the director of “The Longevity Bootcamp”—the first conference on aging designed for the general public. At the last Bootcamp (held this year) 15 world-renowned experts in various fields of anti-aging, longevity, and life extension research shared the knowledge they’ve spent their lifetimes gaining—knowledge about the latest information on how to potentially slow aging. Dr. Cotter brings you the best of the best from this conference—cutting-edge information and the best advice distilled from two days of presentations. Topics will include current and potential breakthroughs in nutrition, diet, life-extending supplementation, exercise, HGH and other hormones, stress reduction, diagnostic screenings, and preventive tests.



Jerry Lemler, M.D.

Alcor at 30: Where Do We Go from Here?

Jerry Lemler, M.D., is a Board Certified psychiatrist who came to Alcor from Tennessee in March of 2001 to become the organization's first full-time Medical Director. In September of the same year, Dr. Lemler was elected President and CEO of Alcor by the Board of Directors. Dr. Lemler is a native of New Rochelle, New York, and earned an undergraduate degree from the University of Tennessee in Knoxville and a medical degree from the University of Tennessee College of Medicine in Memphis. Following his formal psychiatric residency training in Norristown, Pennsylvania, Dr. Lemler was in private psychiatric practice in Mobile, Alabama, after which he served four years as the Chief of Staff of Lakeshore Mental Health Institute in Knoxville, Tennessee. In 1994 Dr. Lemler received the National Exemplary Psychiatrist Award from the National Alliance for the Mentally Ill.

Abstract

Being proud of three decades of stability is one thing—being complacent is another. This presentation will trace the foundation's antecedent roots and offer the viewer/listener a glimpse of what's in store around the bend ahead.

Max More, Ph.D.

*Mind the Gap: Strategic Scenario Analysis
for Your Second Life*



Max More, Ph.D., studied philosophy, economics, and politics at Oxford University and the University of Southern California. As President of Extropy Institute he synthesizes diverse perspectives and disciplines to look for ways to use advanced technologies to improve the human condition. He is author of “The Extropian Principles,” a document codifying the extropian transhumanist movement’s shared goals of moving beyond human limits. He is also Director of Content Solutions and Futures specialist at ManyWorlds, Inc. More frequently lectures, writes, and appears in the media on issues surrounding the impact of emerging technologies. Dr. More has organized several multidisciplinary conferences on advanced and emerging technologies and their effects on culture and business and has spoken internationally at many conferences on future trends. He has been a member of the Alcor Foundation since 1986.

Abstract

Max More crossed the Atlantic abyss, moving from England to Southern California. Others have made much more dramatic cultural relocations, such as Aboriginal Australians who have moved to New York City. Those of us who require biostasis to make it into the further future will make a dramatic jump. The longer we are in suspension the more disruptive the change and the harder the adjustment. To make this jump and maximize our chances of psychologically successful revival, we have the responsibility to prepare ahead of time. Part of this means financial planning and “LifePact” type arrangements. This talk will focus on strategic approaches to post-revival flourishing. This includes using scenario thinking, using cognitive psychology to overcome limited thinking, and identifying and developing skills for innovation and the capacity to adapt to novel environments and circumstances.



Harvey Newstrom, Ph.D.

A Security Response to the Luddite Position

Harvey Newstrom, Ph.D., is a partner and principal security consultant of Newstaff, Inc., as well as an author, lecturer, and researcher. He has been an Alcor member for two decades and serves on the Board of Directors for Extropy Institute. He is also a founding member of the Central Florida chapter of the Information Systems Security Association. He has worked in the security field for two decades, providing security expertise to the U.S. military, U.S. government, Fortune 500 companies, and public utilities. He has helped establish several security consulting practices and has helped develop many security software products. He has received several security certifications, clearances and awards. His web sites are at [www. HarveyNewstrom.com](http://www.HarveyNewstrom.com) and www.Newstaff.com.

Abstract

There are many calls for the restriction of technology. It is claimed that technology is too dangerous and must be curtailed or abandoned. This session will examine the Luddites, their claims, and how technologists can respond from a security perspective. The Luddite movements will be discussed, along with their origins, activities, and goals. Their complaints about technology will be reviewed for accuracy and an appropriate response suggested. The security aspects of protecting society from technology and protecting technology from society will both be examined. A reasonable course of action relating to the security of technology will be presented.

Christine Peterson

Judging Life Extension Technologies



Christine Peterson writes, lectures, and briefs the media on nanotechnology. She is co-founder and President of Foresight Institute, a nonprofit that educates the public, technical community, and policymakers on nanotechnology and its long-term effects. She directs the Foresight Conferences on Molecular Nanotechnology, organizes the Foresight Institute Feynman Prizes, and chairs the Foresight Gatherings. She lectures on nanotechnology to a wide variety of audiences, focusing on making this complex field understandable. With Eric Drexler and Gayle Pergamit, she wrote *Unbounding the Future: The Nanotechnology Revolution* (Morrow, 1991), which sketches nanotechnology's potential environmental and medical benefits as well as possible abuses.

Abstract

Because life extension technologies are drawn from a wide variety of technical fields, it's difficult for individuals to judge which ones are worth pursuing. We'll look at the most challenging ones and ask how a layperson can go about making these confusing choices: which supplements to take, which prescriptions to ask for, and whether to arrange for biostasis (cryonics). The goal here is not to give the answers, which vary for each person, but to sketch how we can each approach the challenge of making these tough decisions, given that mainstream sources of information often lag far behind the latest research.



Michael R. Rose, Ph.D.

Prospects for Biological Immortality

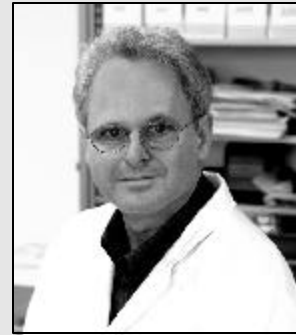
Michael R. Rose, Ph.D., went to the University of Sussex in 1976 for his doctoral studies on aging in *Drosophila melanogaster*. There he began his work on the evolution of aging and created *Drosophila* stocks with postponed aging by selection for later reproduction. In 1991, his *Evolutionary Biology of Aging* appeared, offering a view of aging that was a complete departure from the views that had dominated the aging field since 1960. Evolution described the field of gerontology as having become “after Rose.” In 1997 Rose was awarded the Busse Research Prize by the World Congress of Gerontology.

Abstract

Since 1992 the study of biological immortality has been transformed from a dubious curiosity to an active focus of theoretical and experimental research. If biological immortality is defined as the absence of a sustained increase in rates of mortality as a function of age, then it is now an established scientific fact. Some organisms attain biological immortality early in life. In most organisms, biological immortality arises very late in life, after a prolonged period of rising mortality rates, or aging. This late-life immortality can be explained in terms of a late-life plateau in the force of natural selection. This three-phase pattern of mortality leads to a new perspective on the extension of life and the attainment of biological immortality.

Stephen Spindler, Ph.D.

*Chipping Away at the Mysteries of Aging:
What You Don't Eat Can't Hurt You*



Stephen Spindler, Ph.D., is a Professor of Biochemistry at the University of California, Riverside, and the Chief Scientific Officer at Biomarker Pharmaceuticals, Inc. He earned his B.S. in Biology at the University of California, San Diego, in 1970 and his Ph.D. in Biomedical Sciences with a focus in Biochemistry at the University of Texas Graduate School of Biomedical Sciences in Houston, Texas, in 1976. He performed postdoctoral studies in the Department of Biochemistry at Colorado State University and in the Endocrine Research Division of the University of California, San Francisco. In 1981 he joined the faculty at the University of California, Riverside. For the past 17 years, he has studied the molecular biology of caloric restriction and aging.

Abstract

The fewer calories eaten (provided malnutrition is avoided) the slower animals age, and the lower their death rate from cancer, heart disease, kidney disease, and diabetes. For the past several years we have been using gene-chips to monitor the expression of tens of thousands of genes at a time. Our results suggest that shifting to a low calorie diet very rapidly begins to reverse deleterious age-related changes in gene expression and moves animals to an apparently younger profile. Gene-chip profiling has given us a practical way to initially screen pharmaceuticals and nutrients for their ability to prevent the onset of age-related diseases and to actually slow aging itself.



Brian Wowk, Ph.D.

Issues and Technologies for Long-Term Tissue Storage

Brian Wowk, Ph.D., is a physicist and Senior Scientist at 21st Century Medicine, Inc. He earned his B.Sc. in physics, M.Sc. in medical physics, and Ph.D. in physics in 1997 at the University of Manitoba. His graduate studies encompassed radiotherapy physics and magnetic resonance imaging of human brain function. He has authored numerous publications in the fields of medical imaging and cryobiology and holds four patents. His work in the field of nanotechnology has been featured in *Popular Mechanics* magazine. Dr. Wowk is currently a staff scientist at 21st Century Medicine, Inc., where his work includes development of synthetic ice blocking molecules and engineering of organ perfusion systems.

Abstract

Tissue preservation has life extension applications ranging from stem cell storage to organ transplantation and ultimately suspended animation. Cryopreserved tissues must be stored at temperatures low enough to stop chemical reactions, but not so low that organs suffer thermal stress fractures. Successful cooling, storage, and rewarming requires navigating a difficult course through problems of chemistry, thermal stress, and ice crystal nucleation. Current knowledge of this field will be reviewed, and technologies for storage of large masses at temperatures other than liquid nitrogen will be discussed.

Special Tutorial

on Fundamental Issues in Extreme Life Extension

Greg Fahy and Brian Wowk

Extreme Life Prolongation at Cryogenic Temperatures

This tutorial will review the basic principles of cryobiology and explore what is known about how long living systems can be kept in a state of low temperature suspended animation under various conditions, with particular emphasis on the safety of storage at temperatures above the temperature of liquid nitrogen. Time will be set aside for questions and answers about any aspect of cryobiology that may be of interest to the audience.

Aubrey de Grey

Cancer: Why It Is Now the Main Barrier to Extreme Life Extension, and a Revolutionary New Approach to Defeating It Indefinitely

The genomic instability that underlies cancer makes it enormously harder to combat indefinitely than any other aspect of aging. Its only clear-cut “Achilles heel” is the absolute need to stabilise telomeres (usually with telomerase); if this can be prevented with total certainty by deleting (not just suppressing) a vital gene, cancer will be prevented. However, many of our normal cells need telomerase for their normal function. I will explain why existing anti-cancer approaches are unlikely ever to postpone cancer by more than a decade or two, and then present a radical, feasible solution, involving the periodic reseedling of our various stem cell pools with cells whose telomeres have been relengthened *ex vivo*.

Ralph C. Merkle

Nanotechnology: How It Will Transform Medicine and Enable Repair of Cryopreserved Tissue

Nanotechnology—the ability to easily and inexpensively arrange atoms and molecules in most of the ways permitted by physical law—will revolutionize medicine. It will let us build molecular medical tools able to directly address the fundamental cellular and molecular causes of disease and ill health. Combining this new ability to directly arrange and rearrange molecular structure with immobilization of unhealthy tissue by cryopreservation will permit extended analysis and repair. This approach avoids the rapid deterioration that can limit the time available for medical procedures when damaged tissues are kept at normal temperatures. Total repair of even extensively damaged tissue will, for the first time, be feasible.

Ralph C. Merkle, Ph.D., received his Ph.D. from Stanford University in 1979 where he co-invented public key cryptography. He joined Xerox PARC in 1988, where he pursued research in computational nanotechnology until 1999. He is now Vice President of Technology Assessment at Foresight and a Nanotechnology Theorist at Zyvex, where he continues to pursue research in nanotechnology. He chaired the Fourth and Fifth Foresight Conferences on Nanotechnology, was co-recipient of the 1998 Feynman Prize for Nanotechnology for theory, and was co-recipient of the ACM's Kanellakis Award for Theory and Practice, the 2000 RSA Award in Mathematics, and the IEEE Kobayashi Award. Dr. Merkle has published and spoken extensively and has 10 patents. His home page is at www.merkle.com.



Raymond Kurzweil Named to the National Inventors Hall of Fame



Father of the Kurzweil Reading Machine Helped the Blind while Reshaping Information Technology for the World

Palo Alto, Calif., May 16, 2002—Imagine enabling the blind to “read” ordinary printed materials, along the way pioneering information technologies that profoundly impact how the world processes information for decades to come.

This is just the surface of the many amazing accomplishments of Raymond Kurzweil, inventor of the Kurzweil Reading Machine, who was announced today as an inductee into this year’s class of inventors to be honored by the National Inventors Hall of Fame. The announcement was made at a ceremony at Hewlett-Packard Company, the leading corporate sponsor of the National Inventors Hall of Fame.

The Kurzweil Reading Machine was the first computer to transform random text into computer-spoken words, enabling blind and visually impaired people to read any printed materials. When this first print-to-speech reading machine was invented in 1976, Kurzweil’s technology was widely regarded as the most significant advancement for the blind since Braille’s introduction in 1829. It not only dramatically impacted the lives of blind people (85 percent of blind college students are estimated to have used one), it pioneered several computer technologies that have become separate industries that are still thriving today.

The world was introduced to the Reading Machine when Walter Cronkite used it to close the evening news with “And that’s the way it is, January 13, 1976.” For the first time, Cronkite did not speak the words himself. Instead he had the Reading Machine deliver them.

Stevie Wonder heard about the Kurzweil Reading Machine that week, and bought the first one. Kurzweil and Wonder developed a friendship that would later evolve into the development of music technology based on Stevie Wonder’s suggestions.

The Reading Machine is just one of many technologies resulting from Kurzweil’s expertise in pattern recognition and

his innate ability to envision the application of technologies far ahead of the mainstream. In 1963, when he was just 15 years old, he wrote his first mainframe computer program to help with his tedious summer job of processing statistical results. IBM distributed the program to researchers everywhere. In high school, this son of an orchestra conductor wondered why some music evoked emotion, and in 1965 Kurzweil developed a computer program that composed music to emulate the compositions of famous composers such as Mozart. That invention won him first prize at the International Science Fair, a national prize in the Westinghouse Science Talent Search, and an appearance on the game show “I’ve Got a Secret” with Steve Allen. While a student at the Massachusetts Institute of Technology, he wrote software to match high schoolers’ interests with appropriate colleges. The program’s purchase by Harcourt Brace & World funded his college education.

...“And that’s the way it is, January 13, 1976.” For the first time, Cronkite did not speak the words himself. Instead he had the Reading Machine deliver them.

A few years after graduating from MIT in 1970 with majors in computer science and literature, he formed a company to continue his interest in developing pattern recognition technology, such as Optical Character Recognition (OCR). He advanced the technology significantly by developing the first omni-font OCR in 1974. Prior to Kurzweil’s contribution, OCR software could only read certain fonts with precise spacing and in very high quality print. Kurzweil and his team developed software that understood the abstract qualities of letter shapes and could read any font. The technology, now called Xerox TextBridge, is still marketed and developed 29 years after its initial development.

Kurzweil developed OCR and other technologies before he had an application for them through the Reading Machine. He said, “I really had a solution and was looking for a problem. Then, I happened to sit next to a blind gentleman on a plane. He told me that he traveled the world for his company, and that his blindness was a characteristic, not a handicap. There was only

one area in which he was not able to match the abilities of sighted people: reading ordinary printed materials. Only a small percentage of books was translated to Braille, and there was a great lag between the time materials were published and translated.” Kurzweil’s omni-font OCR gave all visually impaired people a solution for reading.

In developing the Reading Machine, Kurzweil also made major advancements in scanning technology. He and his team developed the first Charge Couple Device (CCD) flatbed scanner—the now-ubiquitous scanners in our workplaces and homes. They also developed the first text-to-speech synthesis. His advancements were at least a decade ahead of any other similar introductions and would eventually be used in applications such as in-car computers and phone response systems.

Other contributions include the Kurzweil 250 music synthesizer, developed in 1984 after Stevie Wonder asked the inventor if he could engineer a synthesizer that could realistically recreate the rich sounds of orchestral instruments. Now every composer can have a virtual orchestra at his or her fingertips. Also, Kurzweil invented Kurzweil Voice Report, the first commercially marketed large vocabulary speech recognition, a system used by hands-impaired individuals and anyone who is unable to type at high speed.

Kurzweil has founded nine companies since his first one in 1973. Today, FAT KAT (Financial Accelerating Transactions from Kurzweil Adaptive Technologies) uses pattern recognition to make stock market investment decisions. Kurzweil Medical Learning Company simulates doctor/patient encounters for medical education and reference KurzweilAI.net is the “home of the big thinkers” discussing the future of technology and its impact, hosted by Ramona, Kurzweil’s virtual reality alter-ego. At KurzweilCyberArt.com, original poetry can be patterned after the masters and AARON, a cybernetic artist, creates original artwork. Kurzweil Educational Systems continues to develop the next generation of print-to-speech technology to aid both the blind and the learning disabled such as the dyslexic, visually impaired, and those learning to read.

Kurzweil’s next frontier is the human mind. The Kurzweil Reading Machine is considered one of the first machines to successfully incorporate Artificial Intelligence, an area that the inventor continues to passionately explore. He explained, “It turns out, the foundation of human intelligence is not logical thinking, but pattern recognition. We learn by recognizing previous relevant experiences.” Among his writings on the topic of artificial intelligence are the acclaimed books *The Age of Intelligent Machines* and *The Age of Spiritual Machines* as well as numerous widely quoted articles.

Raymond Kurzweil has received many awards, in addition to 10 honorary doctorates and accolades from three U.S. presidents. He said, “Being inducted into the National Inventors Hall of Fame is an important award to me. Although I am an author and entrepreneur, I primarily consider myself to be an inventor.

I feel like I am being recognized by my peers.”

Other noteworthy awards include: 2001 Lemelson-MIT Award, 1999 National Medal of Technology from President Clinton, 1998 Stevie Wonder Vision Award, 1995 Access Prize from the American Foundation for the Blind, 1994 Dickson Prize from Carnegie Mellon University, 1991 Louis Braille Award from the Associated Services, 1990 Engineer of the Year Award from the readers of Design News Magazine, 1988 Inventor of the Year Award from MIT, Boston Museum of Science and Boston Patent Law Association, and 1986 Distinguished Inventor Award from Intellectual Property Owners.

“It turns out, the foundation of human intelligence is not logical thinking, but pattern recognition. We learn by recognizing previous relevant experiences.”

The not-for-profit National Inventors Hall of Fame® is the premier organization in America dedicated to honoring and fostering creativity and invention. Each year a new class of inventors are inducted into the National Hall of Fame in recognition of their patented inventions that make human, social, and economic progress possible. Founded in 1973 by the U.S. Patent & Trademark Office and the National Council of Intellectual Property Law Associations, the Hall’s permanent home is Akron, Ohio, and serves as both a museum and an educational programming resource.

For more information
or to nominate an inventor,
go to www.invent.org

HP’s sponsorship of the National Inventors Hall of Fame is part of the company’s Invent Sponsorship program, which celebrates the significant impact of technological invention on people’s lives by supporting creative and pioneering organizations around the world. 1

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Profile: Gregory Benford

Excerpted from “Frozen Species, Deep Time, and Marauding Black Holes,” *Science*, v. 293 (14 September 2001), by Robert Irion.



Few physicists have adjectives devoted to them, but Gregory Benford does. It’s “Benfordesque,” as in this review of his latest novel: “*Eater* is Benford’s most Benfordesque book in quite a while.” Yes, *Eater* has it all—bickering astrophysicists, useless bureaucrats, a love triangle, a smart but vindictive

black hole, and a dying astronaut who downloads her brain into a space probe. Welcome to what one friend calls the “weird but stimulating mind” of Greg Benford.

Benford’s mind isn’t easy to summarize. Its contents include straight physics, such as his studies of relativistic electron beams here at the University of California (UC). His theoretical work extends to pulsars, the cores of active galaxies, and other lairs of turbulent jets. Currently, he and his colleagues are exploring whether microwave beams could propel sails of ultralight carbon fibers in space.

...Most people, though, know Benford’s name from the big block letters on the covers of his science-fiction (SF) novels. He’s written 20 so far, including the million-selling *Timescape*, his classic tale of messages across time that won the prestigious Nebula Award in 1980. Another hit novel, *Cosm*, told of baby universes trapped at UC Irvine’s physics department and the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory on Long Island.

...Benford’s fans and his professorial colleagues think that he deserves his reputation as the SF voice of the working physicist. “There are very few others who can put as much science into their fiction,” says artificial-intelligence guru Marvin Minsky of the Massachusetts Institute of Technology (MIT) in Cambridge. “And he is certainly unsurpassed in depicting the academic scenes.” Adds Benford’s close friend at UC Irvine, evolutionary biologist Michael Rose, “The big challenge in fiction is how to make academics interesting, because we aren’t. Greg does that.”

...Conversations with Benford whirl as unpredictably as his SF plots. He’s genial and confident at age 60, delighted to tackle any imaginable topic. He’s equally likely to refer to books by William Faulkner and to covers of *MAD* magazine. Names drop constantly: Dinner with Arthur C. Clarke leads to introducing

Kurt Vonnegut at a speech leads to Isaac Asimov’s agoraphobia. He loves to interject the word “duh,” usually to make a dramatic point about the cluelessness of the powers that be. It’s no surprise that his office is an eruption of books and papers, calmly centered only by a framed portrait of the Milky Way by his friend, space artist Jon Lomberg.

Through it all, key facts emerge about his life. For one, he and his brother Jim—president of Microwave Sciences Inc. in Lafayette, California—aren’t just identical twins, they’re “chiral twins, the rarest kind,” Benford says. Greg is right-handed whereas Jim is left-handed, they have birthmarks on opposite cheeks, and their peppered gray hair spirals in opposite directions. They didn’t part until Greg earned his Ph.D. in physics at UC San Diego 2 years before Jim, but they still collaborate.

...Consider [Benford’s] “library of life” idea, published in the *Proceedings of the National Academy of Sciences* in 1992. Benford felt that a radical plan was needed to spur people to preserve as many endangered species as possible. Randomized freezing was his solution—a plan that reporters immediately dubbed “Noah’s freezer.” His abstract urged vigorous debate, and that’s exactly what ensued. Benford organized a National Academy of Sciences workshop at Irvine 2 years later—a physicist calling ecologists to arms.

...Benford hasn’t pursued the idea further. “I realized this issue could turn into a career, and I already had one,” he says. Still, he’s dismayed that scientists have not yet succeeded in making people aware of what we’re doing to life on this planet. “Biologists can’t shout loudly enough to penetrate to the public that in a mere human lifetime, we might eliminate one-third of the species,” Benford says. “There’s an astonishing silence, an unacknowledged fatalism. People don’t have much hope beyond 30 years.”

...[UC Irvine Chancellor] Ralph Cicerone acknowledges that Benford may not receive due credit within UC’s reward system for his nonphysics research. His prolific SF career doesn’t help, either. “There’s a supposition that to be concerned about the larger social place of physics is marginal,” Benford says. “To do so by writing fiction—people automatically think it’s suspect.” ...

...For his part, Benford doesn’t care about campus politics. “What I wanted was a life in the sciences, and I got it,” he says. And much more, as millions of readers can attest.

Welcome to

Newport Beach Rated Best Classic California Beach

Newport Beach, one of southern California's most celebrated resort cities, received national recognition for being in the top 10 for Travel Channel's "America's Best Beaches 2002."

Newport Beach, "The Colorful Coast," is located 55 miles south of Los Angeles and 85 miles north of San Diego. John Wayne/Orange County Airport is located just outside the city's border and offers more than 290 flights daily. Newport Beach epitomizes the true essence of southern California living with a wide variety of attractions and accommodations. Featuring the world's largest small yacht harbor and activities that range from boating to dining and shopping, Newport Beach is the perfect leisure getaway as well as an ideal location for conferences. Average minimum-maximum temperature range for the fall, when the Alcor conference will be, is 55-78°.



Newport Beach's Many Cultural Attractions

Although Newport Beach receives national acclaim for its scenic beaches, warm weather, and southern California glamour, many visitors are discovering that the coastal community offers an impressive arts and culture scene as well.

Listed below are just a few of the cultural attractions:

The Orange County Museum of Art is the area's premiere showcase for the visual arts, offering a permanent collection of paintings, sculptures, photographs, and works on paper focusing on California art dating back to World War II. The museum brings the entire world of art to you through an exciting and ever-changing schedule of exhibitions and educational programs. 949-759-1122 or www.ocma.net.

The Bowers Museum of Cultural Art is one of southern California's finest museums. The state-of-the-art special exhibition and collections storage facilities enable the Bowers to present world-class exhibitions. The collections are particularly strong in the areas of African, Oceanic, Native American, pre-Columbian, and California Plein Air paintings. 714-567-3600 or www.bowers.org.

The Newport Harbor Nautical Museum is located in the "Pride of Newport," a 190-foot paddle wheeler docked in Newport Harbor. The museum features three thematic galleries, which hold nearly a century of Newport Beach history including photographs, artifacts, and memorabilia reflecting the area's recreational and industrial lore. In addition, an on-board café and gift store are available for visitors to enjoy. Exhibits are free to the public. 949-675-8915 or www.newportnautical.org.

Located in nearby Costa Mesa is the Orange County Performing Arts Center, dedicated to presenting the finest in symphony, ballet, musical theater, and opera. The PAC is a magnificent entertainment complex known for its striking architecture, flawless acoustics, and attention to patron's comforts and needs. The Center has two performance venues; the 3,000-seat

Newport Beach, California

Newport Beach A Paradise on Earth for Shoppers

Segerstrom Hall and the more intimate 250-seat Founders Hall. Center programs include an internationally acclaimed classical ballet series, Broadway shows, concerts, and special events. 714-556-ARTS (714-556-2787) or www.ocpac.org.

Another local theater venue is the award-winning South Coast Repertory. The theater offers a 10-month season—September through June—featuring 13 plays on two stages. Both stages present premiers of plays by America’s finest playwrights, as well as plays drawn from classic and modern theater repertoires. 714-708-5555 or www.scr.org.

Winter, spring, summer, or fall are all perfect times to visit Sherman Library and Gardens, a horticultural display garden, and historical research library in Corona del Mar. The library provides one of Orange County’s most impressive cultural and educational research centers devoted to the study of the Pacific Southwest. The gardens feature an early California architectural theme accented by water fountains, a koi pond, sculptures, and more than 2,000 plant species ranging from rare desert cacti to exotic tropical plants. The Discovery Garden, designed for those with impaired vision, appeals to the sense of touch and is wheelchair accessible. 949-673-2261 or www.slgardens.org.

The Newport Sports Collection Foundation is a nonprofit sports memorabilia and educational center that owns and operates a 6,000-square-foot sports museum in the heart of Newport Center. The 15-room facility houses more than 10,000 jerseys, helmets, balls, bats, cleats, and stadium seats—all of them game-used or game-worn by some of the most famous and talented athletes of the last two centuries. 949-721-9333 or www.newportsportsmuseum.org.

The Marconi Automotive Museum is an 18,000-square-foot facility that houses an impressive array of exotic and classic automobiles and racecars. Owned and operated by the Marconi Foundation for Kids, and housing more than 70 vehicles, the Museum offers an eclectic selection that will thrill any automobile aficionado. 714-258-3001 or www.marconimuseum.org.

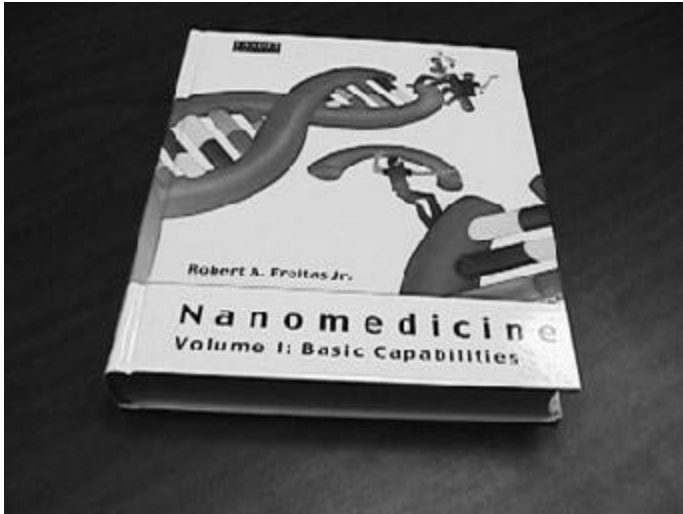
It would be hard to find another city that offers the shopping experience that Newport Beach does. In many ways, southern California was the birthplace of the modern shopping mall—and the concept of shopping as a pastime. But even by the high standards of the region, the shopping in Newport Beach is superb.

A wide variety of factors distinguishes Newport Beach among other shopping destinations. The city offers the shopping visitor a casual, beachy atmosphere but top-of-the-line luxury stores; a spectacular natural setting but stores, shops, and boutiques confident enough of their appeal that they don’t try to distract visitors from the surroundings. Given that the shopping settings in Newport Beach include landmark historic districts and charming islands served by ferries, you might think it wouldn’t be possible to distract from them. But you’ll find the shopping venues here do, in fact, hold their own—from national and international stores such as Bloomingdale’s, Neiman Marcus, Niketown, and Tommy Bahama’s Tropical Café’ and Emporium to renowned one-of-a-kind shops and boutiques including Build-a-Bear and Toy Boat Toy Boat Toy Boat.

The fact is that if you love to shop, Newport Beach is a little paradise on earth. And if you’ve never really enjoyed shopping before, well, prepare yourself for a revelation. 1

NANOMEDICINE, Volume I

The first of a three-
volume technology series
by Robert A. Freitas, Jr.



A New Medical Technology and a New Era of Medicine

This is an extraordinary book in many ways. Some of the ideas will be familiar to you, but they are stated with a depth of background unlike anything we have seen before, and the scope of application to medical repair becomes strikingly apparent.

In the Afterword, the author says "...the underlying message is clear: life and health can be restored and sustained in the face of greater injury, greater damage, greater trauma, and greater dysfunction than has ever before been realized. This will usher in a new era in medicine—an era in which health and long life will be the usual state of affairs while sickness, debility, and death will be mercifully rare exceptions."

Alcor is offering a 10%
discount on this
important book.
**Alcor members receive a
20% discount!**

Name: _____
Mailing Address: _____

City: _____ State: _____ Zip: _____

e-mail: _____

phone: (_____) _____ Alcor # _____

**Full retail price is \$89.00
(10% discount = \$80.00; 20% discount = \$71.00)**

Number of books _____ x price _____ = \$ _____

Plus \$4.00/book handling and shipping (US only) \$ _____

Add 20% for shipping overseas \$ _____

Total \$ _____

Use your VISA or MasterCard to purchase online on our secure server (www.alcor.org) or fax (480-922-9027) or mail this order sheet to: Alcor, 7895 E. Acoma Dr. #110, Scottsdale, AZ 85260

Name as it appears on credit card: _____

VISA or MasterCard Number: _____

Expiration Date (Month/Year): _____

Signature: _____

A

Update

L

A Confidentiality Reminder

July 18, 2002

C

To My Fellow Alcor Members,

In the past couple of weeks Alcor has been inundated with press requests for information, interviews, and tours. The number of individuals seeking membership information has skyrocketed. We have had close to three million hits on our web site since July 6, 2002, and a lot of very good press coverage. Dr. Jerry Lemler, Dr. Ralph Merkle, Dr. Max More, and Paul Garfield have appeared on national television (CNN and NBC), and several other members have made public statements regarding cryonic suspension. There was a refreshingly positive article on the front page of *The New York Times* featuring our foundation on July 10th. This is truly an exciting time, as the general public is made aware (many for the first time) of the science of cryonics and related disciplines.

O

While some members do not mind having their names made public, it is important to remember that this is an individual choice, and some members do prefer anonymity. We feel this is an appropriate time to remind everyone of our policy, which is as follows: The Alcor Life Extension Foundation strongly upholds its policy to respect the privacy of our members when requested to do so. We pride ourselves in celebrating 30 years of unparalleled service to our members, part of which includes our promise to protect the privacy and security of each individual's identity, if it is that member's wish to remain anonymous. Please respect the wishes of our members and their families, and understand we cannot legally or morally comment on certain Alcor members and/or their family members and affairs.

R

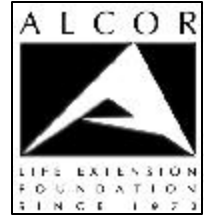
Thank you for your cooperation in these matters. I look forward to seeing all of you at our Fifth Extreme Life Extension Conference in Newport Beach, November 15-17!

Sooner AND Later,

Jerry B. Lemler, MD
President/CEO
Alcor Life Extension Foundation

August 2002

Alcor Life Extension Foundation
7895 E. Acoma Drive, Suite 110
Scottsdale AZ 85260



From: Michael Riskin, PhD, CPA
Vice President of Alcor
Chairman of Alcor Board of Directors

Dear Alcor Member,

As you undoubtedly know, Alcor has recently received a great deal of media attention. Our staff and volunteers have been hard at work to ensure a positive portrayal of Alcor and cryonics to the public. And while we are proud and appreciative of their efforts, it is no secret that we cannot attain our goals on the gifts of time and participation alone.

Short of being able to suspend and reverse aging itself, we are now rapidly closing in on the next best thing. That "thing" is the goal of achieving true human suspended animation in the operating room . . . while developing the necessary supporting technology including state of the art standby care should your need arise.

About two months ago, a letter was sent to the membership noting the comprehensive review of Alcor's suspension capability by an independent team of cryonics experts. Included in that letter was a list of many of the committees' upgrade recommendations and their estimated costs. As a result, the SOTA (State Of The Art) fund was created as the financial vehicle to manage the donations directed toward upgrade investments.

My appreciation goes to the many who have already donated to the SOTA Fund. An alphabetical listing, honoring their generosity, can be found in the sidebar. For those of you that are still considering a SOTA donation, please take the time to look over the needed upgrade list.

Alcor is a nonprofit organization. It is up to us, the Friends of Alcor, to keep our organization well funded . . . to help ensure that Alcor might eventually provide:

- ❖ Whole-body vitrification (significant reduction of freezing damage)
- ❖ Higher temperature storage, approximately -140°C versus -192°C (with vitrification, virtually 100% elimination of freezing damage)
- ❖ Faster cool-down techniques to further reduce ischemic post-mortem damage
- ❖ New medical and perfusion protocols that better protect vital functions
- ❖ Rapid transport and portable lightweight equipment for field use
- ❖ Full automation of many manual procedures to eliminate human error

That is why I am asking for your help. Your donation can help us make a difference. Your donation now can help Alcor help you tomorrow. Please give what you can.

Best Regards,

Michael Riskin

Support Alcor . . . Attend the Conference All with one contribution!

Yes! I want to help Alcor!

I specifically direct that my donation be used for (check as many as you like):

- | | | |
|---|--|---|
| <input type="checkbox"/> Computer Equipment | <input type="checkbox"/> Disposable Supplies | <input type="checkbox"/> Training |
| <input type="checkbox"/> Licensing Agreements | <input type="checkbox"/> Technical Personnel | <input type="checkbox"/> I want Alcor to choose |

I prefer to contribute toward a specific piece of equipment from the following list, which will be labeled with my name:

- | | |
|---|---|
| <input type="checkbox"/> Fully automated perfusion and cool-down systems—\$100,000 | <input type="checkbox"/> Ten standby kits monitoring equipment—\$1,500 each |
| <input type="checkbox"/> Higher temperature storage capability—\$40,000 | <input type="checkbox"/> One operating room 3-megapixel still camera—\$500 |
| <input type="checkbox"/> Alcor Central ambulance upgrade (pre-owned)—\$15,000 | <input type="checkbox"/> Two operating room digital camcorders—\$500 each |
| <input type="checkbox"/> Four improved regional/local air transport perfusers—\$10,000 each | <input type="checkbox"/> Ten extra oxygen cylinders—\$200 each |
| <input type="checkbox"/> Two improved low temperature fluids chillers—\$8,000 each | <input type="checkbox"/> Four two-way radio sets—\$200 each |
| <input type="checkbox"/> Four regional/local improved portable ice baths—\$5,000 each | <input type="checkbox"/> Regional/local service center supplies and equipment—(various) |
| <input type="checkbox"/> Improved operating room blood pressure monitor—\$5,000 | <input type="checkbox"/> Upgraded ambulance equipment—(various) |
| <input type="checkbox"/> Five upgraded pulse oximeters—\$2,000 each | <input type="checkbox"/> Facility expansion and upgrade—(various) |

*** or Personnel ***

- | |
|--|
| <input type="checkbox"/> Senior Technical Manager—\$40,000–\$60,000 annually |
| <input type="checkbox"/> Facilities Engineer/Suspension Team member—\$25,000–\$35,000 annually |

<p style="text-align: center;">Supporting Donor: \$1,000</p> <p>One FREE registration at the 2002 Alcor Conference (Nov. 15–17) in Newport Beach, California (<i>\$475 value</i>).</p> <p style="text-align: center;">Benefactor: \$2,500</p> <p>One FREE registration at the 2002 Alcor Conference (Nov. 15–17) in Newport Beach, California, PLUS a food/tutorial conference package (<i>\$870 value</i>) and an engraved plaque for your home or office wall.</p>	<p style="text-align: center;">President's Circle: \$5,000</p> <p>One FREE registration at the 2002 Alcor Conference (Nov. 15–17) in Newport Beach, California, a food/tutorial conference package, PLUS two nights lodging in the conference hotel (Marriott) (<i>\$1,120 total value</i>), an engraved plaque for your home or office wall, and an autographed copy of Mike Perry's book, <i>Forever For All</i>. You will also receive one limited -edition Alcor coin commemorating the foundation's 30 years in service.</p>
<p>Sustaining Member:</p> <p>Minimum 12 monthly donations of \$100, \$250, or \$500 qualifies for classification into the Donor, Benefactor, and President's Circle status as above.</p> <p><i>In addition, all those who donate \$35 or more will receive an Alcor T-shirt.</i></p>	

- Please find my enclosed check or credit card authorization for the amount of \$ _____

Name: _____ E-mail _____

Address: _____

City: _____ State: _____ Zip: _____ Country: _____

Credit Card Number _____ Expiration Date _____

- Visa Mastercard American Express

- I prefer to contribute on a monthly basis: Please bill me or charge my credit card for \$ _____ every month.

Please circle a T-shirt size: S M L XL XXL

Please copy this form, fill out the information, and mail to:

**Alcor, Attn: Jessica
7895 E. Acoma Drive, Suite 110
Scottsdale AZ 85260**

If contributing by credit card, you may also authorize payment by telephone. Call Alcor at 480-905-1906, ext. 115 (Jessica Sikes) or ext. 106 (Joe Hovey).

Reading a book you're sure will interest other Alcor members?
 Would you like to write a review for *Cryonics* but aren't sure if one has been published already?

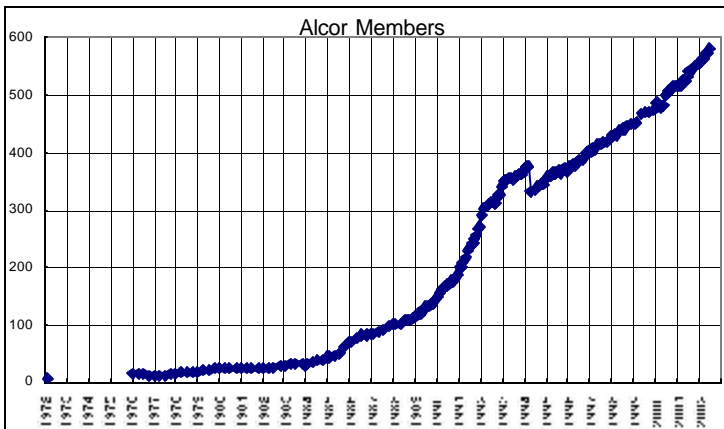
Contact Lisa Lock, Editor,
 to discuss the possibilities:

llock@winterthur.org

Be sure to visit Alcor's exciting new web site at www.alcor.org for the latest happenings at Alcor Central and information on the upcoming 5th Alcor Conference in Newport Beach, California

Membership Update

This is a historical graph of Alcor's membership growth. Our current plans are to provide an updated version in each issue of *Cryonics*.



Alcor Membership Status

Alcor has 584 Suspension Members (including 109 Life Members) and 49 patients in suspension. These numbers are broken down by country below.

Country	Suspension Members			Country	Patients in Suspension		
	Merits	Applicants	Subscribers		Merits	Applicants	Subscribers
Argentina	0	0	1	Mexico	0	0	1
Australia	9	2	3	Monaco	1	0	0
Austria	1	0	0	Netherlands	1	2	1
Brazil	1	0	0	Russia	0	0	3
Canada	13	4	13	South Africa	0	0	1
France	0	0	1	Spain	0	6	0
Germany	3	1	2	Sri Lanka	0	0	1
Ireland	0	0	1	Sweden	0	0	1
Israel	1	0	0	Switzerland	0	0	2
Italy	0	2	3	Taiwan	0	0	1
Japan	1	1	2	U.K.	15	4	6
Korea	1	0	0	U.S.A.	537	66	242
Lebanon	0	0	1	TOTALS	584	88	286

Alcor Life Extension Foundation, Inc., and Subsidiaries

Consolidated Financial Statements

Year Ended December 31, 2001

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. (a non-profit corporation), and subsidiaries as of December 31, 2001, and the related consolidated statements of activities 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 these 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 U.S. 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 U.S. 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
4001 North 3rd Street
Suite 275
Phoenix, Arizona 85012-2060

April 19, 2002

Alcor Life Extension Foundation, Inc. and Subsidiaries

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

(See Accountants' Review Report)

December 31, 2001

ASSETS

Current assets	
Cash and cash equivalents	\$ 517,455
Investments	860,057
Accounts receivable	108,992
Deposits	39,217
Employee receivables	<u>3,000</u>
Total current assets	1,528,721
Property and equipment	
Land	176,770
Building and improvements	804,601
Equipment	534,736
	<u>1,516,107</u>
Less accumulated depreciation	<u>423,292</u>
	1,092,815
Prepaid suspensions and standby	1,673,982
Employee receivables	24,000
Total assets	<u>\$ 4,319,518</u>

LIABILITIES AND NET ASSETS

Current liabilities	
Accounts payable	\$ 10,211
Current portion of capital lease obligations	<u>11,362</u>
Total current liabilities	21,573
Security deposits	9,057
Capital lease obligations	40,961
Deferred suspension revenue	1,679,724
Deferred patient care reserve	1,783,887
Total liabilities	3,535,202
Net assets	
Unrestricted controlling interests	460,659
Temporarily restricted	151,011
	<u>611,670</u>
Minority interests	<u>172,646</u>
Total net assets	784,316
Total liabilities and net assets	<u>\$ 4,319,518</u>

Alcor Life Extension Foundation, Inc. and Subsidiaries

CONSOLIDATED STATEMENT OF ACTIVITIES

(See Accountants' Review Report)

Year Ended December 31, 2001

	Unrestricted	Temporarily Restricted	Total
Revenue and support:			
Membership dues	\$ 183,033		\$ 183,033
Rental income	118,148		118,148
Contributions	237,505	\$ 131,117	368,622
Suspension and standby	227,694		227,694
Interest	35,036		35,036
Loss on investments	(211,093)		(211,093)
Other	11,989		11,989
Net assets released from restrictions	50,088	(50,088)	
Total revenues	652,400	81,029	733,429
Expenses:			
Personnel services	274,695		274,695
Marketing	50,088		50,088
Depreciation and amortization	51,718		51,718
Magazine and publications	12,665		12,665
Emergency response	17,663		17,663
Insurance	26,903		26,903
Interest	14,846		14,846
Legal and professional	115,044		115,044
Medical supplies	67,788		67,788
Office expense	23,001		23,001
Other	35,748		35,748
Postage	9,523		9,523
Repairs and maintenance	35,642		35,642
Research	1,378		1,378
Suspension and standby	60,466		60,466
Telephone	21,550		21,550
Travel	35,872		35,872
Taxes and licenses	33,545		33,545
Utilities	19,965		19,965
Total expenses	908,100		908,100
(Decrease) increase in net assets before minority interest	(255,700)	81,029	(174,671)
Minority interest in income	(4,270)		(4,270)
Minority interest in increase in reported amounts resulting from acquisitions	(34,254)		(34,254)
(Decrease) increase in net assets	(294,224)	81,029	(213,195)
Net assets, beginning of year, before minority interest	754,883	69,982	824,865
Net assets, end of year, before minority interest	<u>\$ 460,659</u>	<u>\$ 151,011</u>	<u>\$ 611,670</u>

Alcor Life Extension Foundation, Inc. and Subsidiaries

CONSOLIDATED STATEMENT OF CASH FLOWS
(See Accountants' Review Report)

Year Ended December 31, 2001

Cash flows from operating activities	
Decrease in net assets	\$ (213,195)
Adjustment to reconcile change in net assets to net cash provided by operating activities	
Minority interest in income	4,270
Minority interest in increase in reported amounts resulting from acquisitions	34,254
Depreciation and amortization	51,718
Loss on investments	211,093
Decrease in accounts receivable	64,865
Increase in deposits	(2,505)
Increase in employee receivable	(27,000)
Increase in accounts payable	1,765
Decrease in security deposits	(232)
Decrease in deferred patient care reserve	135,049
Net cash provided by operating activities	260,082
Cash flows from investing activities	
Proceeds from sale of investments	40,823
Increase in prepaid suspensions/standby	(258,238)
Purchase of additional interest in Cryonics Property LLC	(134,000)
Proceeds from sale of United Kingdom building	24,156
Purchase of equipment and leasehold improvements	<u>(12,100)</u>
Net cash used in investing activities	(339,359)
Cash flows from financing activities	
Proceeds from deferred suspension revenue	258,238
Payments on capital leases	<u>(8,465)</u>
Net cash provided by financing activities	249,773
Net increase in cash and cash equivalents	170,496
Cash and cash equivalents, beginning of year	<u>346,959</u>
Cash and cash equivalents, end of year	\$ 517,455
<u>Supplemental Disclosures</u>	
Cash paid for interest during the year	\$ 14,846
Equipment acquired under capital lease	\$ 28,053
Prepaid/deferred suspensions increased through cash surrender value of member insurance policies	\$ 742,390

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

December 31, 2001

NOTE 1 - BACKGROUND AND SUMMARY OF ACCOUNTING POLICIES

Alcor Life Extension Foundation, Inc. (Alcor), is a California nonprofit 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, 2001, include all accounts of Alcor Life Extension Foundation, Inc., and its subsidiaries, the wholly owned Alcor Patient Care Trust (the Trust) and the 65.22% owned Cryonics Property, 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: unrestricted net assets, temporarily restricted net assets, and permanently restricted net assets. Alcor has no permanently restricted net assets at December 31, 2001.

Use of Estimates: In preparing financial statements in conformity with U.S. 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. For

purposes of the statement of cash flows, certain investment accounts of the prior year have been reclassified to cash and cash equivalents.

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

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 re-animation, 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 and the Alcor Patient Care Trust are exempt from federal income taxes as an organization other than a private foundation under Section 501(c)(3) of the Internal Revenue Code.

Cryonics Property, LLC, will file its income tax return on the accrual basis as a partnership for federal and state income tax purposes. As such, Cryonics Property, LLC, will not pay income taxes, as any income or loss will be included in the tax returns of the individual members. Accordingly, no provision is made for income taxes in the financial statements.

NOTE 2 - CONCENTRATION OF CREDIT RISK

Alcor maintains cash balances and cash equivalents at several financial institutions. Checking and savings balances are insured by the Federal Deposit Insurance Corporation up to \$100,000. At December 31, 2001, Alcor had bank deposits of \$36,139 in excess of its insured level. Alcor has not experienced any losses in such accounts and believes it is not exposed to any significant credit risk concerning cash and cash equivalents.

NOTE 3 - INVESTMENTS

Investments consist of corporate and government bonds, shares of stocks and mutual funds. These investments are stated at market value at December 31, 2001. Interest income and loss on investments for the year ended December 31, 2001, were \$35,036 and \$211,093, respectively.

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, 2001, 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 \$18,335. As of January 1, 2001, Alcor instituted a new policy requiring new members to name Alcor as beneficiary of any life insurance policy the member uses to fund their suspension. Policies can be returned to members at any time. The following is a summary of those investments and life insurance policies.

	Total <u>Invested</u>	Amt. insured <u>by FDIC</u>
Certificates of deposit	\$304,772	\$286,437
Insured deposit accounts	<u>626,820</u>	<u>626,820</u>
Total member investments	\$931,592	\$913,257
Cash surrender value of member life insurance policies	<u>742,390</u>	
Total prepaid suspensions and standby	\$1,673,982	

NOTE 5 - DEFERRED PATIENT CARE RESERVE

Alcor has a financial obligation to fund the maintenance and re-animation 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 re-animation, if re-animation becomes scientifically and legally possible in the future.

NOTE 6 - CAPITAL LEASES

The cost of equipment acquired under capital leases was \$74,470 as of December 31, 2001. Amortization of assets held under capital leases is included with depreciation and amortization expense. Accumulated amortization was \$26,438 at December 31, 2001.

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, 2001.

Year ending December 31,	
2002	\$ 19,752
2003	18,192
2004	17,054
2005	10,904
2006	<u>7,283</u>
	73,185
Less amount representing interest	<u>20,862</u>
Present value of future minimum lease payments	\$ 52,323

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, 2001, are as follows:

Research and education	\$ 461,892
General and administrative	<u>443,729</u>
	\$ 905,621

NOTE 8 - EMPLOYEE LEASING

On May 6, 2001, Alcor renewed its one-year agreement with Action Employment Resources, Inc. (AER), to provide professional employment services. Under the terms of this agreement, AER assumes 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

Two members of Alcor's board of directors are also on the board of directors of BioTransport, Inc. BioTransport, Inc., used Alcor's personnel, facilities, and equipment in its operations. In exchange for these services and expenses, BioTransport, Inc., transferred \$49,177 in medical supplies to Alcor.

NOTE 10 - ACQUISITIONS

Alcor Patient Care Trust increased its ownership in its subsidiary, Cryonics Property, LLC, from 56.52% to 65.22%. The Trust acquired three partners' ownership interests in January, July, and August, 2001, for a total purchase price of \$134,000. These acquisitions were accounted for as a purchase, whereby the underlying assets acquired and liabilities assumed are recorded at their fair market values.



Wheel of Fortune

by Michael R. Seidl, Ph.D., J.D.

Recently my wife and I vacationed in Las Vegas. What struck me most—apart from the dazzling neon, the heat, the crush of the crowd, the opulent hostelry, the sumptuous dining, and the fact that whenever I sat down someone wanted to give me a free drink—was, you guessed it, the gambling. Everyone knows, in the abstract, that there is gambling in Vegas, but the scope of it is boggling. Tens of thousands of people are throwing down chips of all denominations on the turn of a card or the spin of a wheel or are plugging gleaming quarter after quarter into slot machines that jingle, flash, and sing. I confess that, in the midst of all the madness, I was not a passive observer. I played some blackjack and some slot machines. My favorite slot machine was “Wheel of Fortune.” The attraction of the game is that if, on a three quarter bet, a wheel appears in any of the three play windows, one gets a free spin of the wheel of fortune above the main playing area with a guaranteed bonus return. When I had lost my stake and got back to looking around, I was surprised all over again at the size of the crowds. I never knew so many people liked to gamble so much. In fact, as a member of Alcor, I would have bet that most Americans were not gambling people. How is it, I thought flying home, the whooping of the slot machines still ringing in my head, that 24 hours a day people are standing three deep around the blackjack tables and stuffing quarters into a slot machines like there is no tomorrow, and Alcor has less than a thousand members? Obviously the answer is not that people are unwilling to take a costly gamble; they are. So, how is Alcor not like Las Vegas, and why are there not more people spinning our wheel of fortune?

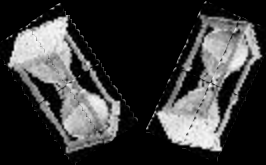
I toyed with a few ideas. Perhaps Alcor needs to offer an all-you-can-eat buffet with membership or free drinks with requests for membership information. Perhaps it needs to be located in a modern hotel, with lots of neon, scantily clad attendants, and four-star restaurants—visit, live it up, then sign up. Perhaps it needs to provide “comps” (complimentary service) for over-funded members—for every \$10,000 in excess funding, for example, get a free rental of our poolside cabana. All of these seemed like good ideas to me, but the source of funding

for such amenities was worrisome. What if Alcor ended up having to take on silent partners of less than sterling reputation? Did we want Benny “the Dewar” Gambrolinni or Micky “Coldpac” Jones on our board of directors? Fortunately, my wife cut off my speculative rant with a sharp elbow in my ribs and I got back to the serious issue.

People do like to gamble, and they do not mind spending lots of money on it. Cryopreservation is a gamble (with a potentially huge return), and it costs a little bit of money. Why are there not more people taking the gamble? And then it struck me—the big difference between Alcor and Las Vegas is not the risk, the cost, or the return. It is not the flashy hotels or the free drinks. It is not the shows, the pools, or the movie stars. It is operant conditioning. Las Vegas lets you bet a little and gives a little reward, lets you bet a little more and gives you a bigger reward, tells you moment by moment how you are doing, gives a little and takes a little away and gives a little more. Las Vegas is constant feedback, ongoing gambling. Alcor is sign up, get your ticket, and wait. Alcor is buying a lottery ticket knowing the drawing will not be for years, that there is a chance that you will lose the ticket (die in circumstances where you cannot be suspended), and that you will never even know what the winning number was unless you win yourself. Joining Alcor is like buying a raffle ticket at the beach while visiting on Memorial Day weekend for a drawing that will not be until Labor Day. It takes a special kind of gambler to be a cryonicist, one dedicated not to the game but to the chance of the payoff, one not in it for the gambling but for the gamble itself.

Nevertheless, Alcor does offer a smattering of intermittent reward for the dedicated member. It has a beautiful new web site (www.Alcor.org), the breadth and content of which will continue to grow. It produces a quarterly magazine (*Cryonics*) to keep members and other interested parties abreast of news and developments. And, at least for the last several years, it has hosted a biannual conference. This year’s conference, to be held on

(continued on page 47)



You Only Go Around Twice

by Jerry B. Lemler, M.D.



If It Weren't for the Fourth, I'd Not be at the Fifth

I don't know if you've ever owned a golden retriever, but back in '98 when my wife, Paula, couldn't resist a pup, I reluctantly yielded to welcome Hudson into our placid east Tennessee mountain home. To say he didn't arrive easily would be a blatant understatement. During his freshman (plebe) year as a West Point cadet, our son, Russell, was visited by his mom on eight separate occasions. No, Paula didn't quite compare with Douglas MacArthur's mother, who camped out in the hotel overlooking the austere post throughout the would-be general's military academy's matriculation, though our expenses (even discounting the nominal frequent flyer miles) for her multiple air transporting might have drawn her close.

On one such foray, my bride (and cadet) made the acquaintance of Colonel Gayle Watkins, a most affable and exceedingly competent military educator and golden retriever breeder. In but a few short years, Gayle and her retired military husband, Andy, have catapulted Gaylan's Goldens to the upper echelon of agility and conformation breeding dogdom. Once you've seen a Gaylan's Golden puppy, I promise you, you're a new dog owner.

Flyer and O'Reilly produced nine male and six female robust and beautiful golden puppies in the spring of 1998, collectively (and appropriately) to be forever dubbed the West Point Litter. For identification purposes, the wee whelps were given color-coded neck tags. After intensely interviewing prospective owners (not all were deemed satisfactory by the selective breeder), we were awarded with Mr. Navy, a dubious choice of color indeed for an Army dog. Gayle suggested (? commanded) the 15 owners to give our new charges call names that reflected the spirit of their birthplace—the United States Military Academy. And so Paula flew (yet again) to New York to pick up Hudson and escort him back to Tennessee.

The expectation, however, of a routine transport mission, was doubly shattered over the course of the next couple of days. Paula landed at LaGuardia Airport, procured a rental car, and headed out the Van Wyck Expressway for the hours' drive north

of the city. As usual, she found herself in a logjam at the Bronx-Whitestone Bridge Toll Plaza. Barely two cars away from paying the toll, she felt a momentary light brush of her car softly tapping the rear bumper of the auto directly in front. The touch was so imperceptible; she could hardly believe what transpired next. Regrettably, the other motorist wasn't thinking on the same terms. He bolted out of his car, and noticeably armed, began shouting explicatives to my suddenly astonished and beleaguered wife. The raving "gentleman" had to be restrained by the toll authority police (after punching two of them, who later required treatment at a local hospital), which further necessitated an unscheduled appearance at the local precinct for the visibly shaken visitor from Tennessee. Hours (and volumes of forms completed) later, she was finally back on the road again to pick up the fluffy pup.

The return flight from New York hardly engendered the same level of intensity, though admittedly was not without incident. Hudson (nee Mr. Navy) was a rambunctious and curious creature, none too willing to quietly remain within the confines of his designated carrier. Paula was goaded into removing the whimpering dog from his ensconement, but once lap secured, the call of nature got the better of him and a couple of empty seats as well. The upshot of all this commotion was a stern directive from a flight attendant, proclaiming, "Your dog is no longer welcome on any U.S. Air flight ever again!" These days, we book him instead on America West.

If you're wondering what possible connection this diatribe could have with Alcor's Fifth Extreme Life Extension Conference in Newport Beach, California, on November 15–17, there actually is a segue. In mid June of 2000, two-year old Hudson, along with his adoptive mom and dad were scheduled to make an out-of-state trip. The three of us had planned to cross the Smoky Mountains by car to North Carolina, where we looked forward to a reunion of sorts. Gayle was traveling down from New York for a dog show, where one of Hudson's more prodigious sibs (the well-mannered and impeccably groomed Trooper) was to be an entrant. So, a pleasant summer weekend in the cool western North Carolina mountains was in the offing, and Hudson was drooling in eager anticipation of seeing his breeder and bro.

Alas, it was not to be. By one of those unfortunate happenstances of scheduling, Alcor had (I might add without checking with us) already booked its Fourth Extreme Life Extension meeting in Asilomar, California, on the very same weekend. What to do?

Well, of course you know where we ended up. The lure of hearing (and meeting) the likes of Eric Drexler, Ralph Merkle, Mike West, Stephen Valentine, Bob Newport, Lisa Lock, Michael Seidl, and Steve Bridge was much too compelling to pass up. At Asilomar I was fortunate enough to steal some time alone with Linda Chamberlain, where she “commissioned” me to begin writing what would eventually become our new membership monograph, *Alcor Life Extension Foundation: An Introduction*, commonly known around here as ALEFI. The extended book project would lead to continuous contact with Alcor, which in turn lead to an offer of employment in Arizona.

So, there you have it. I prevailed up on my bride to join me for a weekend in Monterey and then within a scant year later, to move to Scottsdale. Alcor’s Fourth Conference was a defining moment in my life, but our roster of speakers lined up for Newport Beach is even more impressive. I do hope you’ll make plans to join us!

Oh—by the way—Trooper placed third in the sporting group.

1

(continued from page 45)

November 15–17 in Newport Beach, California, is everyone’s chance for a little positive reinforcement, to (metaphorically speaking) see three cherries line up and hear the clatter of quarters. Speaking from the experience of Alcor’s 2000 conference at Asilomar, nothing more solidly cemented my interest in and dedication to cryopreservation than three days of thoughtful, engaging presentations surrounded by interesting and energetic people all pursuing the same end—human life extension. Each of us, so few in number, live and work mostly alone on a daily basis with our interest in cryopreservation, supported, if we are fortunate, by perhaps a few other friends or family members in the area with similar interests. Seeing a crowd (yes, a crowd!) of cryonicists is revelatory and reassuring. Put aside the simple chance for a holiday, the illumination of the presentations, the people to see and meet; the Alcor conference is a chance to remind yourself that you are giving the wheel a good spin and to see, looking around you, that there are lots of other people doing just the same. We all want to win. If we keep in the game, if we keep the game going, if we keep the wheel spinning, maybe we will. 1

The Immortalist Manifesto

Stay Young and Save the World

By Richard Elixser

1st Books Library, 2001

Book Review by R. Michael Perry

An earlier version of this review appeared in The Venturist, 2nd Quarter 2002.

If you’re like me, you are not particularly fond of the “manifesto” style of writing, with its short, ranting paragraphs and tendency to otherwise be overbearing. *The Immortalist Manifesto*, which deals with the technological conquest of death, has these design flaws and others. Much of what it says will be old hat to the serious immortalist yet is presented as original thinking; the back cover falsely acclaims the author as the “first post-mortalist philosopher.” The book also has one glaring omission: cryonics is not mentioned even once. (A section, “If You Die Before the Breakthrough,” holds out hope that you can still be resurrected through future technology, but is vague on specifics and has little to say on how to prepare for this contingency.) Though it is not a long book, plowing through its turgid pages can be tedious.

For all that, the book deserves attention. It makes an impassioned appeal to throw off the chains of mortality, and recognizes that the problem has a strong sociopolitical component as well as the technical challenge it poses. It offers what can be called *militant immortalism*. Death in all its cruelty and unfairness is deplored with outrage, and we are invited to join an opposition that will finally defeat this ancient enemy. To its credit the book advocates no violence, despite identifying a “death lobby” of religious, political, and commercial interests that are not favorable to extending the human life span.

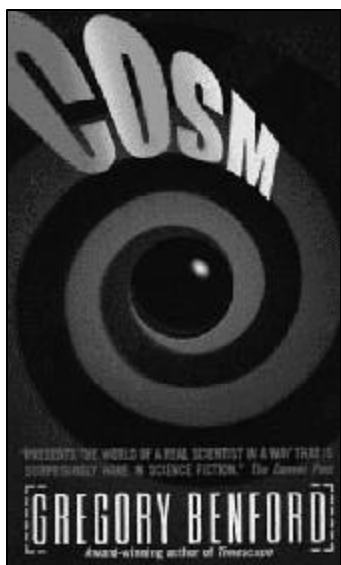
So what can you do? Well, it says, you can tell your friends about the book and get them to read it, arrange a speaking engagement with the author, check out a web site, petition your congressman, and so on. Eventually, says the author (the sooner the better, libertarians notwithstanding), the government should get involved, massively supporting anti-aging research with taxpayer funds. Again, there is no mention of an existing immortalist community; the author would seem to prefer being a one-man show, despite cautioning against thinking you can defeat death alone. An appendix presents a chapter from another of his works (still unfinished): *How to Stop Aging & Start Living: The Elixsir Chronicles & Meditations*. We are told that he subsists on a severely calorically restricted diet and is astonishingly youthful for his forty-something years. As for the immortalist establishment (admittedly small in numbers but very real and trackable nonetheless), it is possible he is just uninformed, or, less favorably, has other motives than just trying to help himself and others become immortal. One hopes that a second edition will address the book’s rather serious shortcomings. 1

Cosm

By Gregory Benford

Originally published by Eos, 1998

Book Review by Dr. Richard S. Lemler



Most in-the-know science fiction fans have read *Timescape*, the novel for which Gregory Benford received the prestigious Nebula Award in 1980. He has, of course, written other novels since then—including *Cosm*, published by HarperCollins in 1998.

What happens when you accidentally discover a window (actually, a shiny sphere) to another universe? Who owns it? Who controls you? These are but a few of the questions posed by Dr. Benford in the rollercoaster ride that is *Cosm*.

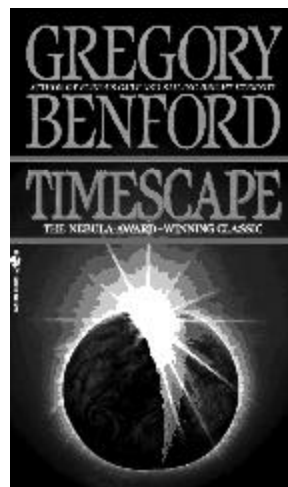
We see the world of laboratory and political intrigue through the eyes of one Alicia Butterworth, the heroine of this story. Her uncertainties over her discovery, as well as the path she must tread through—the tangled web of physics and physicists—make this an enjoyable read. Her “humanness” helps to make this cross between science fiction and science fact believable. As such, it is a welcome addition to the bookshelves of all those who enjoy this genre, and to all those who enjoy this author’s fundamental ability to “tell a good tale.” 1

Timescape

By Gregory Benford

Originally published by Simon and Schuster, 1980

Book Review by Jessica Sikes



Gregory Benford’s *Timescape* won the both the Nebula and the John W. Campbell Memorial awards, prestigious honors in the science fiction genre. The book is cleverly constructed, taking the reader back and forth from 1998 to 1962, exploring two separate scientific experiments. Benford exhibits his expertise as a physicist in his descriptions of these experiments, which are well constructed and detailed.

Beyond the experiments lies the problem Benford constructs for the characters in the novel. The scientists in 1998 believe they have found a way to contact the past to stop something that has catastrophic results on the future. The scientists in 1998 hope to contact the scientists in 1962, using tachyons (particles that move faster than light) to transmit morse code messages to tell the scientists of the past how to prevent the harms the world experiences in the future.

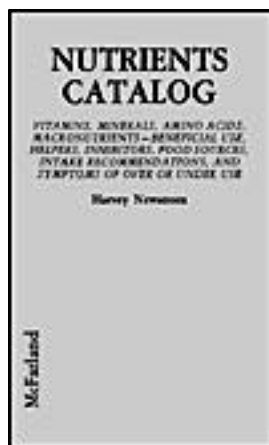
Benford’s descriptions are intense, his character development is rich, and his novel overall is gripping. Of course it is fascinating to think about the possibility of contacting the past to change the future (or present), and Benford is able to further explore this option with his strong background in physics, making it seem more believable to the reader. 1

*Nutrients Catalog, Vitamins, Minerals,
Amino Acids, Macronutrients*

By Harvey Newstrom

McFarland and Co., 1993

Book Review by Paula Lemler



This 538-page hardcover book with appendices, bibliography, and index lists more than two dozen vitamins, three dozen minerals, one dozen amino acids, and a half-dozen macronutrients, and describes common classification and chemical forms, deficiency symptoms, side effects, toxicity, inhibitors, food sources, possible applications, recommended daily dosages, and warnings. Reviewer quotes have said: “The ultimate nutrient reference book” and “Newstrom is staggeringly specific” (American Libraries); and “easy to use,” “valuable,” “extremely extensive” (ARBA).

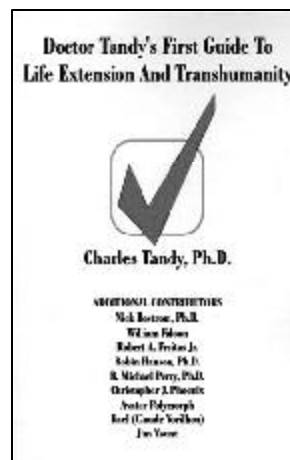
Nutrients Catalog is truly an outstanding reference book and should be kept on the desk of every physician and healthcare provider working in the nutritional field. Information is easily obtained and is given in a clear and precise manner without the need to search through explanatory text. 1

*Doctor Tandy's First Guide to Life
Extension and Transhumanity*

By Charles Tandy

Universal Publishers, 2001

Book Review by Paula Lemler



Dr. Tandy and nine additional contributors (including Alcor Conference speaker Robert A. Freitas Jr.) introduce the reader to the world of the twenty-first century and beyond. Robert Freitas Jr., the world’s foremost authority on nanomedicine, composed a section in this publication, entitled “Respirocytes and Their Uses in Future Nanomedicine.” He explains how bacterium-sized nanorobots will enable physicians to perform precise interventions at the cellular and molecular level. The possibilities of their capability are staggering. The author details a design analysis he performed on what he calls “a relatively simple nanomedical device,” which I find anything but simple to imagine, and names this artificial mechanical erythrocyte a “respirocyte.” A description of the respirocyte follows, written in technical terms, though in such an interesting manner that it becomes a fascinating read.

[Editor’s note: Dr. Freitas’s graphic depiction of a “respirocyte” graces the cover of this issue.]

Other thought provoking concepts in this book include dietary supplements and human health, cryonic hibernation, transhumanism, transmortality, and the singularity. 1

Letters to the Editor

Letters to the editors are most welcome on all topics, including counterpoint on previously published materials and suggestions as to future content. We especially invite questions about cryotransport (cryonics) that are original and far-reaching. If you are seeking information about Alcor, please consult our web site, at www.alcor.org. If you have questions about developmental programs within Alcor, you may stir us into talking about them even sooner than we might have otherwise. If your letter is lengthy and involved, we may use it as a separate article and may ask you to expand it. We need your ideas, your personal visions. This is the place to start.

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