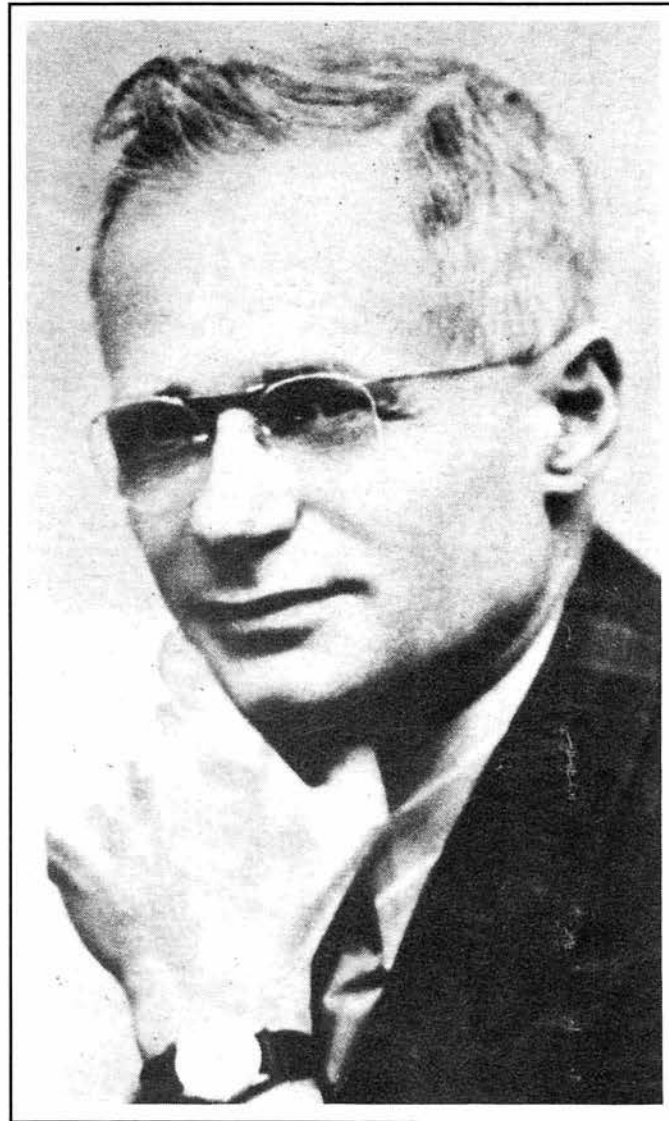


# Cryonics

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*The Detroit News Magazine*

## **Louis Nisco**

**Second Man Suspended**

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# Cryonics

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Issue to press: February 7, 1992.

### Cover:

*Michael Perry looks at the suspension of Louis Nisco in this month's "For the Record."*

## The Time Is NOW!

If you haven't yet made reservations for the Alcor 20th Anniversary Dinner, time is running out! The banquet will be held at the Marriott Hotel, 2200 East Holt Street, in Ontario, California. Speaking at the engagement will be Alcor founders Fred and Linda Chamberlain, Alcor CEO Carlos Mondragón, as well as Saul Kent, Max More, and Ralph Merkle.

Call Maureen Genteman at 310-398-3464 to make your reservation. (\$50/seat.) Don't miss it! (Additional information on inside back cover.)

## Appellate Decision on Donaldson

On Wednesday, January 29th, the California Appeals court rejected Thomas Donaldson's appeal. They upheld the lower court decision which held that Dr. Donaldson has no constitutional right to obtain the assistance of others in order to commit suicide.

The court reasoned that to permit the assistance of others in a suicide would mean by extension that the State itself would be engaged in such assistance. Further, they reasoned that any State sanctioning of assisted suicide would lead to an environment where it would be practically impossible for the State to determine the true intent of the decedent, i.e. did the person truly form a rational decision, or were they influenced?

The court also ruled that it could not pre-emptively prohibit the coroner from performing his statutory duty in any case of assisted suicide.

Of course, this decision does not leave us any worse off than we were before. As of this writing, Alcor has no plans to further appeal to the State Supreme Court. Because of the cost and our inability to meet it, we would only be able to pursue the case further if we receive a large enough directed donation for that purpose.

## Suspension Capabilities

As we reported in last month's issue, our most immediate need is the development of field washout skills, particularly with regard to femoral cutdowns, which require much practice for competence and efficiency. So, in the first week of February we purchased a pig from an animal research supplier and held a training and practice session in applying the basic field cutdown pro-

cedure. The entire procedure was completed twice, once on each leg, with two cutdown teams. Both were performed successfully and in very good time, especially considering that the team members were mostly inexperienced, and the femoral arteries and veins in pigs are much smaller and deeper than they are in humans.

The experiment also supplied much needed practice in intubation — the placing of endotracheal "breathing tubes." It seems that pigs are more difficult than humans in this respect as well, having narrow and mostly obscured tracheal openings. But at least two of the four people practicing became quite competent at quickly and accurately placing the endotracheal tube.

Further cutdown practice, using alternate techniques, was performed on the pig's carotid artery, which proved very difficult to find (being buried in muscle) but easy to catheterize.

Finally, useful experience was gained in examining the animal's cardiovascular, and some very encouraging techniques for heart catheterization without purse-string sutures (tricky, surgical entry techniques) were explored and examined.

## The Big Apple On A Roll

The Alcor New York group continues to impress us with their determination. In January the group undertook further progress and formalization by electing Brenda Peters as New York Chapter President, Michael Paille as Chapter Vice-President, and Courtney Smith as Chapter Chairman. (Kevin Brown continues as their Treasurer, with Janet Pinkney as Secretary and Gerry Arthus as Coordinator.)

Equally encouraging is the production and release of the first Alcor New York

newsletter, the *Alcor New York News*. Charles Platt, an accomplished writer and vociferous cryonicist (see next page), has undertaken production of the newsletter.

Thanks largely to a donation of \$5,000 by Alcor Suspension Member Eric Klien, the group will soon be acquiring a \$5,000 High-Impulse Heart-Lung Resuscitator. This will very nearly complete the array of equipment necessary for a top-of-the-line remote stabilization in the New York area. With all of this equipment on hand and monthly stabilization training sessions taking place, everyone in the Northeast should soon be sleeping a little easier.

If you live within reasonable driving distance of New York proper, consider getting more involved with the dedicated group of folks you'll be depending on if the worst should happen. See the phone numbers and points of contact in the back of this issue for more information.

## Humanist Essay Contest

The Humanist Society is sponsoring an essay contest for people aged 29 and under that includes topics of possible interest to cryonicists. Among others, potential topics for essays of 2000 words or less are:

- The International Project That Will Most Benefit Humanity
- Is the Right to Euthanasia the Ultimate Human Right?

Obviously, both of these could be addressed well with the topic of cryonics. First, second, and third prizes are \$500, \$250, and \$100 respectively. Call (716) 839-5080 for more details. The deadline is October 15, 1992.

The image shows the cover of the Alcor New York News newsletter, Number 1, January 1992. The title "ALCOR NEW YORK NEWS" is prominently displayed at the top, with a stylized eagle logo to the right. Below the title, the issue information "Number 1 January 1992" is printed. The cover features several columns of text. The first column discusses the group's activity and the January meeting. The second column, titled "What We've Accomplished," lists the group's progress in training EMTs. The third column, titled "At the monthly meeting on January 19th," mentions the election of Brenda Peters as President. The cover also includes a small advertisement for a training course and a call to action for volunteers.

## Omni Deluge

The February 1992 issue of *Omni* contains a wonderful article by Alcor Suspension Member, Charles Platt, entitled, "Confessions of a Cryonicist," reprinted below. This direct, one-page testimonial has already prompted over 400 *Omni* readers to call us for more information, and this is as of February 7! At this rate, the publicity power of this article will outpace the cryonics episode of *Donahue* in a matter of weeks!

Obviously, Charles has a knack for writing about cryonics in a way that appeals to people and makes them want to know more. Please help him refine his technique by filling in the one page questionnaire at the end of this issue; it was designed by Charles in an attempt to give him a better idea of what motivates cryonicists, and he certainly seems to know how to handle such knowledge.

Michael Paille, another Alcor New York member, has devised a very clever plan to take further advantage of this *Omni* exposure. A letter will be mailed to everyone who called us as a result of that article, inviting them to participate in a national teleconference cryonics question-and-answer session with Charles Platt.

Our sincere thanks to Charles for using his skills to the benefit of Alcor and cryonics in general.

# EXPLORATIONS

## CONFESSIONS OF A CRYONICIST

Frozen immortality may be worth the price

By Charles Platt

*Charles Platt, author of The Silicon Man, and one of our finest SF writers, puts his money where his speculative mouth is.*

So far, in the United States, perhaps one person in a million has made financial arrangements to be frozen after death. And I am one of those people—a crackpot or a visionary, depending on your point of view. I have contracted to store my remains in liquid nitrogen. Two or three centuries in the future, when medical science is sufficiently advanced, I hope to be brought back to life.

I seem to be the first science or science-fiction author to have taken this step. Visionary? Crackpot? That's a question I'm still trying to answer.

I wasn't especially interested in cryonics before I visited Alcor, a cryonics organization near Riverside, California, in 1987. I went there as a journalist and a skeptic, but the totally dedicated, highly qualified staff turned out to be the most intelligent, resourceful, determined group I had ever met, and they patiently eroded my skepticism with facts. For example:

- Human tissue, suitably prepared, can be frozen with negligible damage.
- The fledgling science of nanotechnology offers rational hope for repairing some biological damage that is currently considered irreparable.
- Small human embryos have already been frozen to the temperature of liquid nitrogen and successfully revived.

Cryonics isn't cheap, and Alcor's current minimum fee of \$41,000 is out of reach for most of us. The fee can be covered by a life-insurance policy that makes Alcor the beneficiary. To me, this money wasn't trivial. But facing my own mortality turned



out to be much harder than coming up with the cash to pay \$450 a year for the life-insurance premiums and the annual Alcor membership fee.

I always used to tell people that I had no illusions about death, and I accepted the finality of it. Yet it took me almost three years to overcome my psychological resistance to cryonics. Even after I had written a will and obtained life insurance, Alcor's legal documents languished on my desk for many months. I avoided signing them in the same way that I might turn away from the sight of an ugly accident. I imagined myself dead, dunked in a vat of liquid nitrogen. It was too vivid, too personal, too real.

Many people seem to go through this pattern of initial interest in cryonics, followed by reluctance to pursue it. My friends, for instance, were full of eager questions—until I started giving them specific, practical answers. Being turned into a Popsicle was fine for theoretical debate—or sick jokes. As an everyday reality, however, it was too disturbing

Even if the procedure actually worked, there were still many worrisome unknowns. Resuscitation might be a horribly painful process. Brain damage could occur. I might feel intolerably alienated in an advanced future society, or the society might shun me as a misfit from a primitive past.

Cryonics is the ultimate gesture of defiance. Even if it offers only one chance in a hundred thousand, that chance is worth taking. Death is intolerable, and I am seizing the only available opportunity to transcend it.

My ID bracelet is now engraved with instructions for medical personnel in the event of a serious accident. Alcor is on call 24 hours a day, and I have no doubt that if I end up in a hospital bed with declining vital signs, they'll be ready to protect my biological remains.

Visionary? Crackpot? I can't answer that question because I don't think it's currently answerable. Gene splicing and molecular manipulation via scanning tunneling electron microscopes would have seemed impossible a century ago. We simply cannot predict the technical advances that may be made in centuries to come.

The bottom line, however, is simple. If I am buried or cremated in traditional fashion, my mind and body will be destroyed. That is absolutely certain. By contrast, being frozen offers some chance that I may be preserved and restored in the far future. Even if that chance is vanishingly small, it's better than no chance at all.

To obtain more detailed information on cryonics, call Alcor at (800) 367-2228. ☐



## Letters to the Editor

Dear Alcor:

Even though I can see room for expansion of my answers to almost every point, I was pleased with my interview in the January 1992 issue. And incidentally, I was born in January.

As readers can guess, I'm not pleased by Nanotechnology, though very happy with nanotechnology. And I would like to add one further insight that had not occurred to me at the time of my interview:

Here is a little test to tell the difference between nanotechnology and Nanotechnology: listen carefully for phrases such as "When nanotechnology arrives," or "When full nanotechnology arrives." The word must always be a *noun* for this test to work. And then substitute: "God in his chariot with trumpeting angels," and see if the phrase still makes sense. If it does, you have Nanotechnology. If not, you may only have nanotechnology, its poor and inadequate relative.

I believe that my point should be clear to all concerned, without naming anyone specifically. And the implications of that point should be clear, and so on. . . .

Best to all  
Thomas Donaldson

Dear Editor/Alcor:

Being that I'm a new member, please forgive what might be outdated questions. I've been doing a lot of reading on Alcor/Cryonics both past and present. I visited Alcor (October, 1990). On the subject of Allen Lopp's legislative write-ups, letters and phone calls are very good — however it would be better if in the near future Alcor could incorporate a little more look and feel of a hospital and hightech office/research center. A little work, paint and face-lift might help the cause. An in person, firsthand look for the California State Senate can go a long way, too.

Second: The complex, technical articles, reports by H. Keith Henson, Thomas Donaldson, Ralph Merkle, Greg Fahy are wonderful but what happened to the old school of trial and error? In other words everyone from college universities, local counties, medical schools, hospitals, and funeral home schools all have bodies

to work with and test. Why can't Alcor do suspensions, tests and "practice" reanimation on people now? Won't this direct "hands on" work cut down on the long, long road ahead?

Sincerely,  
Matt Swanson  
Alcor Chicago!

*While additional practice on transport and suspension techniques is always needed, the difficulties and formalities associated with working on "cadavers" preclude it at present. Working with animals is easy and fairly inexpensive, while providing a reasonable analogue for techniques applicable to humans. As for practicing reanimation, it would be an understatement to say that that would be a bit premature. The level of damage present in suspendees will make resuscitation impossible until the general level of technology far surpasses what is presently available. For now, the best spent money is that spent on research and training in the area of stabilization and suspension, rather than reanimation. — Ed.*

Dear Cryonics:

As a member of the Libertarian party, I'm on a lot of mailing lists. The one in particular I'd like to draw your attention to is the Liberty Tree Press, an outfit that sells books of interest to libertarians. (It would not at all surprise me to find that someone at Alcor gets this catalog.) They have a feature, the Liberty Tree Network, which acts as a clearinghouse for unusual publications of potential interest to libertarians. Each publication gets a small ad, and you simply check off on the order form which publications you'd like samples of or subscriptions to.

It strikes me that *Cryonics* would fit right in, between the Loompanics catalog, Paladin Press, and small circulation political magazines. We are, after all, an organization consisting mainly of libertarians, and functioning at the cutting edge of government harassment. Inclusion in the Liberty Tree Network could greatly boost circulation and exposure among a prime target population. Accordingly, I think you ought to contact them. The ad-

dress is:

Liberty Tree Network  
P.O. Box 2373  
Boulder, CO 80329

I don't know what the chances of inclusion are, or what sort of overhead they charge for this service. But I do think it's worth the inquiry. If the cost looks reasonable, I'd be willing to foot the bill.

*Consider it done. And if there is a bill, consider it in the mail. — Ed.*

Brett Paul Bellmore  
Capac, MI

P.S. If the state is charging us a workman's compensation premium on a dead board member (presumably Jerry Leaf), can his estate collect workman's compensation? Based on \$56,000 per year? Dead men can't very well work, after all.

Max More,

Your article (*Cryonics*, November, 1991) was informative and inspiring. The day when we forego our emotional attachments and focus on intelligent communicative processes will be an advantage to us all. I do, however, have a comment regarding one of terms which you referred to. This term is "transhuman" and its definition is explained in the book *Are You a Transhuman?*.

The word "transhuman" was coined by FM-2030. I believe he first used it in 1973 in a book entitled *Women in the Year 2000*. He wrote the final chapter of the book in which he introduces the concept of transhumans. In his book *Are You A Transhuman?*, FM-2030 elaborates on this concept as a full scale sociological, philosophical and intellectual advancement to our way of thinking.

So many words are coined and not credited properly to those who first created them.

Thank you for your article and its depth, I hope to read more of your writing in future issues.

Sincerely,  
Eric Lawson  
Los Angeles, CA

Dear Mr Whelan,

I am starting a project that could, in the extreme, increase overall cryonics membership by up to 40%.

It is known that most members of cryonics societies are single males, and as humans are happier in pairs it would seem reasonable to suppose that most of them would be delighted to have a female companion who shares their interest in immortality. She will learn about cryonics and become a suspension member in due course. A proposal was made in the ACS pages of *The Immortalist* recently that an immortalist based lonely hearts club be formed. As I already run a locally based lonely hearts club, I have decided to start a global immortalist based one, Perpetual Immortalist Contact Sheet, or PICS for short.

As such a club is likely to be highly beneficial to the membership of all cryonics societies, I am hoping that all

cryonics publications will give it due publicity, hence this "letter to the editor." Obviously if it does succeed and particular societies do not support it, then these particular organizations could lose potential members.

The main problem is going to be advertising costs in mainstream publications. The formula will be the same as my locally based club, PCS. A single payment will produce six copies of the newsletter with box number listings, together with the right to place a listing of your own requirements up to around 100 words. The listing will remain until canceled, so even if you don't renew your subscription, you may still receive letters in the future. Unfortunately an estimate of the likely advertising costs given that we start off with 10 members from cryonics societies will be \$100 a member, which is an order of magnitude higher than I would like. And this estimate is somewhat unrealistic inasmuch as it is only based on a small monthly ad-

vertisement in *Omni's Longevity*. There is no doubt that the project will be a hard slog to get started, but as I have all the equipment and the necessary software and won't be charging for time, I can't see anyone else doing it cheaper. And in the long term I think it will be highly profitable in terms of increased cryonics membership.

I would therefore be interested in hearing from readers of *Cryonics* who may be interested in joining the scheme, with their views. Please don't send any money at this stage. Please write to: PICS, Westowan, Truro, TR4 8AX, England. The address is abbreviated as it will be in adverts. Please be sure to get every letter right as without redundancy there is more risk of letters going astray, but this address has been used in other projects without problems.

Sincerely,  
John de Rivaz

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## For the Record

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# Nelson, Nisco, and the "Cryotorium"

Michael Perry



The Cryonics Society of California (CSC) was formed late in 1966, under the leadership of Robert F. Nelson. In early 1967 they performed the first cryonic suspension, that of James Bedford. Nelson related the adventure, in a somewhat fictionalized form, in a 1968 book, *We Froze the First Man*. Nelson liked the limelight, and made many speaking and media appearances, which introduced cryonics to a wide audience, including such people as Jerry Leaf.

James Bedford remains frozen today, 25 years later.

I wish I could stop right there, since this is about the extent of the *positive* contributions of CSC and its leader, Nelson. Unfortunately, not all of cryonics history is so positive, and we need to explore the

bad with the good to see what lessons there are to be learned. Last month I dealt with the general topic of suspension failures. Obviously a lot was left unsaid. This time I'd like to consider a portion of that history in greater detail. I think this extra look is worthwhile, because there is human drama involved, and we always want to remember that humans are *people* and not just statistics. There is, needless to say, a lot of material to choose from. Books could be written, and probably eventually will. For now our goals must be more modest.

So, this time I want to look into one of the lesser-known suspensions, that of Louis Nisco, and how he wound up with CSC, and what then transpired.

Louis Tom Nisco lived in Detroit,

Michigan. His varied career included, in later years, being a chef for several local golf clubs and writing articles on criminology under the name of Louis Nicholas. This suggests that he was highly accomplished, and that there are interesting further details about his life — but that will have to wait for now.

Sometime around 1965 his daughter Marie decided that she and her parents would be frozen upon death. On September 7, 1967, Nisco suffered a heart attack and was pronounced dead on arrival at a local hospital. Marie recalled in 1969, "My father died in my mother's arms and I believe if he'd been put in the ground, my mother wouldn't be alive today. . . she loved him that much." Instead of the more usual burial, Marie contacted Robert Et-

tinger, followed his instructions, and her father became the second man and the fourth person frozen. To arrange the freezing required money: nearly \$5,000 for the capsule and about another \$1,000 for other expenses, for which the daughter refinanced her car and made other sacrifices.

At first the capsule was maintained by Cryocare in Phoenix, Arizona, headed by Ed Hope (who incidentally claimed the freezing was for cosmetic purposes only). The daughter, apparently for financial reasons, had the capsule transferred to the custody of Cryonic Interment, Inc., the sister organization of CSC that handled freezings and maintenance, sometime in 1968. In March 1969 Nisco's capsule was opened and, with great difficulty, three other frozen individuals were placed inside with him: Marie Phelps-Sweet, frozen a week prior to Nisco; Helen Kline, frozen in May 1968, and C. Russell Stanley, frozen in September 1968. (The others were then being stored in dry ice at a mortuary.) A July 1969 news article said Nisco was "in California in a newly opened 'Cryotorium.'" From other sources it is clear that this "Cryotorium" was simply the premises at the Renaker-Klockgether Mortuary where the capsule was stored. To "open the Cryotorium" Nelson and his assistant, mortician Joseph Klockgether, had to spend all night stuffing the four bodies in the capsule, exposing them to high temperature, then have a welder seal up the capsule. It is interesting to compare this with a published description which appeared in CSC's promotional literature, March-April 1969, under the heading, "WORLD'S FIRST CRYOTORIUM.":

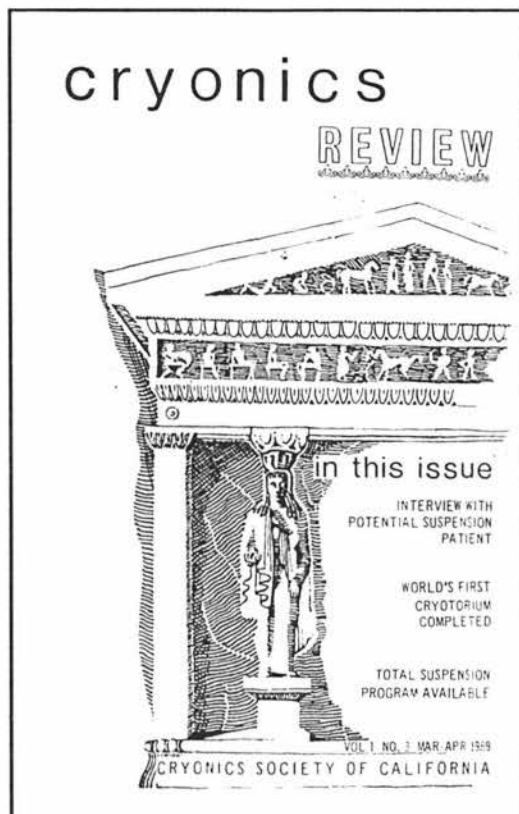
"Cryonic Interment, Inc. (CI), has completed construction of a multiple storage facility for cryonic preservation. The multiple principle introduces high reliability, flexibility, and efficiency into the cryonic preservation process. Tri-check metering precludes malfunction or variation from the critical standards required by CSC.

"The multiple principle permits addition of patients and ultimate individual withdrawal of patients without affecting the temperature of patients who remain in storage. High transfer costs are eliminated.

"CI designs are a product of techni-

cal studies and intensive investigation over a period of two years involving the services and counsel of engineers and specialists in several related fields.

"Legally, Cryonic Interment's new facility offers an alternative to burial and cremation. Scientifically, CI meets



CSC newsletter touts "Cryotorium"

CSC standards for arresting cell damage after 'clinical death' has occurred. With completion of the Cryonic Interment multiple storage facility, a total cryonic suspension program is now available through CSC. The program provides all necessary arrangements from pre-death preliminaries, emergency treatment, and latest method perfusion, to maximum-security suspension storage."

Unfortunately, there was little to back up these highly dishonest and misleading claims. It is possible that construction of the notorious vault at Chatsworth had started, but even that ill-fated, primitive structure would not be put into service for more than a year. The best that can be said for the "Cryotorium" is that, inasmuch as it involved above-ground storage at the mortuary and was attended by the resident mortician (Klockgether), the bodies probably did stay frozen while they were there.

But Klockgether (understandably) wasn't comfortable with the task of checking the capsule periodically and adding liquid nitrogen, which had to be trucked in every week or so. In May 1970 the capsule was transferred to the newly opened vault at the Oakwood Memorial Park cemetery in Chatsworth. Sadly, it was only maintained for 18 months or so (at most), then allowed to warm up; the patients inside, including Nisco, were lost. Eventually the daughter, then Mrs. Bowers, joined relatives of other patients who were also lost and sued Nelson and Klockgether. The trial record provides a grimly fascinating account of what transpired. I've excerpted the following from Nelson's appeal of the judgment against him, and Mrs. Bowers' response. First, Nelson's version:

"Respondent Bowers testified. . . that she had been a member of the Cryonics Society of Michigan when her father died. It was her wish to have him cryonically suspended and [she] had made arrangements with a Mr. Ed Hope to store her father at his Cryo-Care Corporation in Phoenix, Arizona, had entered into a contract with Hope for the sum of \$4,865.00. . . [and] that thereafter she had met Appellant [Nelson] at a Cryonics conference in Michigan some time in approximately 1970 [actually April 1969]. . .

". . . Appellant testified that following the meeting with Mrs. Bowers at the Michigan conference, she telephoned him in California and informed hi[m] that she couldn't keep up her payments to Cryo-Care in Phoenix and that Cryo-Care was unresponsive to her predicament. Appellant testified that since he had two people [sic] at Defendant Klockgether's mortuary, presently suspended in dry ice, he offered, on behalf of Cryonic Interment. . . , to pay off the balance owed to Cryo-Care if Bowers would agree to transfer ownership of the capsule to Cryonic Interment and allow him to store the other two patients in the same capsule in which Mrs. Bowers' father was stored. Appellant testified that he further agreed to pick up the capsule, transport it to Los Angeles and store and maintain Mrs. Bowers' father as long as she paid the maintenance costs of \$150.00 per month. Appellant further testified that on July



17, 1970, he received a letter from Mrs. Bowers (a copy of which was admitted into evidence), stating that she could not send any more money.

"... Appellant testified that following receipt of Mrs. Bowers' letter of July 17, 1970, he wrote a letter to her stating that unless she continued her payments, he would be forced to terminate the suspension of her father.

"... Appellant... further stated that despite the notification to Mrs. Bowers that he would terminate the suspension of her father, Cryonic Interment maintained the capsule for two years at Mr. Klockgether's mortuary, then transferred it to the Cryonic facility in Chatsworth, California and maintained it for an additional one-and-a-half years."

"... Mrs. Bowers testified that although she had received Appellant's letter, and although she had made no attempt to contact Appellant for 10 years thereafter, or to provide any further payments, she assumed that Appellant was still maintaining her father in cryonic suspension."

Next, here is the response:

"Marie Bowers testified... that she had learned of cryonics on the Johnny Carson show sometime around 1967. The concept had appealed to her. She had felt anxiety over death as a child and in particular, feared that her parents would die one day. She loved them intensely and shared her life with them daily. When her father Louis Nisco passed away in September, 1967 Mrs. Bowers could not accept it and was hospitalized at Ford Hospital in Detroit where she was placed on Valium and

another sedative....

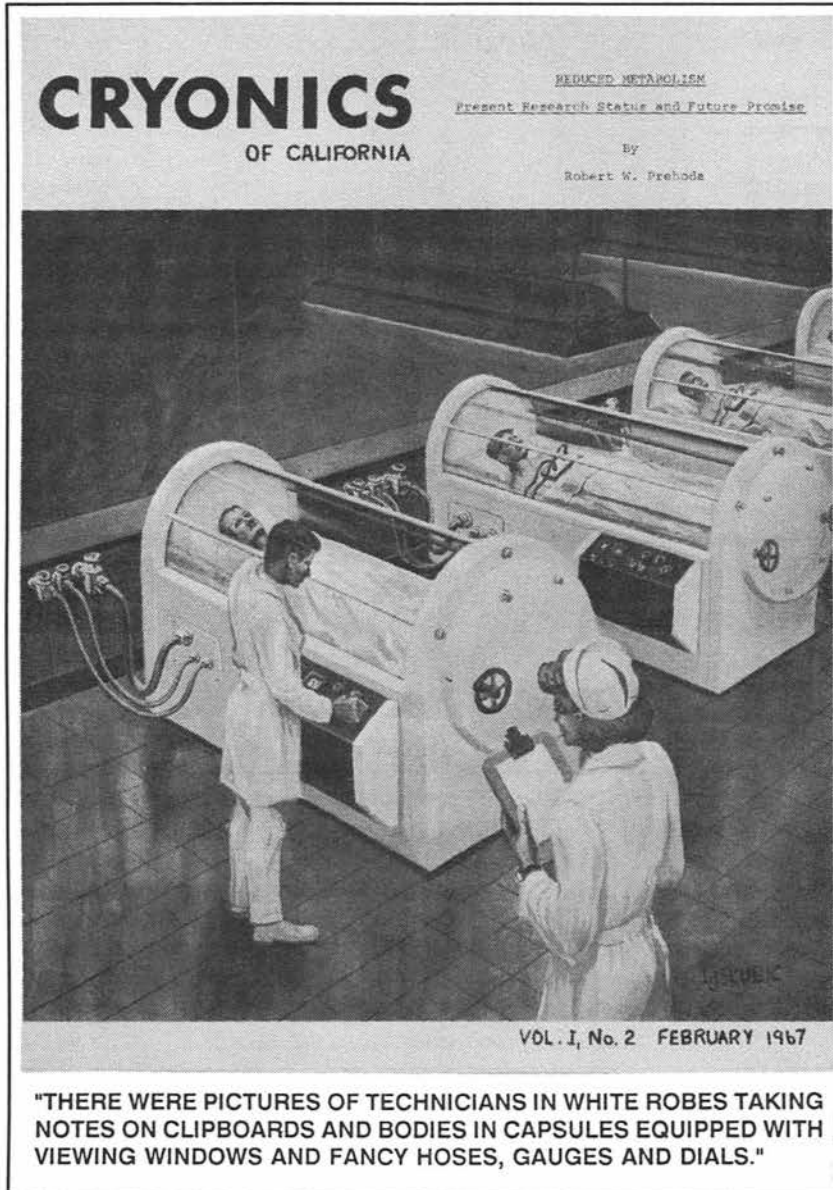
"Mrs. Bowers testified that her [then] husband Algis Gričius made all the arrangements for the preservation of the Louis Nisco remains in cryonic suspension while Mrs. Bowers was in Ford Hospital... Marie Bowers met appellant Robert Nelson at a cryonics

nice beautiful building above the ground. There were pictures of technicians in white robes taking notes on clipboards and bodies in capsules equipped with viewing windows and fancy hoses, gauges and dials. Everything looked very professional in the pictures. Mrs. Bowers permitted defendant/appellant Nelson to take possession of her father's capsule with the intention of later taking it back for storage somewhere closer to home....

"... Marie Bowers stated that the defendants had received her \$5,000 capsule and she was told by... Nelson that there was nothing to worry about. The purchase price of the capsule had been fully met down to a balance of \$1,100. Cryonic Interment, Inc., never paid the balance.

"Mrs. Bowers testified that she never received a letter from... Nelson threatening to terminate maintenance of her father's cryonics capsule if she did not pay. If she had, she would have remembered because it would have been very upsetting to her. There was an exchange of correspondences wherein Mrs. Bowers indicated to... Nelson that she would pay what she

could but that she was having money problems. In connection with these problems, Mrs. Bowers undertook to speak with Robert C. W. Ettinger, the president of the Michigan Cryonics Society, and received assurances from him that the societies were not in the business of freezing bodies to let them thaw. Ettinger maintained a close business relationship with Nelson and reassured this plaintiff that everything was okay....



conference in April of 1969 held at the University of Michigan in Ann Arbor. She had had extensive dealings with Nelson by mail and over the telephone prior to this time concerning her purchase of a cryonics capsule for the maintenance of Louis Nisco in cryonic suspension. At the Michigan conference, Mrs. Bowers heard about the cryonics facility that had just been completed in California. Pictures that Mrs. Bowers viewed depicted the "cryatorium" as a



“... There was no testimony that Mrs. Bowers telephoned Nelson after the Michigan conference to report that her payments to Cryo-Care in Phoenix were delinquent. To the contrary, the evidence showed that the body had already been removed from Cryo-Care to Mr. Klockgether's garage in Buena Park, California around November, 1968, several months before the conference in Michigan took place. Mrs. Bowers testified that she had no knowledge of the defendants' intention to introduce more than one body into her father's cryonics capsule as they, in fact, admitted doing at the trial. The transaction consisted of a mere assignment of Cryo-Care's right to receive monthly payments (approximately \$47.00) to Cryonic Interment, Inc., accompanied by possession of the capsule in CI. Nelson admitted... that threats of “immediate termination” of cryonic suspension services was the most expeditious way of getting payment and that he had considered the emotional effect of such threats on his customers before making them. Nelson admitted on examination by his own attorney that Mrs. Bowers expressed confusion over her purported “agreement” with him and that she had gone to great lengths to explain her personal financial problems at the time in question. Nelson also admitted that Robert Ettinger was an intermediary in these matters.”

“... [Mrs. Bowers] first learned that

there had been no preservation of her father's remains at the end of May or the beginning of June, 1979. Mrs. Bowers described strong feelings upon learning of the deceit practiced by defendant/appellant Nelson upon her. She has had dreams at night accompanied by nausea, depression and recurrent thoughts of the fact that the facility where bodies were cryonically maintained was not as described. Plaintiff/respondent Bowers described visions of her father 'rotting in a hole in the ground' that interfered with her sleep. She dreams off and on all night and feels that she must rescue her father. Mrs. Bowers obtained psychiatric care from Dr. Bruce Danto beginning in 1980 and Dr. Louis Klein in the months preceding the trial. ...”

Records show that Nelson was storing Nisco as early as December 1968 and that a maintenance/storage payment of \$47.00 per month was being made at that time, through Cryocare. At the trial the court sided, for the most part, with the relatives of the patients against Nelson and Klockgether. The judgment dated June 5, 1981 awarded Marie Bowers a total of \$64,865 “against the Defendant Robert F. Nelson” (Klockgether was not named) for fraud out-of-pocket losses, intentional infliction of emotional distress and punitive damages. Nelson's appeal was rejected in 1983, but no payment of damages by him was ever made.

## Sources:

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2. “Dead Men's Hopes put on Ice” by Bob Rose, *The Chicago Daily News*, Jan. 29, 1968, p.4; quoted in *Freeze-Wait-Reanimate* 43 (Feb. 1968) p. 3.
3. “World's First Cryotorium,” *Cryonics Review* Mar.-Apr. 1969, p.2.
4. Los Angeles Superior Court Case No. C 161229, 2nd Civil No. 63721; Appellant Robert F. Nelson's settled statement in lieu of reporter's transcript; 20 May 1982; p. 10.
5. Los Angeles Superior Court Case No. C 161229, 2nd Civil No. 63721; Respondents' settled statement on appeal in lieu of reporter's transcript; 19 July 1982; p. 12.
6. Letter from Cryocare Equipment Corporation dated Dec. 16, 1968.
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## Immortalist Philosophy

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### Individualism, Awareness of Death, and Immortalism

Max More

Simple observation suggests that a very high proportion of cryonicists and other life extensionists are moral and political individualists. These typical personal observations were confirmed by the last survey of the Alcor membership: A pattern of moral and political commit-

ments emerged which differed radically from the distribution found in the broader society of this or any other country. The majority of cryonicists described themselves as libertarian and/or Objectivist, or Republican with libertarian tendencies. How are we to explain this curious con-



dance of views?

I will focus here on just one of the multiple factors drawing individualists to life extension and immortalism. Characteristics typical of self-described individualists such as rationalism, atheism, and high levels of education may be important,

but I want to explore a less discussed but psychologically prior factor: A fundamental sense of *individuality*, and beyond that, adoption of an explicit, ideological *individualism*.

Throughout most of history, and to many people today, the thought of death looming darkly in their future has not significantly entered into their daily thinking. Awareness and fear of death itself (as distinct from possible painful means of dying) has rarely been as stark as it is to us. This is largely because most humans have never possessed a clear, developed, or conscious conception of themselves as *individuals*. Most societies, from hunter-gatherer tribes, farming and fishing communities, and feudal societies, to contemporary theocracies, have been rigidly organized, organic collectives in which each person acquired instrumental value by fitting smoothly into their assigned role. Only in a few times and places have notions of individual rights and the ultimate value of the individual been entertained.

Where society is the locus of value and the individual is to fulfill a role and conform to standard norms, personal death matters less. If I am defined by my social role *father, fisher, soldier, serf* and my projects and values are those of my society, why would I be keenly aware of my own death or conceive of it as the loss of a unique, irreplaceable individual? My place will be smoothly taken up by another and all that mattered about my identity will be continued by others.

The awareness of death has been most acute during periods of social disruption and transition, when the need for individual choice and action erupts, replacing automatic conformity to collective goals and social morals. For instance, look at classical society after the disintegration of the city-states; the early Renaissance following the collapse of feudalism; and, of course, the twentieth century. Most of the writing on death has been contributed by late antiquity, the early Renaissance and the current century. The Kamikazes of 1940s Japan amazed Westerners, but were a natural outgrowth of their deeply organic, collectivist society, in which per-

sonal honor was tied to service to the whole. Similarly, the staggering extent of the killing overseen by Stalin, Pol Pot, and Hitler become comprehensible, though not forgivable, when we understand the deeply collectivist metaphysics, ethics, and politics of Marxism and National Socialism.

In the West, awareness and fear of death have grown along with religious pluralism and the possibility of apostasy, liberalism, the ascendancy of individual rights over social duties, and with social complexity and choice of roles. The more extensive and unconstrained the choices faced by a person, the more stark becomes the fact of his or her individuality. Escape is possible through self-submergence in a religion or other ideology, or through uncontrolled use of brain-numbing drugs, and we see all too many running down these avenues.

The dehomogenization of our modern societies is unlikely to be reversed, and can be expected to continue spreading across the planet as travel and communication increasingly dissolve national and cultural borders. We can therefore expect the acute awareness of personal death to persist and to grow. However, the disintegration of collectivist, organic social life does not guarantee the success of immortalist and cryonicist outlooks. The reason for this takes us back to the point that cryonicists see themselves not only as individuals but also as *individualists*.

An acute awareness of individuality does not necessarily lead to an affirmation of individualism. Being aware of yourself as an individual means conceiving of yourself as clearly distinct from your social milieu, as possessing personal value and significance, as having a (revisable) choice of values, projects, and roles, as being individually responsible, and as facing personal extinction. An individualist first affirms these facts of individuality then proceeds to develop an ap-

proach to a rewarding, worthwhile, and successful life consistent with them. Development in oneself and promotion in others of respect for liberty, personal responsibility, reasonableness, independence, and personal productivity are some of the values essential to individualism.

The path from awareness of individuality to affirmation of individualism is haunted by fear, envy, and self-doubt. Awareness of their fundamental separateness leads many people not to individualism but into a flight from themselves. Fear of failure as an individual, envy of confidence in others, and doubt in their worthiness to live and prosper lead many to self-denying and self-sacrificial religious or political involvements, or into self-destructive activities and inactivities, or into the role of protester against life, change, and success.

Immortalists may not always consistently practice individualism but they are unlikely to persist in desiring an unlimited life and in actively opposing death and deathism without the confidence that their own life is worth living and that their goal is morally correct. Ephemeralists and deathists accuse cryonicists of *selfishness* and of having an inflated view of their own importance for refusing to die and "get out of the way of future generations," or for using their own resources for suspension instead of passing it on to others. However, such an accusation fails to sting those confident of their right to live and grow, and who understand that if their own lives do not justify their pursuit of continued life then neither can anyone else's life constitute a claim on them.

In planting the ideas of cryonics and immortalism we must remember also to spread the fertilizer of individualism. In the absence of a sense of the *personal* value of life and the evil of death, cryonics will fail to take root in our culture, instead succumbing to the legal, bureaucratic, and cultural pests which are ever alert for something vital to feed on.

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## Getting There

H. Keith Henson

As you may have noticed in last month's *Cryonics*, I was recently elected to Alcor's Board of Directors. Rather than doing a column on a fun filled future, I am going to take the space to reflect on the scope of the task we have taken on in attempting to reach that future, and, if I have room, talk about some recent Usenet news postings.

An interesting data point on being elected to the board is that I received as many good natured condolences as congratulations. The condolences, I should add, were more likely to come from people closer to the action. The situation which precipitated my "rise" to this position (Mike Darwin's departure) is not quite as devastating as the previous vacancy on the board (caused by Jerry Leaf's being suspended), but, as Carlos pointed out in last month's issue, it leaves Alcor in a more difficult situation with respect to its main reason for existing. The deficiencies are being repaired, but it will take a lot of effort. It is still not clear who will wind up being the suspension team leader. (This is a less serious situation than it sounds, because *all* the people on the suspension team are self-starters, but we still need a leader to parcel out the tasks.)

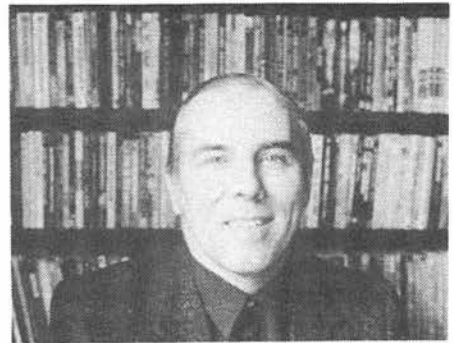
Doing a suspension to Alcor's exacting standards is a very complex task. How do we know when we have done a good job? From animal studies we know that an uninjured brain does not swell during cryoprotective introduction, and injured ones do. Objective measures of brain injury, such as the time it takes to restore blood flow and breathing correlate very well with the degree of swelling we see. In the last few cases where there was minimal ischemic time there was also little or no brain swelling. But to achieve minimal ischemic injury takes a highly organized effort to restore the patients' blood flow and breathing, get them cooled, do a washout

and get them into the operating room. Doing this requires having trained and dedicated people available. Getting our patients frozen is a major project, but it is just the beginning.

Cryonic suspension patients have a lot in common with newborn babies. Both are helpless, and require constant attention. In some ways our patients are easier to care for than babies. We have to keep the dewars filled with liquid nitrogen and in good repair, but a single person can take care of many of them. In other ways they are a lot more difficult. Babies eventually grow out of dependency. The only way we can escape from the responsibility of taking care of our patients is to revive them, or (more likely for most of us) join them and hope that those who come after us will care for us. Social "safety nets" will (to some minimal degree) take care of babies, children, and other dependents if their primary caregiver gives out. Society, as represented by the California state agencies which have been attacking Alcor, regards our patients as trash in the wrong place. Quite a number of these bureaucrats have gone to great lengths in a (so far) unsuccessful attempt to put Alcor out of business.

We cannot afford to give government agencies excuses to go after Alcor, but many of our required activities bring us to their attention. Training is absolutely necessary, and research almost as important. The only way we can do either is to use animals. This requires licenses, inspection visits, endless paperwork, and it all has to be done according to the book. Of course, our problems are echoed at the universities and commercial research organizations. It would not take much more regulation before medical research is driven completely out of this country.

We have to deal with government agencies in a number of other ways. The



last suspension was slightly complicated by the new death certificate form. The state changed the form (it still does not have a box for cryonics) for the second time in about a year, catching us unaware. We are attempting to get on the distribution list so Alcor gets notice of form changes as they happen. Fire department, building inspectors, hazardous waste, a laundry list of three letter agencies — the staff's time gets nibbled away while they are trying to pick up critical skills.

Volunteers willing to help out during this time would be welcome, but they have to be managed or at least pointed in the direction of a task they can do. I may try to generate a "job jar" for those who can find time to help out. I am also available to any member who has ideas or just wishes to talk to me. My phone is 408-978-7616.

In the space remaining I will report on an ongoing thread of messages in an unmoderated Usenet news group called sci.med. In the interest of educating folks out there in netland about cryonics, I posted a slightly edited version of the article in last month ("The Transport of Patient A-1312") on this world-wide, distributed bulletin board. There were three very negative responses, two of which sounded like the kind of uninformed put-downs we are used to getting from the more rabid of the cryobiologist community. One of them, by a professor of neurology and intelligent systems from Pittsburgh, stated his opinion that our chances of reviving the described patient were extremely remote, suggested we might do better by dropping functioning patients into liquid nitrogen, that all we would get back was some DNA (and what good would that do?), blamed the whole cryonics movement on the demise of traditional religious beliefs, and deplored it all as a waste of resources (later explained as the money should go to the heirs).



A PhD from the Department of Anatomy at the University of Mississippi waded in telling us how the brain of a patient would show freezing artifact (hardly news to us) and agreeing with the first complainer.

Well, the stage is set for a hot discussion! The network is just full of libertarian-oriented folks who know about nanotechnology, and the guy from Pittsburgh stuck his foot into it but good in the next few days by responding to a supporter with a provocative statement that he

would do anything short of force to stop cryonics. Over the following two weeks, about 75 messages, some of them rather technical, flowed across the net. Ralph Merkle came in, posting long sections on "information theoretic death," I posted several responses to both of the original complainers, and a number of people I recognize from the cryonics mail list and the extropian list showed up to argue points philosophical and technical.

As of February 6, the total postings by 15 participants has reached about 200

kilobytes. I don't know exactly how the discussion will fade out, but only one of the original complainers is still in the fray, and he is beginning to sound much more reasonable. The count is evenly split between positive and negative responses, with the literary quality of the positive responses way out in front. I don't know exactly what we should do with this, but those with net access might want to tune in.

## Funding Cryonics

*Carlos Mondragón*

The current discussion and concern over cryonics funding has focused on the effects of inflation on both providing for long-term care of existing patients (management of Patient Care Trust Fund assets), and providing for the future cost of a cryonic suspension. In my view, these are two very different problems.

The capital which is to generate a flow of income needed for patient care becomes available when a suspension occurs. Our challenge here is to successfully guard the value of that capital while simultaneously making it produce the necessary

income. This responsibility clearly rests with those caring for the patients: Alcor's Board of Directors.

Providing the capital for a suspension which will happen at some undetermined point in the future is primarily the responsibility of the suspension member, and is a different problem for most of us. Persons whose net worth is large enough to set aside at least the currently required minimum of \$41k or \$120k need only maintain the value of that capital (I refer only to economic problems; of course such persons also need to arrange a satisfactory

mechanism for transfer of this capital to Alcor when they are suspended). Unfortunately, the vast majority of cryonicists don't have that kind of money at hand, and we have only actuarial tables to guide us as to when we will need it. And since we can't completely eliminate the danger of sudden deanimation, this funding must be instantly available. Insurance solves the immediate problem (as well as other non-economic issues), but usually does nothing about longterm inflation.

### The Patient Care Trust Fund

Clearly, the effects of inflation (currency depreciation) are much easier to handle if the capital affected is already in hand. Alcor has dealt with the problem in three ways.

First, there is our Patient Care Trust Fund Policy [see box]. This policy assumes that we will get a real rate of return on nearly risk-free investments of 2%. The policy mandates that a minimum of the

I. Fund capital and income shall be spent only for direct patient care expenses. Direct patient care expenses are defined as cryogenics, purchase and amortization of storage equipment, storage equipment maintenance, floor space charges, a fraction of emergency responsibility charges, routine patient transfers, and legal expenses which may be required to defend continued care of the patients and/or maintain the integrity of the Patient Care Trust Fund.

II. Actual patient care expenses are to be calculated quarterly by the treasurer and reported to the Board of Directors.

III. The Officers of Alcor will submit a comprehensive semi-annual projection of direct patient care expenses and contingencies.

IV. The Board of Directors of Alcor is committed to meeting the expenses of patient care for the indefinite future. To this end, the Board appoints an Investment Committee which shall consist of at least three (3) persons, all Alcor Suspension Members — none of whom shall serve as Officers of Alcor. The Investment Committee shall have authority to manage the assets of the Trust Fund subject to the following restrictions and limitations:

1. An amount of capital equal to fifty times (50X) the amounts of annual projected patient care expenses will be held in

interest-bearing investments which carry negligible risk to the principal. All surplus income shall be similarly re-invested.

2. Where there exist capital sums in excess of the amount described above, they may be invested in small risk income-producing securities or moderate risk capital growth investments up to a maximum of 20% of the total Trust Fund with no single invested amount being greater than 5% of the total Trust Fund. Any income or gain from these investments is to be added capital.

3. Investments in real property or useful commodities will only be made if a financial analysis demonstrates that the resulting decrease in projected expenses is greater than the income being generated by the principal to be used.

4. An analysis of Patient Care Trust Fund investments and income will be made quarterly by the investment committee and presented to the Board of Directors.

V. Invasion of Trust Fund capital at any time or for any reason will require a two-thirds vote of the Board of Directors.

VI. Any changes, additions, or deletions to the policies contained herein will require a two-thirds vote of the Board of Directors.

Fund's capital be invested in this manner so as to pay for patient care expenses with 2% of that capital. Thus we use only the presumed real return, the balance of the interest income generated is reinvested into the capital base to offset its depreciation (inflation). When the Fund's liquid assets (property and equipment are excluded) exceed this minimum, then investments can be made in riskier capital growth investments.

The intent of this policy is to preserve and protect the essential capital base, since our patients are in no condition to go out and earn more money if the fund is depleted by investment losses. Thus, until recently, the bulk of the Fund's money has been invested in T-Bills (short-term borrowings of the Federal Government). Criticism of this investment has been based on the assumption that T-Bills do not, in fact, generate a rate of interest greater than the rate of inflation. Such criticism is partially based on distrust of government statistics. I too tend to distrust government statistics. But I would also tend to distrust any theory which contradicts the wisdom of Adam Smith's invisible hand (the free marketplace). True, we don't have a completely free marketplace in interest rates; the Federal Reserve can effectively act to manipulate short-term rates. But over the long haul, investors can and do demand a real return on their money. This means that there are times when our T-Bill investments will not produce our expected 2% real return (In my opinion this has been the case for the past 12 months: we've been getting about 5% and the increase in the consumer price index was pegged at 3.5% for the 1991). Sometimes, when inflation fears are high, we get more (as in the late seventies). In the long run, however, we do get that 2%. Argue stats and economic theories all you want; in my not-so-humble opinion, the marketplace will be the final arbiter.

Nevertheless, we have recently moved a big chunk away from T-Bills and into a mutual fund which invests in Adjustable Rate Mortgages backed by the Federal Government. The additional risk to capital in this investment is trivial, while the interest returned is nearly 50% higher than the current rate on T-Bills. (The anomalous low return on T-Bills results from the Federal Reserve's forcing down short-term rates in an effort to stimulate the economy. Politically, this can only last until fears of inflation rebound, since

people hurt by inflation vote in much greater numbers than those affected by unemployment.)

Our second method of protecting the strength of the Patient Care Trust Fund is our *Ten Percent Rule*. It has long been Alcor's policy to put 10% of all unrestricted income into the Fund. Even if we are successfully compensating for the effects of inflation by other means, this rule makes sense. It adds capital to the Fund which it might someday need to meet the unknown costs of reanimation or (less optimistically) some unforeseen disaster.

Finally, the suspension minimums are set with a huge margin of safety built into

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*...the Fund's assets now exceed the amount it would have if all twenty patients were to be funded today at the current minimums!*

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them. When calculating the capital we need for long-term care, the anticipated annual cost of that care is divided by .02, giving the amount we need to get the presumed spendable 2%. Then we take that amount and *double it for good measure*. The amounts needed for the up-front costs of suspension are padded with a substantial "fudge factor" (currently about \$7k) then added on to give the required minimum. Thus, we are counting on not 2%, but only a 1% real rate of return to the Fund! Of course, we also had in mind that this "excess capital" (at current minimums \$43k for whole bodies and \$7.5k for neuros) could be used in the event of any unforeseen disasters. Meanwhile, even more unspent income yield is being added to the capital base. (For details on how minimums were last established, see the August 1990 issue of *Cryonics*.)

That these approaches have been working is evidenced by the size of the Patient Care Trust Fund. So far only one patient — a neuropatient — has been funded at the new minimum rates (signed up and suspended in 1991). Seven of our twenty patients were funded far below even the old minimum, some at or near Zero. In spite of this, the Fund's assets now exceed the amount it would have if all twenty patients were to be funded today at the *current* minimums!

(At its January 1992 meeting, Al-

cor's board of directors voted to create a liability on our Patient Care Trust Fund balance sheet equal to the current long-term funding requirement multiplied by the patients in suspension. This will have the effect of greatly reducing the stated net worth by accurately showing our obligations to existing patients. Further, the surplus (or deficit) which exists at any given time will give us a clear picture of how well we are managing this fund.

Thus, our annual report will show that the Fund had assets of about \$919k, a liability for the care of patients of \$864,416 (12 neuros x 15k and 8 whole bodies x \$86k) and a net worth of \$69k.)

Another reason to take heart is that we are finally achieving economies of scale in the expenses for continuing patient care. These economies will get even better as more people are frozen. For example, right now the salary of one patient caretaker is covered by the funding from twenty persons. That caretaker could easily handle another 30 patients with no significant time burden added.

## So Why Will the Cost of Cryonics Go Up?

While I predict that economies of scale will eventually result in a reduction of the long-term portion of required cryonic suspension minimums, I most adamantly do not make the same forecast for the up-front costs. In fact, up-front costs are likely to increase faster than the *decrease* in the cost of long-term care.

Remote Standby, Emergency Response, and Cryoprotective Perfusion don't just *look* like medical procedures, they *cost* like medical procedures. And the cost of medical procedures is inflating faster than the going rate of currency depreciation. As far as I can tell, this is true for at least three reasons: 1) insurance and government benefit abuse, or "How much is my health worth if I don't have to pay the bill?"; 2) amortization of the cost of new technologies; 3) regulatory costs and the cost of malpractice and other liability. Of these, items two and three apply also to the up-front costs of cryonics.

There is no close medical parallel to standby/emergency response; however here in Riverside County a paramedic

response with Ambulance Life Support costs about \$400 plus \$9.75 per mile. We allow \$3,000 from the funding minimum for emergency response and transport. And we bill up to \$1,000 per day for remote standby plus any additional transportation expenses. (Although currently our actual labor costs are artificially low, we bill as if we were having to pay near market rates. When we are forced by volume to go to a full-time professional team, there won't have to be an outrageous increase in minimums — meanwhile the extra income helps defray the "start-up costs" of the whole "business.") In any case, we can't track paramedic costs as an exact measure of how we are doing, but given the differences involved, I don't think our costs will rise any faster or slower than theirs.

Cryoprotective surgery and perfusion does have a close medical analogue: heart bypass surgery. The bottom line for that surgery in a good hospital near a major city is now about \$28,000. Alcor allows \$18,909 neuro and \$27,470 whole body for that part of the suspension minimum. That allowance includes the market rate which we already pay the surgeon, and near market rates for the rest of the staff (including volunteers).

So far, Alcor's costs in these areas have increased because of generalized currency depreciation *and* the more accelerated increase in the cost of medical supplies. Our costs have also gone up due to improvements in our own procedures which have required more and expensive medications and additional equipment. The closer we get to perfected, reversible suspended animation — i.e. no freezing damage — the more cost increase we will see.

Regulatory costs have only recently begun to affect us on a small scale. At least we are not part of the medical establishment and so we don't have to get FDA approval for every modification to our suspension protocol. Alcor can't buy malpractice or liability insurance — no one will sell it to us at any price. And, as yet, we have not been sued. Consequently our costs in this area are unknown due to lack of experience. But you can bet they won't be zero forever. The only provision for these potential costs is the large safety factor built into the long-term funding portion of our minimums.

The only savings we can expect from any economies of scale at the front end of the cryonic suspension process would

come from bulk purchases of drugs and chemicals. Utterly negligible. In fact if we keep growing, at a certain point we will have to employ a full-time team just to do suspensions. I figure such a team will pay for itself when we do more than twelve suspensions per year. Unfortunately, unless our average number of suspensions per year grows in spurts, they will have to be hired before we get to that point because eight is as many as I believe we could handle with a full time Alcor staff of seven employees and our available volunteers. (Our staffing level dropped in the last six months from seven to five employees, but could be brought up again if membership growth justifies the added expense.)

*All of this means that it is a safe bet that the minimum required funding levels for cryonic suspension will periodically rise for everyone.* If we continue to do as good a job as we've been doing with patient care, economies of scale in long-term care will reduce the capital needed enough so as to offset the rate of increase in the up front cost of suspension, keeping its rate of increase roughly equal to the general rate of inflation.

## Solving the Problem

Legally and logistically, insurance resolves many issues for cryonics funding. But financially, life insurance only takes care of the immediate problem for those who don't have the means to set aside minimum funding when they decide to sign up for cryonics. Very few insurance companies will write a policy with a face value that keeps up with inflation. Such policies do still exist, and using them

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*There may be better ways to handle this problem, and if you think of any, please, please let us know.*

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could effectively deal with the inflation problem, but from what I've seen, this is an expensive way to go. There is a fair amount of commissions, profit, and overhead in your insurance premiums already. The idea of giving the industry even more cryonics related revenue doesn't exactly fill my heart with glee.

If we could just eliminate the middleman, an insurance-type mechanism involving only the suspension members and

Alcor would be ideal. Not surprisingly, though, government regulation is what stops us from doing this. Anything we do which might make us even look like we are selling insurance would subject us to massive regulation. Given our size, existing California regulations effectively prohibit us from offering any program based on actuarial risk. Until Alcor has the capital reserves that the State requires from "insurance businesses," agents and underwriters will continue to get a slice of the cryonics economic pie.

Since any possible solution means a greater cash outlay on the part of suspension members, I think it best that Alcor provide a menu of alternatives. Here are the two I've come up with so far:

Alcor should raise minimum required suspension funding based on actual costs at regular, i.e. predictable, intervals. Perhaps every ten years. Those suspension members who had not opted into the second alternative described below would then be obligated to provide the additional funding. They could do this by either buying more insurance, or by providing Alcor with proof that they have otherwise set aside the needed amount and constructed a suitable mechanism for its transfer to Alcor upon their legal death.

The second alternative would involve the formation of an "Alcor Suspension Funding Investment Club." Members who join this club and make regular contributions in preset amounts could be "grandfathered" at the minimum required rate which was effective when they joined. This would mean only having to buy one insurance policy at the start.

It wouldn't be necessary to make payments based on actuarial mortality tables because mortality risk is only a small factor relevant to the purpose. Payments will be made with the goal of offsetting the effects of inflation on the cost of a future obligation already covered by insurance for the level of its current cost. Age doesn't matter because everyone's currency will depreciate equally within any given time frame.

This investment club scenario could easily be structured in a manner that avoids similarity with insurance, while at the same time providing a secure transfer mechanism for Alcor. Such a structure would also leave the member with the ability to change or cancel their cryonics arrangements without financial penalty.

Either of these scenarios necessitate some inconvenience for the member and ad-



ministrative overhead for Alcor. It could also put us in the position of having to occasionally "write off" people who become uninsurable in the future or find themselves unable to increase their insurance expense (a contingency we try very hard to avoid presently). This would seem grossly unfair to long-time members who signed up early in our growth and benefited everyone by contributing for years to Alcor's strength and stability. Yet, whether we adopt one of these plans, some other plan, or no plan at all, the rise in costs is real and will have to be met.

## And Now For Something Completely Different

Perhaps the simplest, most cost efficient, and fairest way to deal with the problem is for Alcor to do the following:

a) Increase minimum funding levels more frequently — every three or four years.

b) Permanently grandfather everyone in at their sign-up minimum funding level.

c) Put a surcharge on the membership dues with the money being invested in a sinking fund for the purpose of covering the increasingly higher costs.

Frequent increases in minimums would mean an ever smaller percentage of people grandfathered at the lowest levels — even if we assume drastically reduced membership growth rates as time goes on. Alcor could adjust the amount of the surcharge annually based on actual economic conditions and actual changes in our costs, seeking a balance between the sinking fund's future projected assets and liabilities.

A balance would thus be created between the interests of newer and older members. The earlier people sign up, the more they will bear in supporting the organization's start up costs. Newer members, however, will have much higher

minimums to pay, and were it not for a growing sinking fund from earlier members those higher rates would be nothing more than a redistribution of wealth (a kind of which few Alcor members approve). With the sinking fund, however, older members end up having paid something very close to whatever the current cost of a cryonic suspension will be at the time of their deanimation.

Right now, I like this idea the best. There may be better ways to handle this problem, and if you think of any, please, please let us know. Whatever solution(s) we finally adopt will have to be worked out in great detail and will have to be acceptable to you, our members — or it would be useless. Again, if you haven't been doing so, I urge you to read all the material we've published on this issue. We will probably find it necessary to conduct a survey (yes, it will be like getting a pop quiz!) before we can know what to offer.

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## Thomas Donaldson et al. v. John Van De Kamp

Here follows the complete text of the Donaldson v. Vand De Kamp decision, preceded by some comments from Thomas Donaldson.

*On January 29 the Santa Barbara Appeals Court denied our appeal. Fundamentally, the Appeals Court decided that they were not going to accept our appeal because if they did so it would make the general laws against murder much harder to formulate or even to verify whether or not a murder had occurred. Since they did not wish murder to happen, and felt that even the smallest concession would open too many loopholes, our appeal was denied.*

*I personally am unhappy about this but I am not devastated by it. Cryonics has met, in my experience, rebuffs far too many to count. This merely becomes another one to add to the growing pile. I personally did not enter into the lawsuit believing that a victory was certain, I did so because I believed it had to be done, that eventually such a suit would be won, and there must always be a first time.*

*My own health, if anything, has been improving. The deathrate statistics for people with my condition say that only*

*30% survive long term. When we began the suit, my future looked much more grim than it does now. Naturally I (and my doctors) will keep a close watch; but I've been lucky even to live this long, and the longer I live the better my future will look.*

*Unfortunately, there is at least one Alcor member with an even worse version of the same kind of tumor as I. I hope very much that this judgment does not get in the way of his suspension.*

*I have always believed that life is hard. We can rejoice much more, then, in whatever victories we can snatch from the chaos around us. I know that many people may be disappointed, too — the suit after all was a test case. But my own response is to keep on, and do what I can toward cryonics and my own future suspension, at whatever time it may occur. In the end we will win by persistence, not by any sudden blazing victory.*

*Finally, I want to thank all those cryonicists who have contributed to the support of this lawsuit. I do not believe*

*that, ultimately, their contributions will turn out to have been in vain.*

— Thomas Donaldson

Plaintiff Thomas Donaldson wishes to die in order to live. He suffers from an incurable brain disease. He wishes to commit suicide with the assistance of plaintiff Carlos Mondragón so that his body may be cryogenically preserved. It is Donaldson's hope that sometime in the future, when a cure for his disease is found, his body may be brought back to life.

He and Mondragón appeal a judgment dismissing their action for declaratory and injunctive relief. Despite our sympathy for Donaldson, we must affirm and hold he has no constitutional right to either pre-mortem cryogenic suspension or an assisted suicide. We also decide Mondragón has no constitutional right to aid, advise or encourage Donaldson's suicide.

## Facts

Donaldson and Carlos Mondragón brought an action for declaratory and injunctive relief against the State Attorney General, the Santa Barbara District Attorney, and the Santa Barbara County Coroner. Plaintiffs' first amended complaint seeks a declaration that Donaldson

has a constitutional right to premortem cryogenic suspension of his body and the assistance of others in achieving that state. The first amended complaint also seeks an injunction against criminal prosecution of Mondragón and others for participating in the premortem cryogenic suspension and an injunction against the coroner performing an autopsy on Donaldson's body after death. Plaintiffs allege the following:

Plaintiff Thomas Donaldson, a mathematician and computer software scientist, suffers from a malignant brain tumor, diagnosed by physicians as a grade 2 astrocytoma. The astrocytoma, a "space occupying lesion," is inoperable and continues to grow and invade brain tissue. The tumor has caused Donaldson weakness, speech impediments and seizures. Ultimately, continued growth of the tumor will result in Donaldson's persistent vegetative state and death. Physicians have predicted his probable death by August 1993, five years from initial diagnosis.

Donaldson desires to be cryogenically suspended, premortem, with the assistance of Mondragón and others. This procedure would freeze Donaldson's body to be later reanimated when curative treatment exists for his brain cancer. Following cryogenic suspension, Donaldson will suffer irreversible cessation of circulatory and respiratory function and irreversible cessation of all brain function.

He will be dead according to the definition of death set forth in Health and Safety Code section 7180. That section provides: "(a) An individual who has sustained either (1) irreversible cessation of circulatory and respiratory functions, or (2) irreversible cessation of all functions of the entire brain, including the brain stem, is dead. . . ."

Donaldson seeks a judicial declaration that he has a constitutional right to cryogenic suspension premortem with the assistance of others. Alternatively, he asserts he will end his life by a lethal dose of drugs. Mondragón will "advise and encourage" Donaldson through suicide "to minimize the time between his legal death and the onset of the cryonic suspension process."

Recognizing that Mondragón will be committing a homicide, or alternatively, aiding and advising a suicide, Donaldson and Mondragón seek an injunction protecting Mondragón from criminal prosecution. In order not to destroy his chance of reanimation, they also seek a court order to prevent the county coroner from examining Donaldson's remains. Donaldson and

Mondragón base their action upon asserted constitutional rights of privacy and free expression.

Defendants demurred to plaintiffs' first amended complaint, contending Donaldson had no constitutional right to an assisted suicide and could not consent to his murder. Defendants also raised procedural challenges to plaintiffs' action. The trial judge ruled plaintiffs failed to state a cause of action, sustained the demurrer, and dismissed the action. Plaintiffs' appeal followed. On appeal they contend: 1) Donaldson has a constitutional right to premortem cryogenic suspension, and 2) Donaldson has a constitutional right to receive and Mondragón has a constitutional right to give advice and encouragement concerning Donaldson's suicide.

## Discussion

### I.

Donaldson wishes to achieve cryogenic suspension of his body, premortem, before his relentlessly advancing brain tumor destroys the quality and purpose of his life, reduces him to a vegetative state, and makes futile his hope for reanimation.

Whatever Donaldson's motivations are for dying, however, he argues his right to privacy and self-determination are paramount to any state interest in maintaining life. He reasons the state has no logical, secular motive to demand his continued existence, given his medical condition and prognosis. Therefore, there should be no balancing of interests where the state has only an abstract interest in preserving life in general as opposed to Donaldson's specific and compelling interest in ending his particular life.

Donaldson rests his contentions upon judicial decisions declaring the right of a competent patient, his guardian, or surrogate to refuse medical treatment or procedures that sustain life. (*Cruzan v. Director, Mo. Health Dept.* (1990) 497 U.S. \_\_\_ [111 L.Ed.2d 224, 110 S.Ct. \_\_\_]; *Bouvia v. Superior Court* (1986) 179 Cal.App.3d 1127; *Bartling v. Superior Court* (1984) 163 Cal.App.3d 186; *Barber v. Superior Court* (1983) 147 Cal.App.3d 1006.)

A person has a constitutionally protected interest in refusing unwanted medical treatment or procedures. (*Cruzan v. Director, Mo. Health Dept.*, *supra*, 111 L.Ed.2d 224, 241; *People v. Adams* (1990) 216 Cal.App.3d 1431, 1438; *Conservator-*

*ship of Drabick* (1988) 200 Cal. App.3d 185, 206, fn. 20; *Bouvia v. Superior Court*, *supra*, 179 Cal.App.3d 1127, 1141.) This constitutionally secured right derives from a liberty interest found in the Fourteenth Amendment to the United States Constitution (*Cruzan*, *supra*, at p. 242, fn. 7) and, in California, from the right of privacy in article 1, section 1 of the California Constitution. (*Adams*, *supra*, at p. 1438; *Bouvia*, *supra*, at p. 1137.) The right of patient autonomy has been described as "the ultimate exercise of one's right to privacy." (*Bouvia*, *supra*, at p. 1144.)

This right to medical self-determination also derives from the legal doctrine of informed consent to medical treatment. (*Cruzan v. Director, Mo. Health Dept.*, *supra*, 111 L.Ed.2d 224, 236; *Barber v. Superior Court*, *supra*, 147 Cal.App.3d 1006, 1015.) A logical corollary of the doctrine is that a patient possesses the right not to consent and to refuse treatment. (*Ibid.*)

Whether asserting rights resting upon the United States or California Constitution or the decisional law of informed consent, a patient may refuse treatment even though withholding of treatment creates a life-threatening situation. (*Bouvia v. Superior Court*, *supra*, 179 Cal.App.3d 1127, 1137 — 28-year-old quadriplegic, cerebral palsy victim may assert her constitutional right to refuse nasogastric hydration and nourishment.) Moreover, the right to refuse treatment or life-sustaining measures is not limited to those who are terminally ill. (*Id.*, at p. 1138 — patient had life expectancy of 15 to 20 additional years; *Bartling v. Superior Court*, *supra*, 163 Cal.App.3d 186, 192-193 — patient was seriously ill and ventilator-dependent but not "terminal.")

To determine whether Donaldson has suffered a violation of his constitutional rights, we must balance his interests against any relevant state interests. (*Cruzan v. Director, Mo. Health Dept.*, *supra*, 111 L.Ed.2d 224 242; *People v. Adams*, *supra*, 216 Cal.App.3d 1431, 1438.) Pertinent state interests include preserving human life, preventing suicide, protecting innocent third parties such as children, and maintaining the ethical integrity of the medical profession. (*Adams*, *supra*, at p. 1438; *Alexander, Death by Directive* (1988) 28 Santa Clara L.Rev. 67, 78 (hereafter *Death by Directive*)). The state may also decline to assess the quality of a particular human life and assert an unqualified general interest in the preservation of human life to be balanced against the individual's constitutional rights.



(Cruzan, *supra*, at p. 244.)

Decisions regarding the right to refuse life-sustaining treatment, including hydration and nourishment, distinguish between artificial life support in the face of inevitable death and self-infliction of deadly harm (suicide). (Bartling v. Superior Court, *supra*, 163 Cal.App.3d 186, 196.) Likewise, decisions hold a physician incurs no criminal liability by terminating life support measures when a patient chooses to abandon such treatment. (Barber v. Superior Court, *supra*, 147 Cal.App.3d 1006, 1016, 1022; Matter of Quinlan (1976) 70 N.J. 10 [355 A.2d 647, 670-671].) The rationale of these decisions is that natural death from underlying illness is merely forestalled by life support measures. (Conservatorship of Drabick, *supra*, 200 Cal.App.3d 185, 196; Bartling v. Superior Court, *supra*, 163 Cal.App.3d 186, 196.)

Donaldson acknowledges these decisions concern patients in persistent vegetative states (Cruzan v. Director, Mo. Health Dept., *supra*, 111 L.Ed.2d 224; Barber v. Superior Court, *supra*, 147 Cal.App.3d 1006) or patients otherwise dependent upon life-sustaining measures (Bouvia v. Superior Court, *supra*, 179 Cal.App.3d 1127; Bartling v. Superior Court, *supra*, 163 Cal.App.3d 186), but argues a refusal of further medical treatment is a legal fiction for suicide: "As if often true in times of social transition, case law has created fictions to avoid affronting previously accepted norms. [Fn. omitted.] In life support termination, there is a fiction of medical determinism. Patients are seen as passive victims of their illness. They do not choose to die; death overtakes them. Their physicians do nothing to help them die. Death overwhelms them, too." (Death by Directive, *supra*, at p. 82)

Donaldson argues that the doctor who disconnects the support system is taking affirmative action that in fact causes the death of the patient. He points out that even if the doctor assists the patient to die by doing nothing, he or she actively participating in ending the patient's life. "Not doing anything is doing something. It is a decision to act every bit as much as deciding for any other deed. If I decide not to eat or drink anymore, knowing what the consequence will be, I have committed suicide as surely as if I had used a gas oven." J. FLETCHER, HUMANHOOD: ESSAYS IN BIOMEDICAL ETHICS 157 (1979). (Note, Suicidal Competence and the Patient's Right to Refuse Lifesaving Treatment (1987) 75 Cal.L.Rev. 707, 740,

fn. 213.)

There may be an apparent similarity between the patient and doctor, and Donaldson and Mondragón, but in fact there is a significant difference. The patient, for example, who is being kept alive by a life-support system has taken a detour that usually postpones an immediate encounter with death. In short, the medical treatment has prolonged life and prevented death from overtaking the patient. Stopping the treatment allows the delayed meeting with death to take place.

Donaldson is asking that we sanction something quite different. Here there are no life-prolonging measures to be discontinued. Instead, a third person will simply kill Donaldson and hasten the encounter with death. No statute or judicial opinion countenances Donaldson's decision to consent to be murdered or to commit suicide with the assistance of others. (Van Holden v. Chapman (1982) 450 N.Y.S.2d 623, 627 — "Essential dissimilarity" between right to decline medical treatment and any right to end one's life.)

Donaldson, however, may take his own life. He makes a persuasive argument that his specific interest in ending his life is more compelling than the state's abstract interest in preserving life in general. No state interest is compromised by allowing Donaldson to experience a dignified death rather than an excruciatingly painful life.

Nevertheless, even if we were to characterize Donaldson's taking his own life as the exercise of a fundamental right, it does not follow that he may implement the right in the manner he wishes here. It is one thing to take one's own life, but quite another to allow a third person assisting in that suicide to be immune from investigation by the coroner or law enforcement agencies.

In such a case, the state has a legitimate competing interest in protecting society against abuses. This interest is more significant than merely the abstract interest in preserving life no matter what the quality of that life is. Instead, it is the interest of the state to maintain social order through enforcement of the criminal law and to protect the lives of those who wish to live no matter what their circumstances. This interest overrides any interest Donaldson possesses in ending his life through the assistance of a third person in violation of the state's penal laws. We cannot expand the nature of Donaldson's right of privacy to provide a protective shield for third persons who end his life.

Donaldson argues that his right to die is like a citizen's right to vote. An invalid, for example, may need the assistance of a third person to get to the polling booth. Donaldson argues that in similar fashion his claimed right to take his life carries with it the right to assistance in exercising that right.

In the example of the invalid voter, the state has no competing interest to prevent assistance. Quite the contrary, the state's interest is to encourage its citizens to vote. In the case of assisted suicides, however, the state has an important interest to ensure that people are not influenced to kill themselves. The state's interest must prevail over the individual because of the difficulty, if not the impossibility, of evaluating the motives of the assister or determining the presence of undue influence.

To this, Donaldson argues, constitutional rights do not depend on there being a fail-safe scheme, nor may they be deferred because of the difficulty in devising a procedure to implement them. We agree with the general proposition that the difficulty in effecting a solution to a legal problem is not sufficient grounds for a court to deny relief. However cumbersome, it is conceivable to devise a judicial procedure to supervise Donaldson's assisted death.

We do not embark on such an enterprise because we hold Donaldson has no constitutional right to a state-assisted death. Moreover, the court may not enjoin public officers from performing official acts that they are required by law to perform. (See Civ. Code, 3423 and Code Civ. Proc., 526, which provide that injunctions may not be granted to prevent officers of the law acting for the benefit of the public pursuant to statute; see also Manchel v. County of Los Angeles (1966) 245 Cal.App.2d 501, 505-506, disallowing injunctions to stay criminal proceedings.) The coroner is required to inquire into deaths involving suicide or homicide (Gov. Code, 27491) and to carry out his or her inquiry, may take custody of the remains and examine the body of a homicide or suicide victim. (See Gov. Code, 27491.2; Health & Saf. Code, 7102.)

It is unfortunate for Donaldson that the courts cannot always accommodate the special needs of an individual. We realize that time is critical to Donaldson, but the legal and philosophical problems posed by his predicament are a legislative matter rather than a judicial one.



## II.

Donaldson also argues that at the very least he has a constitutional right to receive advice and encouragement concerning his suicide. Penal Code section 401 provides: "Every person who deliberately aids, or advises, or encourages another to commit suicide, is guilty of a felony." Donaldson asserts this section unconstitutionally interferes with his right to privacy. He relies upon this concurring opinion in *Bouvia v. Superior Court*, *supra*, 179 Cal.App.3d 1127, 1147: "This state and the medical profession, instead of frustrating [Bouvia's] desire, should be attempting to relieve her suffering by permitting and in fact assisting her to die with ease and dignity. . . . [The right to die] should. . . include the ability to enlist assistance from others, including the medical profession, in making death as painless and quick as possible." He also relies upon scholarly thought proposing that suicide assistance be decriminalized under certain circumstances. (Smith, *All's Well That Ends Well: Toward a Policy of Assisted Rational Suicide or Merely Enlightened Self-Determination?* (1989) 22 U. Cal. Davis L. Rev. 275 (hereafter *All's Well*); note, *Criminal Liability for Assisting Suicide* (1986) 86 Colum. L. Rev. 348 (hereafter *Assisting Suicide*)).

Suicide or attempted suicide is not a crime under the criminal statutes of California or any state. (*In re Joseph G.* (1983) 34 Cal.3d 429, 433; *Assisting Suicide*, *supra*, at p. 350, fn. 22 — at least one state has a common law crime of attempted suicide.) The absence of a criminal penalty for these acts is explained by the prevailing thought, to which Donaldson and others would disagree, that suicide or attempted suicide is an expression of mental illness that punishment cannot remedy. (*In re Joseph G.*, *supra*, at pp. 433-434.)

A majority of states, however, impose criminal penalties upon one who assists another to commit suicide. (*Cruzan v. Director, Mo. Health Dept.*, *supra*, 111 L.Ed.2d 224, 243; *In re Joseph G.*, *supra*, 34 Cal.3d 429, 434; *All's Well*, *supra*, at pp. 290-291, fn. 106; *Assisting Suicide*, *supra*, at p. 353.) One reason for the existence of criminal sanctions for those who aid a suicide is to discourage those who might encourage a suicide to advance personal motives. (*In re Joseph G.*, *supra*, at p. 437.) Another reason is the belief that the sanctity of life is threatened by one who is willing to participate in taking the life of another, even at the victim's request. (*Ibid.*) A third justification is that although the suicide victim may be mentally ill in wishing his demise, the aider is not necessarily mentally ill. (*Ibid.*)

These reasons justify a criminal statute punishing the aiding and encouraging of suicide, although suicide itself is not illegal. The state's interest in such a situation involves more than just a general commitment to the preservation of human life. In *Cruzan*, the state opposed discontinuing nutritional procedures for an unconscious patient with severe brain damage absent clear and convincing evidence this was the patient's wish. *Cruzan* emphasized the state's interest in guarding against potential abuses. Third parties, even family members, do not always act to protect the person whose life will end. *Cruzan* stated, "[w]e do not think a State is required to remain neutral in the face of an informed and voluntary decision by a physically-able adult to starve to death." (*Cruzan v. Director, Mo. Health Dept.*, *supra*, 111 L.Ed.2d 224, 243.) The state is no less required to remain neutral in Donaldson's case.

## III.

Mondragón contends he has a con-

stitutional right of free expression, secured by the United States and California Constitutions, to counsel and advise Donaldson in his suicide. He points out that suicide is not illegal and argues the state may not prohibit speech that encourages a lawful act.

We disagree that Penal Code section 401 impairs Mondragón's exercise of free speech. Our Supreme Court has interpreted section 401 to require affirmative and direct conduct such as furnishing a weapon or other means by which another could physically and immediately inflict a death-producing injury upon himself. (*In re Joseph G.*, *supra*, 34 Cal.3d 429, 435-436; *Bouvia v. Superior Court*, *supra*, 179 Cal.App.3d 1127, 1145.) "To satisfy the burden of section 401, [Mondragón] would have to (1) have specifically intended [Donaldson's] suicide and (2) have had a direct participation in bringing it about." (*McCullum v. CBS, Inc.* (1988) 202 Cal.App.3d 989, 1007.) The constitutional guaranties of free speech protect the freedom of individuals to speak, write, print or otherwise communicate information or opinion. (*Ulmer v. Municipal Court* (1976) 55 Cal.App.3d 263, 266.)

Abstract teachings or advocacy of ideas are protected. (*Brandenburg v. Ohio* (1969) 395 U.S. 444, 447-449.) Regulation of conduct bearing no necessary relation to the freedom to disseminate information or opinion is not constitutionally protected. (*Ulmer v. Municipal Court*, *supra*, 55 Cal.App.3d 263, 266.) Mondragón enjoys no constitutional protection for his planned participation in Donaldson's suicide. (*In re Joseph G.*, *supra*, 34 Cal.3d 429, 435-436.)

The judgment is affirmed. The parties to bear their own costs on appeal.

**CERTIFIED FOR PUBLICATION.**

Gilbert, J

We concur: STONE, P.J.; YEGAN, J.

## MediaTech

Ralph Whelan

I'm quite pleased to report on the groundswell in media attention — positive media attention — that life extension, anti-aging, artificial intelligence, and nanotechnology have been enjoying of late. Though some of the attention is "bad

press" (if such a thing truly exists), the point is that the increasing *supply* of such reporting must correlate to some public *demand*. The masses are becoming curious.

*The New York Times* reports that

"Futurists foresee building circuits atom by atom," and goes on to explain that "Some futurists even imagine building tiny robots that could travel through the body performing surgery on damaged cells." The article is intriguing in that it takes few

of the sarcastic snipes that usually accompany such features. Perhaps, though, the author is simply content to let the futurists take shots at themselves, as IBM's chief scientist John Armstrong so deftly does when he says that "We will have the ability to make electronic and mechanical devices atom by atom," and then goes on to emphasize his belief that only critical parts of circuits, not entire computers, could be built this way "because of the complexity involved." I guess the "critical parts" (?) of circuits are not complex at all....

Another interesting quote in the same article comes from Dr. Nadrian Seeman, a professor of chemistry at New York University: "Nanotechnology is a very fancy buzzword for the chemistry of the next century." Whether or not you agree that "nanotechnology" qualifies as a fancy word, hearing a chemist cavalierly declare that this century's nanotechnology is merely next century's chemistry is nothing but encouraging.

Alcor Suspension Member Ralph Merkle is also quoted in the same article, as he describes the passive manipulation that comprises most of today's chemistry: "It's like trying to assemble a radio by putting the components in a bag and shaking." In reference to the notion that molecular engineering techniques will involve atom-by-atom and molecule-by-molecule construction, the author (Andrew Pollack) admits that "There is some precedent in nature." A daring confession, that.

Despite attempts at "fairness" and healthy skepticism, though, the article is more favorable than not. Drexler's and Merkle's words receive as much attention as anyone else's, and Drexler is allowed the last word: "We've built up this vast storehouse of basic capabilities. . . We are on the threshold of molecular manipulation. This is close enough that I can taste it."

An equally exciting article appeared in the *Chicago Tribune* on December 15, entitled "Do we want to 'cure' aging?" The article is "the last in a series of articles on science's initial efforts to slow and even reverse human aging." I wish that I had the opportunity to read the whole series, as the last installment was very optimistic.

Early on the article quotes "maverick biogerontologist" Richard Cutler of the National Institute on Aging's Gerontology Research Center in Baltimore: "What we really need is to declare a war on aging like we did on cancer. Our goal should be

to cure aging." However, early in the article each pint of dynamic optimism is diluted with a gallon of lukewarm drivel, as provided by (for instance) Robert Butler, author of *Why Survive? Growing Old in America*: "Supposing, through crude manipulations, we wound up having the 'terrible twos' for 15 years, or a teenage crisis that went on for 20? Some interesting dangers await our inventiveness."

Still more intellectually impressive is Leonard Hayflick, who laments that "If somebody does find a way of tampering with the aging process, God help us." Leonard is referred to as "a pioneer in aging research who helped set up the National Institute on Aging." Yes, you read that right. A few more gems:

"Whether more life would necessarily lead to a happier life is a big question. My guess is that there's no particular correlation between a long and happy life." ("Ethicist" Daniel Callahan, director of the Hastings Center in New York.)

Older people "have a duty to die and get out of the way." (Former Colorado Gov. Richard Lamm.)

Life-extending health care should be denied to people who have "lived out a natural life span" sometime in their late 70s. (Biomedical ethicist Daniel Callahan in his 1987 book *Setting Limits: Medical Goals in an Aging Society*.)

Despite and still, I find the article generally optimistic. The poorly-reasoned objections are tossed aside as the article proceeds to examine the work and words of (for instance) Thomas Johnson of the Institute of Behavioral Genetics at the University of Colorado in Boulder, "who recently discovered how to double the three-week life span of roundworms by altering only one gene in the worm's full complement of 10,000 genes. The landmark experiment marked the first time a change in a single gene has led to an extended life span in any animal. . . ."

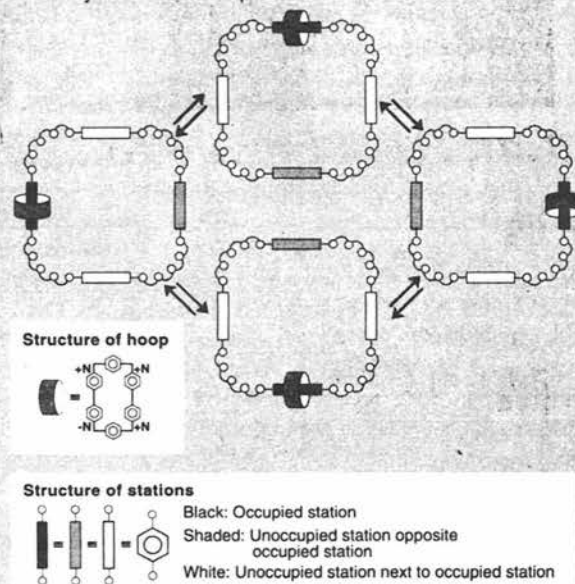
Johnson sounds deserving of the fruits of such a breakthrough, to boot: "I've spent all my academic life training to perform a job I've been at now for nine years. In another 15 to 20 years I'll be up for retirement. If I had it in my power, I would like to retire for 10 years and then go back to school to learn a new profession and do something completely different."

Although the article asserts that such a goal clashes with what "Federal planners" have in mind for us (to quote Simon Levy, do we laugh or do we cry?), this doesn't exactly jibe with the reality that the National Institute on Aging received a budget increase of 36 percent in 1991, which is more than twice the increase of any other health institute. Fortunately, federal planners are aging as fast as the rest of us.

Many of the usual Social Security and Nursing Home issues pop up in the article, but I was surprised to see reference to a possible bottleneck in cultural evolution. Dr. George Martin of the University of Washington in Seattle is quoted as saying "We used to stand on the shoulders of giants to make our big leaps forward in knowledge. It's getting harder and harder to do that. To make advances now, people need to master many disciplines in order to really understand highly complex issues of our day, and to extend man's wisdom. We

## A Molecular Train Set in Operation

In a complex molecule synthesized by Fraser Stoddart, a hoop of atoms moves from one station to the next around a circular track, changing stations 300 times a second. Such a tiny train might eventually find a use in computers.



Source: M.I.T.

The New York Times



must be able to live longer to do that. It's like building a biological supercomputer."

Although I'm more likely to view "cultural evolution" and "extending man's wisdom" as means to an end (that of Ralph's Evolution and Extending Ralph's Wisdom) rather than ends in themselves (as Dr. Martin appears to), I'm enchanted by his comparison of the directed evolution of man to the construction of a biological supercomputer. My reaction was, "Why George, you've got it exactly right!"

Still more interesting was the examination of Michael Rose's work at the University of California at Irvine. Rose has created generations of fruit flies who live 100 percent longer than they "should." And "not only has he created an increased life span. . . but an actual postponement of aging." He accomplished this by subjecting the flies to carefully contrived population pressures. "Like modern adults, Rose's flies can have as much sex as they wish. But only the fertilized eggs from the insect equivalent of middle-aged women are allowed to hatch. In so doing, Rose increases the frequency of the genes that give rise to increased life span. He dramatically alters their evolution." Not quite as glamorous as Heinlein's Howard Family, but it will have to do for now.

Rose (whom the authors dub "Lord of the Fruit Flies") is eager to see his experiments reproduced in animals. "People used

to say we couldn't change the rates of aging. That's wrong. In fact, I make my living at it. So there's a big ray of hope."

Most of us will remember the semi-recent hubbub over interleukin 1, the gene that American Red Cross biologist Thomas Maciag "turned off" to double the life of skin cells. A more recent development was Michael West's discovery of M-1 and M-2, two genes that affect the speed of aging in cells. "By switching the genes off or on he can make aging advance and reverse like a yo-yo." Turning off the M-2 gene reportedly "makes the cells useful forever; they go on dividing indefinitely." West has now founded Geron, "the world's first biotechnology operation exclusively devoted to developing genetically engineered products to retard or reverse the aging process."

The article ends on an upbeat note as well, quoting West one last time: "For the first time in history we have the power to manipulate aging on a very profound level."

December's *Scientific American* sports "Silicon Babies," a sub-laylevel article on the quest for AI in robotics. The article doesn't speculate much, being largely straight-ahead reporting on the quandaries faced by most researchers in this field. But when it does get ahead of itself, it is very optimistic, describing the sort of robotic AI we expect to have. This, for the most part, consists of interviews with the

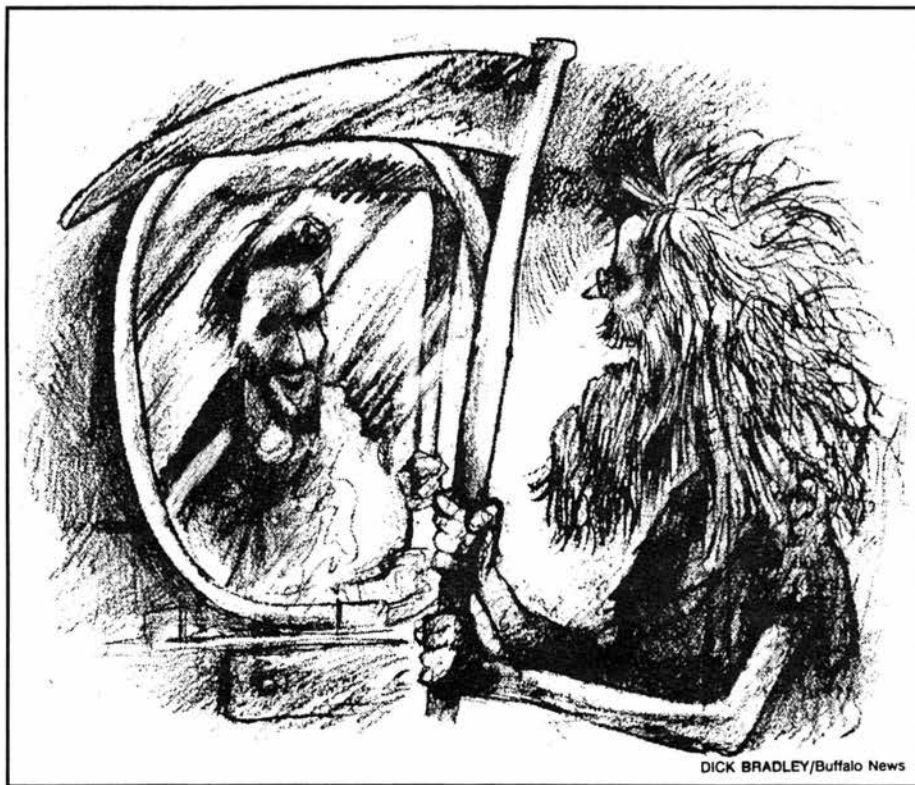
usual scientific spokespersons, each patiently explaining why his is the only approach that will work. (I'll be surprised if any of the reported approaches are in fact manifestly *unworkable*.) You won't happen across any startling new data in this article (unless the topic is mostly new to you), but it's encouragingly large in scope. By that I mean the article is unopinionated reporting on a topic that once met with as much scorn as cryonics now receives. This alone is refreshing, but we also have another cheery article-ender: "[If] artificial intelligences can muster the determination to continue long beyond the span of any single graduate student or research grant, their silicon babies may yet grow to inhabit working bodies."

Appearing in the *Buffalo News* was a reprint of another *Chicago Tribune* article, part of the series mentioned above. The article begins by reporting on the trials of Fred McCullough, a retired factory worker who — along with 27 others — received weekly injections of genetically engineered human growth hormone for about a year. Reportedly, McCullough's skin, muscles, and internal organs showed dramatic age reversal. "The main thing was, I felt much stronger. I mean, I never felt so strong in my life." He goes on to say that "It was wonderful while it lasted. Maybe someday I can try it again."

Surprisingly, the article begins by taking a *vehemently* optimistic stance, asserting with confidence that "Aging is not programmed in us like a doomsday clock or an inescapable result of life's wear and tear. Rather it is a combination of related events governed by our genes. And, for the most part, aging is reversible." Biologist Huber Warner of the Institute on Aging adds his enthusiasm: "There's a feeling of promise in the air now. There's a feeling that the train finally has started to roll."

But of course, despite statements of sweeping optimism like the above, the authors cling to their underlying deathist memes, stating as a truism that "The goal of aging research is not to achieve eternal life, but to avoid infirmity as long as possible until we die from truly natural causes — to retard the aging process and extend healthy, vigorous life."

You'll pardon me for so blithely accusing authors Kotulak and Gerner of being deathists. Or, if not, perhaps you need to re-read that sentence until you understand it. Can you even conceive of the depths of evasive maneuvering underlying the creation of such a tail-in-mouth semantic monster? Is it not obvious that *stopping*



DICK BRADLEY/Buffalo News



the aging process does a fair-to-middlin' job of retarding it? Is it somehow supposed that, given enough time to get used to the idea, infirmity won't seem so bad after all?

But the authors recover well (so I'll try to do the same), going on to enthusiastically describe most of the Big News in anti-aging that I've already covered above. They also mention how James Fleming of the Linus Pauling Institute has extended the life span of fruit flies by giving them two rather than the usual one of the gene that protects against oxidation in cells. In keeping with the focus of this article, their outlook is overtly optimistic, showing enthusiasm for scientific progress in all areas of life improvement and extension.

Moving away from newspapers and toward more scientific literature, a very interesting article appeared in *Science*, Volume 255, entitled "Animating the Material World." This piece is wonderful mind-candy, describing various applications of "intelligent structures" now on the drawing board, to include anti-stress/anti-cracking/anti-corrosion responsive elements in bridge and building pylons, damage sensors (and correctors!) in airplane wings. . . you get the idea. The refreshing angle of this article is in its immediacy: it describes what's happening *now*, rather than what nanotechnology will make possible in some world of Peace and Prosperity centuries hence. More, it refrains from analyzing the ethics of airplanes that feel pain or structures that flex polymeric muscles, concentrating instead on the *practicality* of such developments.

Especially encouraging is the closing paragraph, which is optimistic without depending on some controversial scientist going way out on a limb. The author first quotes researcher Vincent in saying that intelligent structures "will eventually do better" than unguided biological evolution has done in forming smart structures (i.e., humans). He finishes by saying that "when that happens, the concept of intelligence, which has already expanded beyond human beings to apply to complex electronic devices such as computers, will take another expansive step to include the most inert and least likely category of all: the world of materials."

Lastly I'll report on the compendium of nanotech-related articles appearing in the 29 November issue of *Science*. The mere fact that 40+ consecutive pages were devoted to six lay articles and five technical articles, all about nanotechnology,

# Futurists foresee building circuits atom by atom

By Andrew Pollack  
© 1991 The New York Times

PALO ALTO, Calif. — Scientists are beginning to gain the ability to manipulate matter by its most basic components — molecule by molecule and even atom by atom.

That ability, while now very crude, might one day allow people to build almost unimaginably small electronic circuits and machines, producing, for example, a supercomputer invisible to the naked eye.

structures being built would be measured in nanometers, or billionths of a meter. A nanometer is about the size of three atoms.

Today's finest microelectronic circuits have features about 1 micron wide, or a millionth of a meter. That is about 1 percent of the diameter of a human hair.

Researchers in a field known as micromechanics have built gears, motors and other mechanical devices that are measured in the tens of hundreds of micrometers. They are so small that they can't be seen in-

should tell us something. I'm pleased to relate that the first five lay articles are almost fringe-science optimistic, using state-of-the-art engineering examples to describe where various technological trends are taking us. The optimism runs very nearly unchecked, even to the point that one Japanese funding group states a goal of generating a working replica of the human brain with biomolecular circuits.

Until the sixth article, where they put the brakes and blinders on. This article, "The Apostle of Nanotechnology," brings out the cynic in author Ivan Amato. As you might guess, the article describes the "foresight or folly" of Eric Drexler, and his impact on both the scientific and non-scientific world. I was intensely disappointed in this article, mostly because it seemed so out of place following the others in the group.

Even two or three years ago, the other articles in that issue would have seemed wildly out of place, even irresponsible. It seems that the authors (or more likely the editors) of *Science* are blind to the very trend they are so excitedly describing. Consider, for example, that the article previous to "The Apostle of Nanotechnology" describes researcher Stuart Hameroff's theoretical "biomolecular nanorobots," which will be capable of roaming through

the human body performing "useful search-and-destroy missions, rather like custom-made white blood cells," and "traveling through the human body and making intricate repairs to damaged tissue."

Sound familiar? Well, in case you don't recognize the origin of such ideas, they're reported again two pages later as Drexler's five-year-old theory of "life-prolonging molecular machines that tour the cells of the human body and repair proteins gone bad." Same basic idea, only now it's "No surprise that such ideas didn't exactly get rave reviews from other researchers." And that damned Drexler, "undaunted, is still painting the same scenarios 5 years later." Imagine that.

But despite this predictable, puerile prejudice, I remain encouraged by the issue of *Science*, and the trends it portends. If anything, it's a tribute to the fine job Eric and his associates have done acquainting the world with the power of an idea. As for the analogous progress in public perception of life-extension and anti-aging technology, I like to think that Alcorians and cryonicists in general have done a lot to wake people up to a philosophy whose time has come. Regardless, the groundswell is becoming impossible to ignore; maybe we'll pull this off yet.

## The Neuron: Cell And Molecular Biology

by IB Levitan and LK Kaczmarek  
Oxford University Press, 1991

book review by Thomas Donaldson

This book will solve none of our problems. However, it deserves close attention by any cryonicist interested in really understanding the setting for some of those problems, the neuron itself. *The Neuron* is basically a very lengthy and thorough review of the state of knowledge about its subject as of about 1990. As such it deals with every conceivable topic related to this cell type. Many of the issues and experiments Levitan and Kaczmarek discuss in their book touch intimately on our own central problems; anyone proposing to seriously think out just what might be done to solve those problems needs to own this book.

A discussion of the contents should make that statement very clear. Levitan and Kaczmarek devote the 125 pages or so solely to the electrical properties of neurons, in detail: how they generate currents (by ion flow, but it's far more complex than in a simple wire. At least four different ions are involved: sodium, potassium, chloride, and calcium, each one affecting the neuron differently). The ions pass between neurons through special channels which will pass only one type of ion; they cause different responses in different neurons, and modulate the response of the neurons by their presence. Sometimes these special channels let ions in from outside; sometimes they form the simplest kind of connection (a gap junction) between two neurons. Electric current modulates the properties of these gap junctions. Clearly we do not have anything so simple as a "wire" in our brains.

And from there we pass to chemical communication between neurons, again explained in great detail. First, of course, are the chemicals which nerves use for transmission. (Neurons can also release neurohormones, to cause changes in others nearby even if those others aren't directly connected to them. This subject is also discussed in detail.) Reading through the book I found 24 known mammalian neurotransmitters (a few others haven't (yet?) been found in mammals), with the cautionary statement that the list constantly grows longer. Levitan and Kaczmarek first discuss, again in detail, just how these chemi-

icals are released from neurons. Among the critical issues involved in release is the essential role that calcium ions play for many neurotransmitters (but again, not in every case!).

Another issue is the pattern of release in small vesicles of transmitters (fundamentally these are bags of neurotransmitter surrounded by a cell membrane and transported or released as a unit), the two different kinds of vesicles (dense and clear), and how that release occurs (the vesicles fuse with the outer cell membrane, releasing their contents). Vesicles contain standardized amounts of transmitter; some experimenters have measured release and found that it happens in small steps. Many (though again not all) transmitters are synthesized near the nucleus of the neuron, and then transported the entire length of the axon to the synapses where they are to be released. Other transmitters (acetylcholine is a major case) are created on the spot, then enclosed in vesicles. For some transmitters, such as the amino acids GABA (gamma-aminobutyric acid), glutamate, or glycine, sodium ions play a crucial role in release and reuptake.

The above is only a very bare summary of the book's discussion on the subject of neurotransmitters and their release. Another whole chapter is devoted to the receptors for these chemicals, the different kinds of receptor, how they act and what other enzymes or ions are needed for their action, and what is known about how reception affects the receiving cell.

In one sense the authors have organized their book to pass from subjects very well studied and understood to those on the forefront of investigation. After discussing the neurotransmitter-receptor systems, they pass then to how these different systems modulate one another, several detailed chapters. From modulation Levitan and Kaczmarek pass on to detailed discussions of the few circuits of neurons which have been completely analyzed, all of them from invertebrates such as *Aplysia*.

And then, getting closer to issues important for cryonics, another series of chapters about plasticity and growth of neurons.

This includes a discussion of development and how it is organized and growth of new processes, even in adult neurons. It also includes a discussion of what is known about synaptic movement and change in adult neurons. Here we get very close to home: they discuss the evidence (from work by Purves and Hadley) that synapses may slowly move and change, and a related observation that one protein, GAP-43, seems to be associated both with nerve cell growth and with learning. GAP-43 isn't the only such protein discussed in this connection. Another class of proteins are the developmental ones, such as *fos*, which bind tightly to the nucleus, controlling just which genes are read out or not.

And finally, the very last chapter gives what seems to me a fair review of the state of play on the subject of LTP, together with previous much less specific experiments on learning (for instance, the discovery that protein synthesis, of some unknown proteins, takes place during learning). I believe their conclusion to be quite fair: that so far, we haven't yet gone very far towards understanding memory. Even the changes in synapses with LTP have not been shown to store memory. They have been shown to be essential to its expression, but that isn't the same. On a gross scale, our brains need an undamaged hippocampus to read out our memories, but no one now believes that our hippocampus is a major site of memory storage.

I haven't yet mentioned the many photographs (electron micrographs, light micrographs, and others), graphs, and diagrams Levitan and Kaczmarek use to explain their subject. These are generally very clear, pertinent, and helpful. Several are very striking: I remember particularly a micrograph of a synapse, with all the vesicles gathering at the presynaptic side and the synaptic thickening and mitochondria on the postsynaptic side. That micrograph alone tells us a good deal about how our neurons work.

I hope that every cryonicist who wants to think about or discuss memory storage, memory recovery, or even brain repair after cryonic suspension will use this book or find some close equivalent. It deserves a close reading to start; and then, it will probably stand as a reference for some years into the future. . . at least until subsequent discoveries answer the major questions we have, or show some of our current thinking to be false.

## Cryonics Is. . .

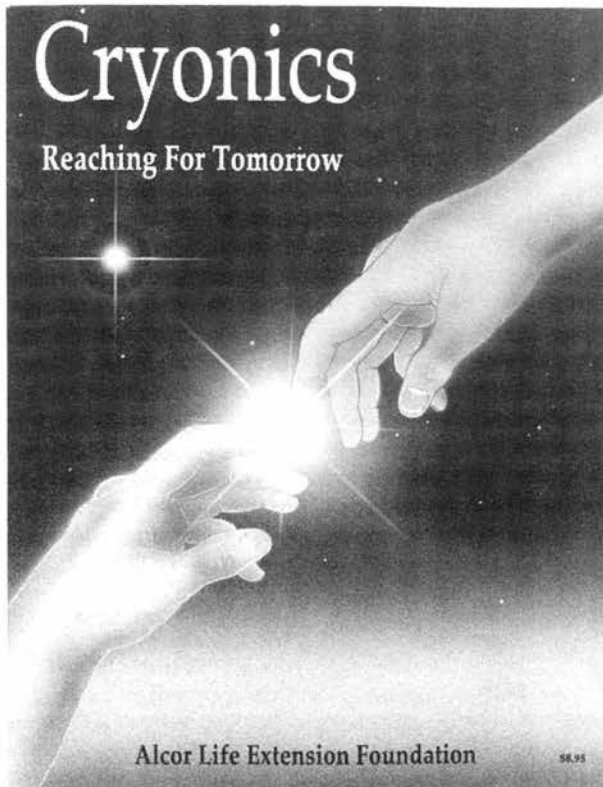
Low-temperature preservation of terminal patients when medicine is unable to heal them. This treatment is called *cryonic suspension*. The goal of cryonic suspension is the transport of today's terminal patients to a time in the future when cell/tissue repair technology is available, and restoration to youth and health is possible — a time when freezing damage is a fully reversible injury and cures exist for virtually all of today's diseases, **including aging.**

It is our belief that if human knowledge and medical technology continues to expand in capability, people with conditions that would cause them to (incorrectly) be considered dead by today's medicine will be routinely restored to life and health. This coming control over living systems should allow us to fabricate new organisms and sub-cell-sized devices for repair and resuscitation of patients who will have been waiting in cryonic suspension.

There is already substantial scientific evidence available that current suspension techniques are preserving memory and personality — and that the repair and resuscitation technologies we envision will be developed within the next 50 to 150 years.

# Cryonics

## Reaching For Tomorrow



Non-members may call toll-free (800) 367-2228 or write (see reverse for address) and receive the book, *Cryonics - Reaching for Tomorrow* for free (regular retail price: \$8.95, member price: \$5.00.)

## Alcor Is. . .

The Alcor Life Extension Foundation: a non-profit tax-exempt scientific and educational organization. Alcor currently has 17 members in cryonic suspension, hundreds of Suspension Members — people who have arrangements to be suspended — and hundreds more in the process of becoming Suspension Members. Our Emergency Response capability includes equipment and trained technicians in New York, Canada, Indiana, and Northern California, with a cool-down and perfusion facility in Florida and the United Kingdom.

The Alcor facility, located in Southern California, includes a full-time staff with employees present 24 hours a day. The facility also has a fully equipped and operational research laboratory, an ambulance for local response, an operating room and the world's largest and most technically advanced cryogenic patient storage facility.

All Alcor Directors and Officers are required to be full suspension members.

Call toll-free (800) 367-2228 or write (see reverse for address) for the free book, *Cryonics: Reaching for Tomorrow*.

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The Alcor tour also features a discussion of the scientific evidence that patients in cryonic suspension have a realistic chance of being restored to life, health, and youthful vigor as well as a fascinating exploration of the advances likely to come in the 21st century and beyond. The tour provides an invaluable opportunity for you to have your questions about cryonics and the prospect of an extended human lifespan answered.

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I understand that an Alcor Sign-Up Coordinator will contact me at the above number.



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- (number your choices 1 through a maximum of 9)
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- I'm helping to promote a vital new area of science
- I've found new friends
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- I'm excited by the possibility of seeing the future
- I may be reunited one day with my family and friends

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I have chosen Alcor as my cryonics organization because:

- (number your choices 1 through a maximum of 11)
- It is better funded than other organizations
- The personnel seem very dedicated
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- It has emergency services
- Financial data are freely available for inspection
- It is the largest cryonics organization
- It does neurosuspensions
- It has fought important court cases defending cryonics
- It is a friendly group of people

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The following factors helped to persuade me that I should sign up as a suspension member:

- (number your choices 1 through a maximum of 12)
- Scientific data and results of experiments
- Cryonics magazine
- Leaflets from Alcor
- The big Alcor "fact book"
- Personal conversations with cryonicists
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- Media coverage
- Visiting the Alcor facility
- Seeing a friend sign up
- Simply sitting and thinking about the subject

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