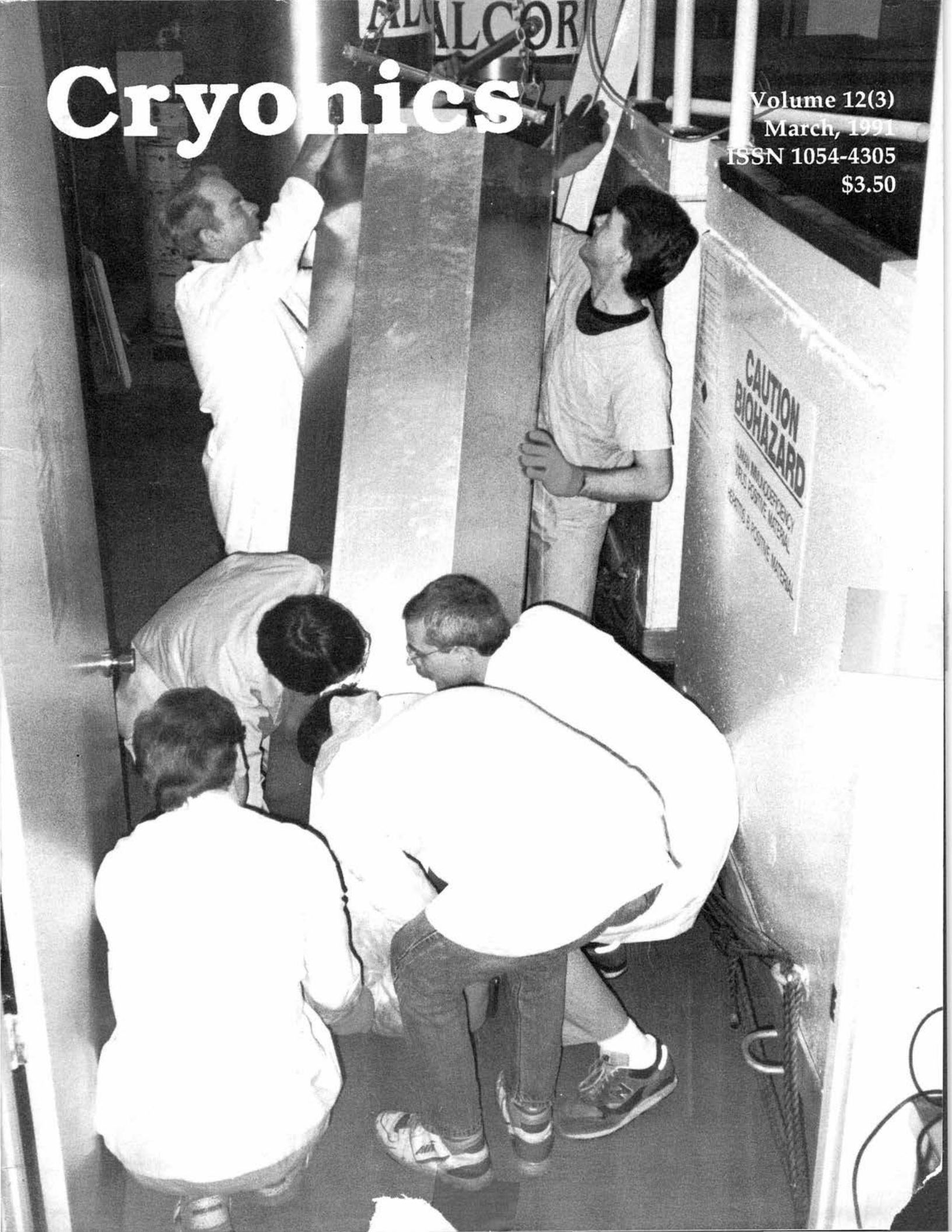
Cryonics

Volume 12(3)
March, 1991
ISSN 1054-4305
$3.50



Feature Articles

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Cryonics

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Issue 128, ISSN 1054-4305

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Cryonics is the magazine of the Alcor Life Extension Foundation, Inc.

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Published monthly. Individual subscriptions: $25 per year in the U.S.; $35 per year in Canada and Mexico; $40 per year all others. Back issues are $3.50 each in the U.S., Canada, and Mexico; $4.50 each all others.

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Cover:

Patient A-1268's pod is readied for transfer to a dewar for vapor cooling.
Standing (L – R): Jerry Leaf, Ralph Whelan
Crouching (L – R): Carlos Mandragón, Max More, Arthur McCombs, Mike Darwin.
Photo: Steve Harris

Mike Darwin and Ralph Whelan

Free Flyer

As a side-effect of printing up the last edition of the Bluebook we also got 10,000 4-page flyers designed to introduce people to Alcor and cryonics. The flyers were designed primarily to be used for conventions and trade shows, although they work quite well as stand-alones. The approach taken in these flyers is more philosophical/emotional than in most of our literature and the brochure cover (see accompanying reproduction) features a ringed planet viewed from one of its moons with the question:

What wonders, what incredible opportunities for growth and achievement will the future hold? How unfortunate that we will be among the last generation to die. To us the future is little more than idle speculation. . . Or is it?

The brochures are black and white and are suitable for distribution at meetings, conventions, waiting rooms and so on. We have 80 packages of 150 each and we are making them available free of charge under the following conditions:

1) They are being offered on a first come, first served basis.

2) The first pack of 150 is free to addresses inside the U.S. and Canada. Overseas addresses will be charged surface or air postage as requested (and paid for) by the requestee.

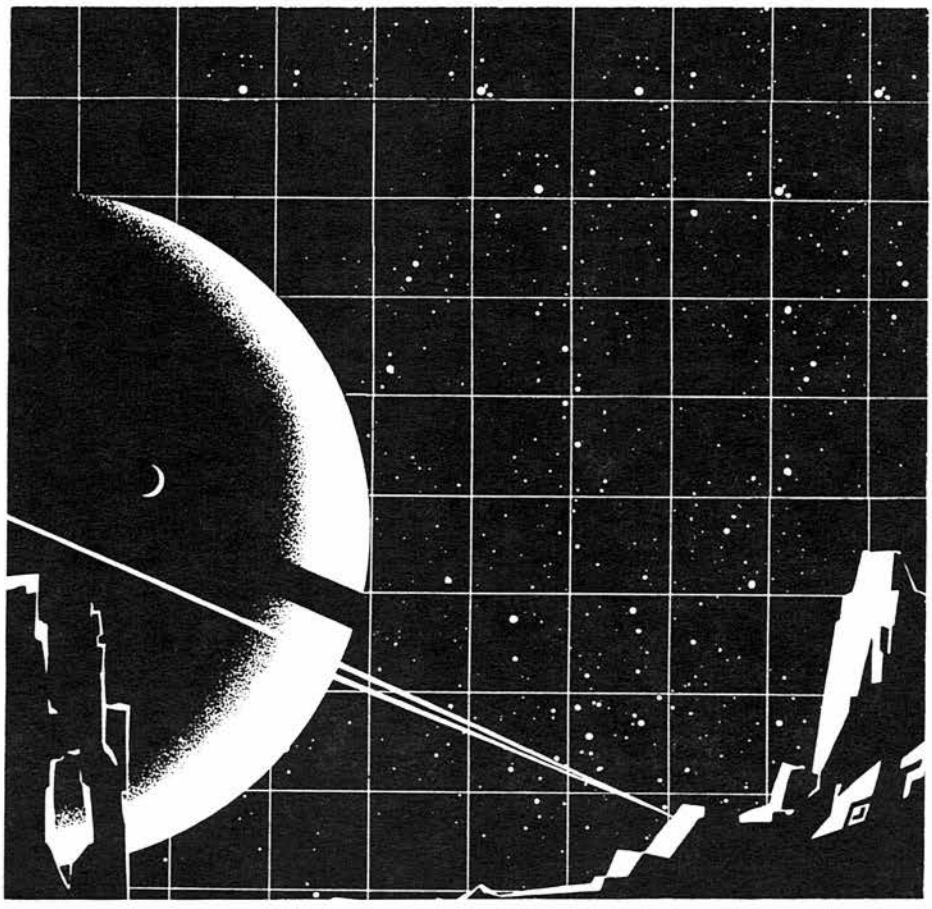
3) The second pack is available for the $3.00 postage it will cost us to mail it.

4) You must agree to distribute these brochures on a timely basis. We are moving them in part because they will soon be replaced by second-generation material which is superior. Thus, we want to get them out into circulation while they still have a useful life.

So, if you've been looking for the opportunity to get your hands on low-cost Alcor literature to hand out to casual acquaintances or to leave in the doctor's waiting room, here's your chance for some *no-cost* literature to fill that need.

SURVEY

Jim Stevenson, Alcor member, is conducting a study involving people who think that cryonics might work and who do not believe in a non-physical afterlife, but who have not signed up. The study involves up to two hours of telephone interview, which Jim will pay for. If you're interested in participating, please call Jim at 415-494-1234, or contact us and we'll forward your information to Jim.



Recruiting Report

Ralph Whelan

The first bonafide Alcor Membership Recruitment Meetings took place this past January, both in Southern and Northern California, with the follow-ups scheduled for this and next month. (See the **Upcoming Alcor Events** box this page.) In spite of the fact that the specifics of how the meeting would run were left intentionally vague—that is, we were crossing every bridge as we came to it—overall the meetings were quite productive.

For the Southern California meeting (held at Russell Cheney's house in Torrance), I know that the intention (beforehand) was to use the meetings as information dissemination tools and sign-up "parties." We hoped to actually get people signed up. However, after an informative presentation by Mike Darwin and a *lengthy* and very interesting question and answer period, the mood was more conversational than anything else. No paperwork was executed at the meeting, but I'm confident that we'll see new members as a result of it.

The Northern California meeting went a little bit differently (though I think equally as well). Unlike the Southern California meeting, people *did* come to this meeting expecting to execute paperwork. So, after the regular monthly meeting, the group divided into Those There To Sign Up (presided over by Naomi Reynolds and Arel Lucas) and Those There To Hear Why They Should Sign Up. The latter group had the pleasure of listening to a fascinating discussion of nanotechnology and cryonics by Ralph Merkle (who co-hosted the meeting, along with his wife Carol Shaw, at their house).

If you missed these seminars, or if you know someone—anyone—whom you think could benefit from such a seminar, be sure bolster the ranks of the next meeting in your area.

The Southern California Recruitment Meeting. Photo: Saul Kent

Membership Status

Alcor has 209 Suspension Members, 508 Associate Members, and 17 members in suspension.

Upcoming Alcor Events

A free seminar entitled **LIFE EXTENSION THROUGH CRYONIC SUSPENSION**, which features a slide presentation, is held every three months in California, New York, Florida, England, and Australia after the regular Alcor business meeting. The purpose of this seminar is to introduce new people to cryonics. Alcor members are urged to bring any of their relatives, friends, and acquaintances who have expressed interest in cryonics to these seminars. A trained counselor will be available to assist anyone in the process of becoming a member. Refreshments will be served. The following seminars have been scheduled:

New York City - Sunday, Mar. 17

Business Meeting at 4 PM - Seminar at 5PM
Speaker: Brenda Peters
72nd St. Studios, 131 West 72nd St.
Between Columbus Ave. & Broadway
Subway stop: 72nd St. on 1,2 or 3 trains

Hollywood, Florida, Sunday, Mar. 24

No Business Meeting - Seminar at 2PM
Speaker: William Faloon
524 North Rainbow Drive
Take I-95 to Hollywood Blvd. exit
West on Hollywood Blvd. to first circle
Right on North Rainbow Dr., 524 on left

Huntington Beach, CA, Sun., Apr. 7

Business Meeting at 1PM - Seminar at 4PM
Speaker: Mike Darwin
8081 Yorktown Avenue
Take I-405 to Beach Blvd. exit
South on Beach Blvd. 4-5 miles
Left on Yorktown less than one block
8081 on left

Sunnyvale, CA., Sun., Apr. 14

Business Meeting at 4PM - Seminar at 7PM
Speaker: Ralph Merkle, Ph.D.
1134 Pimento Avenue
Take 85 Fwy, exit east on Fremont to Mary
Left on Mary to Ticonderoga
Right on Ticonderoga to Pimento
Left on Pimento, 1134 on right

For further information about free cryonics seminars call Alcor at: **1-800-367-2228.**

Letters to the Editors

Friends,

It is commendable that the staff are willing to take cuts in salary to meet our financial woes, but that's just not the way. If the success or failure of Alcor depends on the saving of about $28,000 a year, then we are in bad shape. What kind of an executive or president is it who has to take an almost $8,000 salary reduction in these days when his original salary of $30,000 is not worthy of the president of an important foundation such as Alcor (assuming he is full-time and not earning a salary elsewhere).

Would you—any of you—entrust your survival to such a shaky organization? How would you feel about getting suspended knowing that maybe next year's crisis will not be met?

The solution is NEW MEMBERS. New members are the lifeblood of any club or organization. We are offering the most valuable commodity in the world. Who wouldn't jump at it, if they knew about it? I learned of and joined Alcor through an ad in a space flight magazine. What we need is a massive public relations campaign, spending big bucks through a professional public relations outfit, rather than cutting some salaries and maybe firing an office boy. Contact a publicity firm, let them work out a campaign for us; they're professionals at it. Let them sound out the market, see to whom and how we have to appeal.

For every dollar we spend, we should get one hundred back. I'm willing to make a donation to such a campaign. How about each member contributing $100 or $200 for this project? It's our own life we're investing in.

I wish you success for your sake and mine!

Sincerely,
Allen Caplan, D.C.

I agree that our meager salaries don't impress anyone. I'm willing to work for far less than I could earn elsewhere because my highest value is my own physical survival and Alcor is the only lifeboat in town. In the future, (maybe even this life-cycle) I may be richly rewarded.

Alcor's survival doesn't depend on $28K in savings. However, continuing to provide the level of non-patient-care-service we now offer as well as continuing our efforts to recruit new members did depend on making severe cuts in other expenses.

Over the past three years, we've gotten Million$ in free publicity. Affording a response to the resulting inquiries is presently a higher priority than my paycheck.

Carlos Mondragón, president

To the editors:

I was inspired by "The Case for Neurosuspension" by Brian Wowk in the September, 1990 issue of *Cryonics* to add my own thoughts. It does seem that it will be easier to grow a whole new body from scratch than to repair and rejuvenate a horribly damaged old one, but this argument also applies, in the strongest way, to the exceedingly complex brain.

Brian's vision is that the old brain will be implanted in the new body; but the mind and body are not a duality. The mind is a body part, and only its arrangement, or configuration, is important. Just as any of an infinite number of styles of chess pieces, for example, can be used to represent the same chess game, so can any mind hold a given thought. A completely new brain grown along with the rest of the body from the same gene-plan should surely be able to accept configuration, and by configuration I mean software, firmware, or even hardware-like rewiring, within itself and with respect to the rest of of the body, to produce exactly the same personality as the original body held. This may need to be done as the body is grown, but that is beside the point, which is that molecular repair and implantation of the brain will not necessarily be required, contrary to what Brian foresees. Copying the configuration will be necessary, and this may not require the most sophisticated nanotechnology, but the statement that "It seems much easier to grow a new young body. . ." applies further than Brian indicated. This reconfiguring would seem to be easier than restoration because it would require decoding the personality information from the damaged tissue, and "writing" it to fresh tissue, rather than requiring repair in addition.

And, beginning again with a completely fresh body has more advantages than easiness: assurance that it is perfectly new (repair might miss something), the possibility of a genetic overhaul for all sorts of improvements, like increased intelligence, better memory, built-in immortality and immunity from cancer, redesign of body parts for the best capabilities possible (I have shoulder and knee joints which are not the best), curing baldness and bad eyesight, cleaning out all bad recessive (and maybe dominant) genes, and I'm sure everyone could come up with a wish-list as long as their arm. Even not starting with a freshly-grown body and not even necessarily after cryonic suspension, it may be possible to add configuration, and thereby skills, such as piano-playing, or martial arts, perhaps. We shouldn't have to settle for less than complete control in reconfiguring our bodies in any way we wish.

A side issue is that allowing us control over our genes so that we can make ourselves "perfect" will remove our individuality. This is an assumption supported (only, it seems) by knee-jerk reactions to Hitler's Nazism. I tend not to foresee this because there are an infinite number of combinations of "perfect" characteristics. For example, beauty, which is one of the things people will surely want to change themselves for. Just look at the magazines which "celebrate the female form divine." Every woman is different, and yet each is stunningly beautiful. (Homework: go study *Penthouse*, or the comparable thing for women readers, back issues.) Lack of individuality would come from lack of control (if you only have the money for a "standard" gene overhaul, for example) or from lack of imagination.

Another advantage is PR: one can avoid Frankenstein's "cutting and sewing body parts" scenarios when explaining cryonics to people. They seem to be inferior methods, anyway.

Perhaps a new body could be grown to adulthood from scratch without having to be progressed through infancy, childhood, adolescence, etc. This might save a lot of time and perhaps avoid problems with the new body acquiring a new identity, although that could probably be prevented by keeping it unconscious until ready, or, as noted above, by configuring it as it is grown. I can't see why, theoretically, a body couldn't be grown directly adult; after all, some types of cancer involve growth of body parts, in unexpected places perhaps, but if a disease can randomly grow them, it should be possible to grow them under strict control.

I didn't understand what Brian meant by "genetic information from somatic cells" where he wrote of future regrowth

of bodies involving modifying the program for the insertion of this. Perhaps he could elucidate.

I contributed to the Thomas Donaldson Legal Defense Fund, but I was wondering about the term "Legal Defense." Since Donaldson is suing, shouldn't it be called, maybe, the "Legal Attacking Fund"...?

I hope that, since the coroner's raid, you now have off-site backups of everything. No doubt you did this in your copious free time....

In the "oversight" part of the *Buying Time* book review, I notice a mistake in your correction of his "distance remaining" equation. Instead of $D_r = D_o - v_o t + (1/2)at^2$, where D_r = remaining distance, D_o = original distance and v_o = original velocity, it should be $D_r = D_o - v_o t - (1/2)at^2$. The acceleration term, $-(1/2)at^2$, should be negative, because t is time elapsed at that acceleration, a, and presumably, "a" is figured in the same reference direction as v_o. *(I stand corrected!—RW)*

Thanks for your attention.
Yours truly,
James Wiebe

Dear Editor,

I would like to suggest another way to immortality that is in a sense an off-shoot of your "neuropreservation" technique. This way is less expensive for long-term storage. If the brain (head) is perfused with a fixative like buffered glutaraldehyde, every synapse and circuit would be accurately preserved. If, as I assume, our personality and memory are contained completely in this circuitry, then these circuits could be analyzed in the future by a three-dimensional scan having a resolution of about 2000X. This circuitry could then be reconstructed by electronic analogues of neurons, which could be interfaced with artificial sensory inputs and motor outputs. This should be you in a much less destructible format.

Storage would be in a bottle of fixative until some future date when the information could be retrieved and reconstituted. There would be no pressing need for extremely low temperatures. Freezing in fact by current technology may be doing more damage to the brain than sophisticated fixation and may therefore create even greater problems when the circuitry has to be reconstructed.

I shirk somewhat from contemplating myself in electronic rather than biological format, but aging has reconciled me to change. For those interested in the latter format, the DNA available in the bottle would allow cloning of your body.

Yours truly,
Peter Gouras, M.D.
New York City

Dear Editors:

It's likely that by the time you receive this letter you'll have already planned or published a review of Thomas Noguchi's novel *Physical Evidence. (See "Let's Not Get Physical" by Valerie Alison in the January* Cryonics*—Eds.)* I'm told that Alcor is aware of this book and has communicated with Dr. Noguchi in regards to it. Nevertheless, I'd like to comment.

One might take it for granted that any cryonics-related fiction written by an ex-coroner would be anti-cryonics, and Noguchi presents no surprises on this point. What I find appalling is his summary dismissal of so much fairly accurate information on the subject. Noguchi's characters arrogantly deride social, legal, medical, and technologically speculative issues of cryonics without once pausing to give them consideration, serious or otherwise.

For example, one suspension procedure used by the fictional cryonics group in *Physical Evidence* (as well as by Alcor, according to your literature) is the administration of barbiturates soon after a patient's legal death, in order to "quiet agonal spasms and cut down the brain's need for oxygen." The author's fictional pathologists immediately agree this procedure is "ridiculous"—they do not, however, trouble themselves to explain *why*. Noguchi's well-known credentials as a forensic pathologist may warrant *Cryonics* offering a public answer for this misconception as well as numerous others.

Then again, countless cheap thrillers in the past have exploited cryonics and then fallen into obscurity. Since *Physical Evidence* has so far demonstrated a richly-deserved lackluster performance in the bookstores, perhaps ignoring this novel would best speed it on a similar path. Dr. Noguchi has demonstrated once more that shallow treatment of any subject tends to result in shallow literature.

Sincerely,
Richard Shock

For The Record

Some Early Thoughts About Neuro

Michael Perry

Neurosuspension, or freezing the head or brain only, is a sometimes-controversial cryonics practice advocated, among other reasons, for its lower cost relative to the whole body option. The practice originated with the (Alcor) neurosuspension of Fred Chamberlain Jr. on July 16, 1976. In this case four individuals deserve credit for thinking of the idea and seeing it through to implementation: Alcor founders Fred Chamberlain (actually Fred III, son of Fred Jr.), his wife Linda, Mike Darwin, and cryobiologist Corey Noble (a pseudonym, for publicity reasons). I understand that Mike and Corey thought of the idea in-

dependently of Fred and Linda, then around 1973 all put their heads together and eventually put it into operation. (The patient himself deserves credit too, of course!)

Although the lion's share of the credit for whatever benefits neuro may offer must go to those who actually implemented the idea, it is also worthwhile to consider whether anyone had thought of it previously and what their thoughts were, and this is the main subject of this article. (In much the same spirit we also search out early thinking about the cryonics idea in general.) In fact there was a tradition about the neuro option that goes back almost to the beginning of the cryonics movement. The originator: none other than Evan Cooper, who late in 1963 started the first promotional organization for the cryonics idea, the Life Extension Society or LES, based in Washington, D.C.

The September, 1965 issue of Cooper's newsletter *Freeze-Wait-Reanimate* (*FWR*) opens with the stirring headlines, *Astounding Advance in Animal Brain Freezing and Recovery* ... and goes on to discuss the work of Suda of Kobe University, Japan. This was the famous series of experiments in which cat brains were frozen and later revived with nearly normal brain wave activity. Cooper commented, "... it is increasingly certain that the human brain can be frozen, stored and revived" and went on to speculate:

"We shudder to think of our brain estranged from its cave, its home, its comfortable brainpan. We find it virtually impossible to imagine. Nevertheless, if our survival really depended upon it, many of us would submit to such an operation. ..."

After several more paragraphs of discussion of Suda's results and the possibilities of freezing and reanimation a thought that must have been percolating in Cooper's mind finally bursts forth:

"If we let our imagination go wayout, we can consider the storage of the brain alone, to be reanimated later, and placed in a body which has been grown from one of the original body cells. This arrangement should be especially appealing to those who worry so much about space and the cost of refrigeration."

There, then, is essentially the full-blown rationale for neurosuspension, apparently a by-product, in the mind of a pioneering cryonicist, of the successful freezing and reanimation of isolated brains. (The freezing was not to the temperature of liquid nitrogen, to be sure, nor is it expected that the brains could have survived for centuries rather than the 203 days that was achieved in the main experiment reported on in the article, but an important advance was made nonetheless.) It is possible that this was not the first time the neuro idea had been considered; it is the earliest occurrence I know of, however. The idea recurs from time to time, another example being in the April 1967 *FWR* (p. 8) from Paul Nuñez, who apparently was unaware of the earlier article:

"There are several aspects of the life extension idea that I have not as yet heard discussed.

"The individual who doesn't have sufficient funds to have his body frozen might consider having his head frozen (or, following Suda's research, just his brain) with the hope that some future generation will have the capability of providing him with the necessary replacement of parts.

Evan Cooper
Pioneer Advocate of "Neuro"

This idea will, of course, be repugnant to some; however I, for one, would prefer decapitation to the grave."

Here Cooper modestly refrains from mentioning his earlier thinking on the same subject. But a few months later he reports, in a letter to Jerry Cullins, of a monthly LES meeting held January 16, 1968 at which the subject was discussed:

"... We had a bang-up meeting last night! We expected a tiny handful. It was a small meeting, but the people were alive with ideas. We discussed the possibilities of just storing (get ready for something indelicate) the head or the brain if the whole body could not be frozen. --If there were lack of funds, lack of storage facilities, an active preference for such on the part of the one to be frozen, or, the only way the doctor would consent to it, etc. What do you think of this unusual way, or this strange possibility? (One would expect that in the future a 'blank' body could be grown and the old head attached or the original brain inserted.) Weird idea, don't you think? I proposed it, but almost everyone was against it for publicity reasons. --We discussed other things, but none quite so wild."

Though others were against it, Cooper himself favored the idea, for sound humanitarian, logistical, scientific, and other reasons, as a comment in *FWR* (Feb. 1968 p. 7) makes clear:

"... Almost everyone is pussyfooting about this restricted freezing alternative for fear of offending sensibilities. But the scientific and practical factors for such a restricted preservation appear overwhelming as an *alternative* if and only if there cannot be preservation *in toto*. The cost might be a tenth or less of the *in toto* method. Considering this to be an emergency method before aging control becomes practical, isn't it probably the only possible way the many poor throughout the world could be preserved? Space saving might be anywhere from 1/7 to 1/25th [i.e. a factor of 7 to 25]. The saving of a part might be more acceptable, for the remainder can be suitably arranged for traditional rites. Many doctors would be much less reluctant to perfuse and freeze a part than they would the whole. They are used to saving specific parts, even the part containing one's previous identity, for analysis. With some obvious changes they have the general pattern of Suda's experiments to follow outlined in the world's foremost scientific journal: *Nature*. This procedure reduces the problem to its simplest base. It saves the one essential organ. Stewart's experiments [cloning from carrots] indicate that an identical body could be produced in the future. It would seem there is no technical problem in this that could not be solved satisfactorily to any reasonable person. There is an initial fear reaction aroused because it is so novel. Lastly the problems of perfusion and cooling are reduced in magnitude and complexity. This possibility at least deserves unemotional discussion *as an alternative* ... when more encompassing preservation is not possible."

Unfortunately a number of years were to pass before the neuro option would be taken seriously. Sixteen of the first 17 cryonic suspension patients (those frozen prior to 1973, all whole bodies) were later thawed and buried. To date no neuropatient has ever been thawed, something that must be partly attributed to the increased stability of cryonics organizations today, but also to the greater ease of maintaining neuros.

Immortalism and Deathism

Max More

Cryonicists consider themselves to be immortalists, and sometimes refer to the principled rejection of cryonics as "deathism." What is this choice between immortalism and deathism? In what way is the immortalist morality and philosophy of life different from that of the deathist?

Immortalism is the belief in the desirability of, and a striving for, an unending life. Deathism is the rejection of life as potentially infinite; the acceptance of annihilation.

To understand the difference between the immortalist and the deathist we must inquire into the nature of the life that is at issue. Just what is this "life" that deathists push away and immortalists embrace? For this purpose life can be seen in two ways, the second of which subsumes the first.

In the first sense, life is simply survival. This is life as the absence of death—the bare ground of possibility for personality. As the precondition of all other values life-as-survival is important. All other values can be chosen, sought, and achieved only so long as life continues. No matter what the particulars are that you find of value in your own life, they require the continuation of life.

Though fundamental in being the grounding of possibility, life as bare survival is a mere means to our ends and of little value in itself. Any intrinsic value possessed by life-as-survival is a consequence of its being the foundation on which all other values rest.

The choice to live is not merely the choice to survive. Mere existence provides little motivation. Anything that lives has a certain nature. Each organism is life of a kind. The kind of life we have is personal life—a process of conscious, intelligent choosing of values, goals, and projects. While lower life-forms are limited, condemned to repeat the same behaviors over and over, persons are unlimited. Personal life is the seeking after endless improvement, growth, and development. Clearly, understood in this way, life is of unlimited value.

Virtually everyone recognizes the ascending rank of value as we move from simple single-celled life through the animals and up to humankind. Yet the deathist view of human life as ephemeral has blocked the realization that persons are more than the top rung of the evolutionary ladder. We are not merely the most highly evolved; we are unlimited. With the advent of self-conscious organisms—persons—the potential for increasing value has suddenly become boundless.

A valuable life is one of creation, construction, evolution, expansion. The value embodied in and created by a person increases as they become wiser, more intelligent, more accomplished, more morally developed and as they plan over longer periods of time. This extropic process—a process of evolution forcing back entropy—is cut off by death. Living forever is necessary for this extropic process to actualize its potential. We have an obligation to ourselves, to the dynamic inherent in personal life, an obligation to secure our perpetual existence and growth. As the leading edge of evolution perhaps we also have an obligation to the universe to continue its generation of ever-increasing value.

To reject immortalism—the goal of eternal expansive existence—is to choose entropy: stagnation, decay, spoilage, degeneration, death. How can this be morally acceptable? To accept death, whether immediate or at its "natural" time, is a confession of laziness, of fear, or of a hatred of the responsibility of living. To assent to death is to choose the annihilation of all the values you hold, the values you have created, and the vastly greater values you could yet originate.

Some deathists truly hate life and would kill themselves if they had the courage. These people are waiting to die, they are those for whom life is "a vale of tears." A more common form of deathism is to take life as it comes, to enjoy it and to develop oneself so long as life continues, and yet to accept a "natural" end to life as proper. A pragmatic contradiction is implicit in this attitude: to will to achieve and reach goals while alive at the same time as willing one's death and the annihilation of one's values.

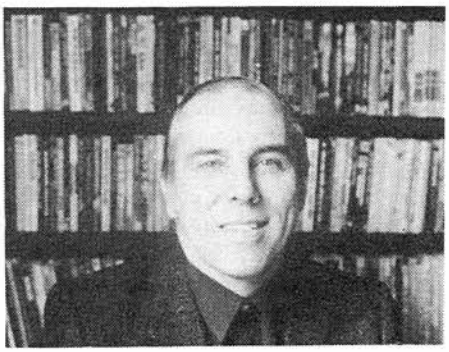
The prevalence of this contradictory view is explained by the impenetrable barrier of death that has existed throughout history. But history is at an end: We need not deceitfully tell ourselves that death is proper and beneficial, or that it is merely a passage to a better life. Through cryonics, through gerontology, and other applications of science and technology, the barrier of death can be brought down and a fully extropic view of our lives be realized. The alternatives are suicide or immortality. Anything in between is moral failure.

Immortality will not be more of the same life. Boundless existence will expand the range of our possibilities enormously. Our achievements will grow ever greater. Our moral evolution will continue. Since we will learn to plan over much longer periods of time, we will become ever more cooperative and less conflictual. As we progress beyond humanity into transhumanity and posthumanity we will grow wiser, stronger, better.

The pursuit of immortality is morally required of us. Since the understanding and conquest of aging is decades away, and death could strike any of us at any time, involvement in cryonics, as well as in the struggle against aging, is as high an ideal as can be found. The moral high ground is ours. Let's make sure everyone knows it.

Nanotech

Keith Henson



The last one of these columns was mostly about various upgrades we might make to these frail human bodies. I have spent a lot of time since I wrote that one wishing a nanotech repair kit was available for my lower back. This column was written prone. Spending a lot of time lying down does make a person appreciate how gravity works to get all the little stuff to collect on the floor, and gave me more time than I really wanted to consider how a nanotech house might keep itself clean.

Let's start with an "active" rug; in fact let's carpet the whole house with a self-cleaning active rug. An early version would ripple like the cilia in your lungs to move all the little stuff which fell on it into a central bucket. Coins, nuts and bolts, paper clips and the like could be sorted out by people from dirt, dust, hair, skin flakes, and similar debris. A later version might be "smart" enough to know what it could "eat." (It wouldn't do to have the rug eat the fur off of one side of the cat while she took a nap!) A still later version might deal with the classic clothes-on-the-floor problem which has broken up so many marriages. Left there more than a few minutes, underwear, socks, even dress clothes, would be disassembled by the carpet and rebuilt (clean, of course) in dresser drawers or on hangers in the closet.

Kitchens

Clean floors are even more of a problem in the kitchen. Carpets for kitchens, bathrooms, and all over for those with pets or babies should have soak-up powers as well. A network of pumped veins inside them could either be connected to the drain, or (depending on how you felt about it) set up to feed what it found on the floor back into the food synthesizers. A nanotech carpet could be covered with cilia so short that it would look and feel like a no-wax surface. An active no-slip option would hang on to your shoes and keep them from sliding while offering no resistance to vertical movement. (The same might be done to tires/roads to get greater-than-one-g performance from vehicles.)

Vermin control

You could either ignore the vast number of critters which live with us or evict the lot. I don't mind a few jumping spiders, but webs I can do without. The only good thing I can think of about dust mites is that they are too small to see. Some people might even go in for feeding stations for their cockroaches. I know this sounds a little hard to believe, but the people running the Biosphere II project just released an assorted lot of cucarachos inside it. (Biosphere II is supposed to have some relevance to large space colonies someday, but—prenanotech—I would space the person who released cockroaches in *my* space colony.)

Redecorating—daily

Walls and ceilings would get nanotech paint. Now, nanotech paint might be a universal kind that you could program to look like anything up to a very high definition TV screen. Talk about trivial, you could have striped paint! Don't like the color? or the art work? No problem, any color, any design (delivered by optical fiber) will appear at your whim and a few clicks on whatever is being used for computer interfacing. There would be a small charge for copyrighted art work. You could even have a real-time view of the Grand Canyon for one wall of your living room.

Just about anything you wanted in the way of furniture could be ordered the same way. Static items that you wanted to keep for a while could be built by your general purpose household constructor. More dynamic items, an end table today and hassock tomorrow, could be made of general purpose nano-stuff. I envision an Erector-Set-in-a-bucket which could be programmed to look and act like anything which can be described. So don't be too surprised when you come home and find that the kids have created a slobbering eight-foot-high Godzilla out of the spare bed.

Coping with the paperwork

Some people will keep books in bookcases, but you could keep the contents of your personal books and records, nay, the contents of all the world's libraries, in a data storage module the size of a sugar cube. The "information problem" is one we are making good progress on even prior to the nanotech era. And thank heavens; I am bogging down in the cubic meters of paper I have in files, and worse yet the good fraction of a cubic meter *unfiled*. A less expensive scan-it-into-the-computer system would help, as would the *Xanadu Hypertext* system. After nanotech really gets going, your own memories, data in books, and information scattered widely across the network may not have much distinction. At present, copy technology is running ahead of the problem of feeding back economic rewards to those who write popular prose or programs.

Huff and Puff won't blow the house down

Structurally, houses could be beefed up to the point that no natural disaster smaller than a large incoming meteor would do much damage. Certainly earthquakes, tornadoes, hurricanes, and the

like would do little or no damage to a house with a lot of diamond fiber in the walls and roof. And if some was done, there is no reason a nanomachine-based house would not heal the damage.

Historical structures could be coated with diamond, and all deterioration, termites included, stopped. Actually, *every* prenanotech structure could be considered historical, but I think a lot of them are likely to be replaced, or greatly modified. If there is any question as to the historical value of a structure, keep a record of how it was put together (down to the marks on the nails) and you can always put it back.

With "all the comforts of home" right there, would people leave home very often? This is a hard one to answer. Even now, there are a growing number of people who work at home and telecommute. If food is made in a "cabinet beast," of elements scrounged off the floor or out of the air with energy from your rooftop, and most of your shopping is from a super home shopping network and the design delivered by optical fiber to your general home constructor, many of the reasons people go out will have vanished. Perhaps this is the real solution to the traffic problem!

Next time, some ideas on what you might do for work, and the time after that some thoughts on children (or equivalent). Readers who have questions or ideas they would like to see worked into one of these columns are invited to write. Eventually I am going to run out of ideas!

Endings And Beginnings: Ten Years of *Cryonics* Magazine

Steve Bridge

Look at what you hold in your hands right now: thirty-two pages of cryonics news, history, science reports, book reviews, philosophy, and future speculation, flavored with various calls to battle and appeals for funds. Note the photographs, the computerized "desktop publishing" layout, the fancy headlines, the fine, thoughtful writing from a large number of highly educated and experienced cryonicists from around the world. Think of the staff of five people, three computers, and two laser printers required to put all of this together.

Now imagine yourself in March, 1981 in Indianapolis, Indiana in the yellow, high-ceilinged kitchen of an old brick two-story house, formerly used as a nursing home. It is 2901 N. Pennsylvania, the home of the Institute for Advanced Biological Studies, Inc. (not a bit easier to type after fourteen years of practice). Mike Darwin and Steve Bridge labor mightily with an electric typewriter to bring forth a six-page newsletter which Mike boldly names (with what seems at the time to be the wildest flight of pretension and hubris imaginable) *CRYONICS*. In all caps, no less.

In 1981, as far as the rest of the world knew, cryonics (no caps) had died. The Cryonics Society of New York and the Cryonics Society of California had gone out of business, and most of the early supporters of the idea had followed the leads of the '60s hippies and had "gone straight." There were small groups still operating in Michigan (The Cryonics Institute/Immortalist Society) and in California (Trans Time and the Bay Area Cryonics Society in the northern part of the state and the Alcor Life Extension Foundation in the Los Angeles area), but hardly anyone knew of their existence. Seventeen years after the publication of

The IABS Newsletter #1 [illegible]

The Institute for Advanced Biological Studies, Inc.
c/o Stephen W. Bridge
[illegible] Glenridge Drive
Indianapolis, IN [illegible]

We are offering to you an opportunity that you are likely to find in few other places--the chance to change the world. We have dreams that may seem beyond reach: the elimination of disease and old age, the end of hunger, biological alterations that could allow us to live on other planets or travel to the stars, a greatly extended life span, even immortality. But we have the courage to stretch out our hands and minds toward those dreams. They are not impossible, which is a belief we hope you may come to share with us. We are the radicals, the outer fringe of the scientific world. We are the ultimate revolutionaries. What is the overthrow of a government or even the founding of a new nation compared to the elimination of death? Governments come and go, and one is pretty much the same as another. If you want to make a permanent change in the world, the human life span is where you must direct your attention. Some will call us mad. I say we have vision. This is your invitation to help determine the future of the future.

Stephen W. Bridge
President
The Institute for Advanced Biological Studies
Inc.

The first membership solicitation meeting of the Institute for Advanced Biological Studies, Inc., (IABS) was held September 17, 1977, at Denny's Restaurant, Castleton Plaza, Indianapolis, Indiana. After an introduction by Stephen W. Bridge, the Board of Directors (selected at the July 6 annual meeting) was introduced and the basic structure of the corporation was explained. The need for interested and talented volunteer workers was stressed, as was the critical need for money in the organization. Michael Darwin, Technical Advisor and Staff Researcher for IABS, then spoke about our research plans for the next few years.

Attending the meeting were Stephen W. Bridge, Floyd Tolle, Michael Darwin, Joe Allen, Michael Lentis, Mary Lynn Stirwin, Kevin Gone, Anne Clancy, Randy Porter, Allen Lopp, Richard Bowers, Larry Schoonover, Anne Schoppenhorst, Mark R. Actrocy, Carolyn Doyle, and Judson M. Horning.

Numero Uno.

The Prospect of Immortality, there were only 12 suspension patients in the world and not many more living suspension members. The suspension capability of all the California organizations depended completely on a thoracic surgery researcher named Jerry Leaf and his one-man show, Cryovita Laboratories.

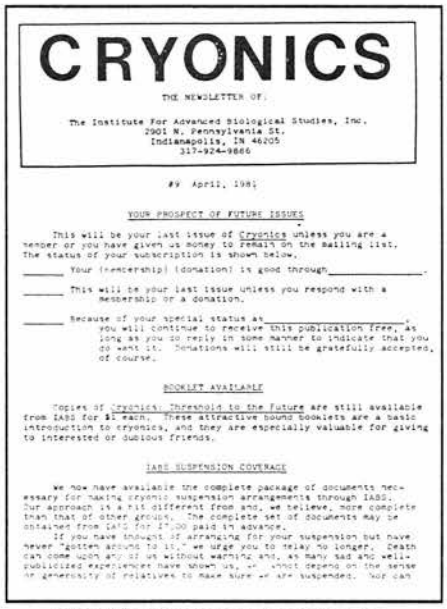
And then there was us—The Institute for Advanced Biological Studies (IABS) and Mike Darwin's personal, for-profit company, Soma, Inc. We had formed our groups in 1977 and had published seven extremely irregular issues of the *IABS Newsletter*. After four years of IABS's existence, Mike and I were convinced that either a cryonics organization was then impossible in Indianapolis or we were not the leaders to make it happen. We had given many public talks as well as talks to private groups and classes, yet we had gained few members other than those people we had already known in 1977 —and they were getting tired of the whole thing. The one promising light we saw anywhere was Jerry Leaf's research in perfusion and freezing, a direction which closely matched Mike's own interests. By March of 1981, Mike had agreed with Jerry to merge Soma with Cryovita and move to California. Allen Lopp, an IABS officer and the other stockholder of Soma, also decided to move to California. IABS would go with Mike and Allen, and I would retire from active cryonics participation.

Finally, in early 1981, another event occurred that depressed us even further. Patrick Dewey's health and financial problems had caused his valuable *Long Life Magazine* (LLM) to cease publication, leaving the Immortalist Society's *The Immortalist* as the only cryonics publication around. Now you might not think that the few cryonicists left would justify more than one periodical, but these few were a hardy bunch with important ideas to communicate. There were more things to be said than could be published in one magazine, and the editorial policy of *The Immortalist* excluded many of the more technical and "negative" discussions of the

problems of cryonics that Mike and I had felt were essential to the improvement and growth of the field.

But in the collapse of all around us, there was one thing left: Mike's adrenalin (enhanced by a lot of caffeine, various life extension drugs, and sheer youthful ignorance of the meaning of "defeat"). Mike would have been a great battlefield commander—"When all our allies are defeated, and the deathmongers are snapping at our heels, there is only one thing left to do—attack!" Mike said, "Steve, we need to start our own magazine to take the place of Pat Dewey's. You are going to be the editor."

I never could withstand a direct assault by Mike Darwin enthusiasm. Out of the flames of *Long Life Magazine* arose the phoenix of *Cryonics*. Mike insisted that we make it a monthly and keep to deadlines, but I am sure that neither one of us imagined the magazine would run more than a year or two. Unwisely I labeled the first issue of *Cryonics* Issue #8, continuing the numbering of the *IABS Newsletter*. I didn't realize that this would rapidly turn into something completely different.



CRYONICS

THE NEWSLETTER OF

The Institute for Advanced Biological Studies, Inc.
2901 N. Pennsylvania St.
Indianapolis, IN 46205
317-924-9866

#9 April, 1981

YOUR PROSPECT OF FUTURE ISSUES

This will be your last issue of Cryonics unless you are a member or you have given us money to remain on the mailing list. The status of your subscription is shown below.

_____ Your (membership) (donation) is good through_____.

_____ This will be your last issue unless you respond with a membership or a donation.

_____ Because of your special status as_____, you will continue to receive this publication free, as long as you so reply in some manner to indicate that you do want it. Donations will still be gratefully accepted, of course.

BOOKLET AVAILABLE

Copies of Cryonics: Threshold to the Future are still available from IABS for $1 each. These attractive bound booklets are a basic introduction to cryonics, and they are especially valuable for giving to interested or dubious friends.

IABS SUSPENSION COVERAGE

We now have available the complete package of documents necessary for making cryonic suspension arrangements through IABS. Our approach is a bit different from and, we believe, more complete than that of other groups. The complete set of documents may be obtained from IABS for $7.00 paid in advance.

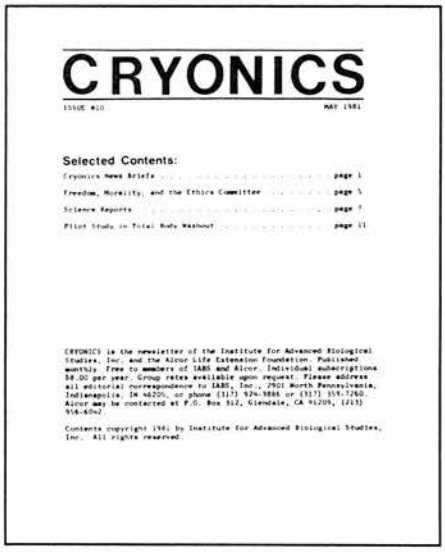
If you have thought of arranging for your suspension but have never "gotten around to it," we urge you to delay no longer. Death can come upon any of us without warning and, as many sad and well-publicized experiments have shown us, it cannot depend on the sense or generosity of relatives to make sure we are suspended. Nor can

IABS Newsletter becomes *Cryonics*.

The phoenix metaphor could be extended quite a bit. This first issue of *Cryonics* announced the end of the Indianapolis group and the move to California. It was certainly the end of one phase in the lives and careers of both Mike Darwin and Allen Lopp and the beginnings of a new one. It was the end of my time as a group leader and the beginning of my more effective job as editor and writer. And, like the phoenix and *Cryonics* Magazine, cryonics itself was about to undergo a rebirth.

Besides the news of the impending move and of the demise of LLM, the first issue of *Cryonics* included a summary of the California Attorney General's opinion on cryonics, a report on gene transfer technology, a discussion of research on Alzheimer's disease, and our first feature article, "A Question of Time." This article detailed the experiences of Mike Darwin and Joe Allen in retrieving and cleaning a cryonic dewar, in which two patients had been allowed to thaw, due to gross mishandling. The article is highly emotional and unpleasant in its detail; but it was the kind of information we all needed to confront in those days, to make sure that it didn't have to happen again. It is safe to say that this article itself has produced changes in the way patients are handled at Alcor over the years. It would probably be a good idea to reprint it to show us all how far we have come.

Our intent from the very beginning was to offer an alternative to *The Immortalist* and to become something that had not been seen for many years—a publication deeply committed to examining the problems and even the basic premises of cryonics. We were not planning on being public relations for cryonics, but to be a publication for cryonics *insiders*. We wanted to look at all of the things that had gone wrong with cryonics in the previous decade and a half and discover ways to prevent those problems in the future. Some of this approach came directly from the personalities of Mike and I. We are both picky people, who like to dissect movies, books, and other people's actions, and point out how they could have been improved. Mike is especially "good at" thinking of all the possible things that could go wrong with something in the future. (This tendency can also be extremely annoying when pursued full-time.) Fortunately, Mike is what I call an "active paranoid;" that is, after he tells you all of the terrible things that will happen, he runs off to devise ways to *prevent* these disasters from occurring.



CRYONICS

ISSUE #10 MAY 1981

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Freedom, Morality, and the Ethics Committee . . . . . page 5
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CRYONICS is the newsletter of the Institute for Advanced Biological Studies, Inc. and the Alcor Life Extension Foundation. Published monthly. Free to members of IABS and Alcor. Individual subscriptions $4.00 per year. Group rates available upon request. Please address all editorial correspondence to IABS, Inc., 2901 North Pennsylvania, Indianapolis, IN 46205, or phone (317) 924-9866 or (317) 359-7260. Alcor may be contacted at P.O. Box 512, Glendale, CA 91209, (213) 956-6042.

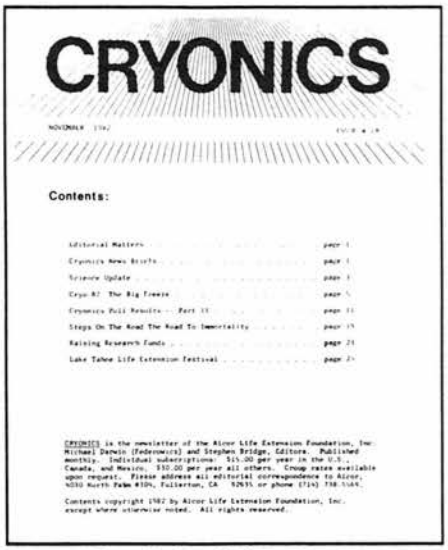
The first T.B.W.

This tendency toward negativism gave our magazine a unique distinction in those days: hate mail. We were accused of all kinds of terrible things, some of them, in our youthful idealism, probably true. However, one rule we always kept to: let both sides to any controversy have their say. We published any reasonably written article or Letter to the Editor, which frequently angered *both* sides of an argument. But it also opened up cryonics for new ideas, which were badly needed. *Cryonics* was *interesting*, so people read it.

The initial emphasis on news for cryonics insiders has somewhat remained to this day, although this has become a severe problem for readers just coming into cryonics. With greater numbers of new people becoming involved, we need to find more ways to communicate the history and basic principles of cryonics to them. It would be difficult to cut back on the amount of cryonics news we publish now; so it may be that new introductory booklets or quarterly publications for beginners will have to be developed. (So much to do, so little time.)

Issue #9 (the second actual *Cryonics* issue, just so you don't lose track) in April, 1981 included an announcement that IABS would soon be offering suspension coverage via Trans Time (a contract with Trans Time was signed, I believe; but IABS never did have actual suspension members). Announcements were made of equipment purchases by Trans Time and by Cryovita, and Mike wrote a feature called "Water and Oil," which discussed possible reasons why it was so hard to get rich people involved in cryonics. This piece led Bob Ettinger to publish his thoughts on the same subject in a later issue of *The Immortalist*. Hey, we were influential!

These first two issues were printed full size on 8.5" x 11" paper. Issue #8 (*Cryonics* #1) was six pages and Issue #9 was ten pages. As the May, 1981 (#10) crept up to 14 pages, it became clear that we could not afford to keep going on the same way. We didn't want to reduce the amount

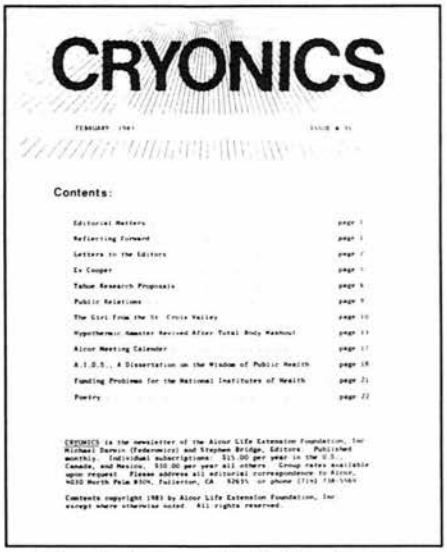

CRYONICS

Contents:

Cryonics **is officially Alcor's**

of material, so we decided to reduce the size. The May *Cryonics* was reduced to 7" x 8.5" and printed on 8.5" x 14" sheets, folded in half. It stayed that size until September, 1990, when it expanded back to 8.5" by 11". For the first two issues, I did most of the editing. By the May, 1981 issue, Mike and I were sharing more of the editing duties (but I was still doing most of the typing).

Besides the format change, the May issue was notable for several other firsts: the first science articles by Thomas Donaldson, the first Total Body Washout report from Mike Darwin, Jerry Leaf, and Corey Noble (a mostly pseudonymous cryobiologist who has given cryonics much advice over the years), and our first apology from the editors on an error made in the previous issue. The TBW technical report was the first of many such reports

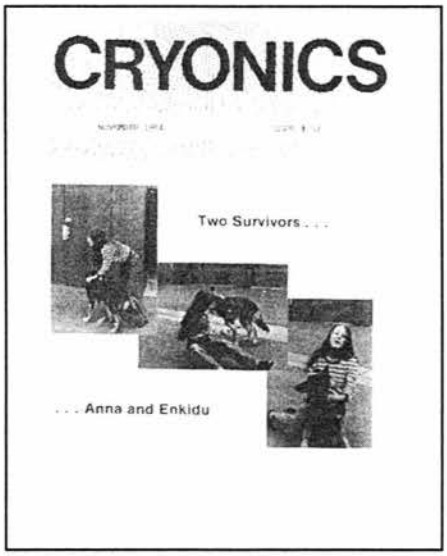

CRYONICS

Contents:

Cryonics **is among the first few to take AIDS seriously.**

on research and on the suspensions themselves. We know that few of our subscribers have read these articles over the years; but we also know that this kind of material must be published somewhere for the future of cryonics, and right now there is no place else. Bear with us. Open reporting of this material may make your own suspension more successful.

The July, 1981 issue (#12) jumped up to 34 pages and included Thomas Donaldson's report on the problems of starting cryonics in Australia, an interview with former Cryonics Society of New York President Curtis Henderson, and our first article on vitrification, a monumental article in the history of cryonics. It also gave Mike his first case of the "too-much- success blues"—"This issue was too good! Now people will expect EVERY issue to

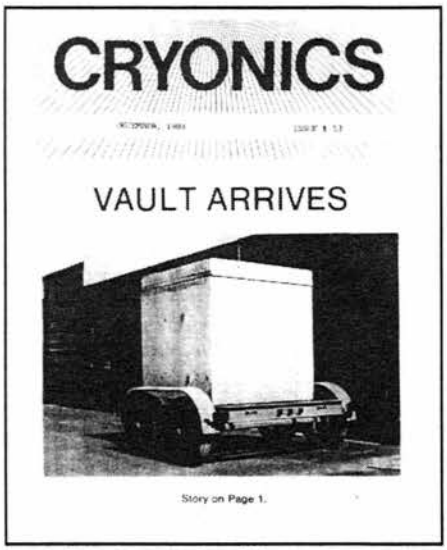


The first dog back after four hours.

be at least 34 pages. Where will we get that much material?"

In spite of Mike's doubts over the years, we always came up with enough material to put out a solid issue, though inevitably some months were more exciting than others. August, 1981 was indeed back down to 18 pages, but no one complained. As another milestone, it included our first detailed report on a cryonic suspension (K.V.M., a BACS member), written by Jerry Leaf.

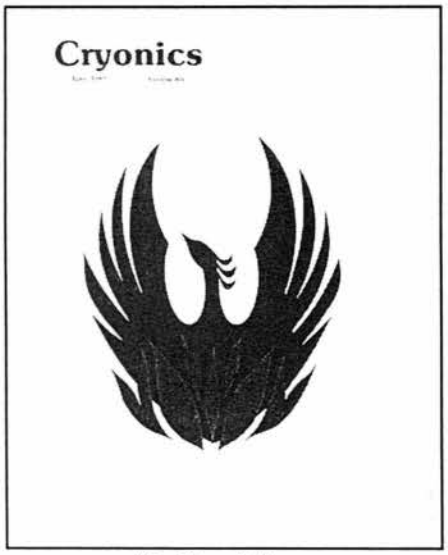
While we got Mike and Allen ready to move to California in September of 1981, Thomas Donaldson kindly agreed to guest-edit the magazine for us. He produced a philosophical issue, with articles on the future of cryonics by Corey Noble, Fred Chamberlain (co-founder of Alcor), and himself. After Mike arrived in



The Cephalarium Vault cometh.

California, we began to do dual editing of *Cryonics*, by mailing material back and forth. (Modems and computers weren't widely available yet, of course, and had not yet entered our wildest dreams.) As this became less and less successful, Mike took over most of the direct editing of the issues as a whole, farming out to me special articles of his or of other writers to fix up. Occasionally I would do a special project of my own.

It is interesting for me to reread our writing of the first year or so. Technically, I was a better writer than Mike early on and I spent a lot of time reworking his material. But Mike had such a hot-burning flame in him, such a powerful urge to communicate, that his writing became better rapidly. He ALWAYS had something to say and he has turned into a much better writer than I over the years. Even after a



The Phoenix logo.

The Dora Kent Saga.

decade, though, I find that in many ways Mike and I still do our best writing when we have the chance and the time to criticize, correct, and inspire each other's work.

It is impossible to mention each of the important articles and writers included in the magazine over the next few years. Some of the highlights and major changes include:

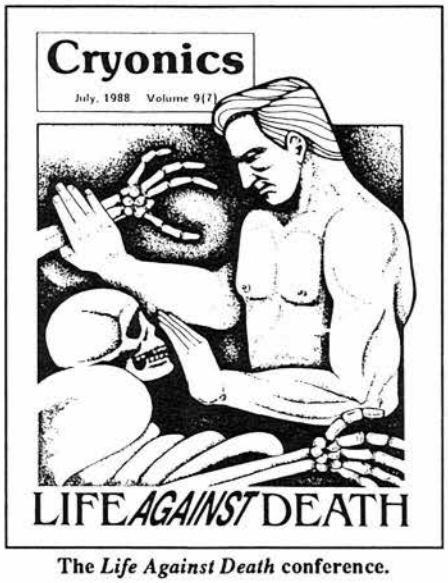
• "The High Cost of Cryonics." January and February, 1982. Our first wildly controversial article—a study of the costs of cryonic suspension and how they got they way, including a detailed analysis of the cost estimates in Ettinger's *The Prospect of Immortality*.

• "The Case for Neuropreservation." April, 1982. This issue has always stirred up feelings and continues to be argued right up to the present.

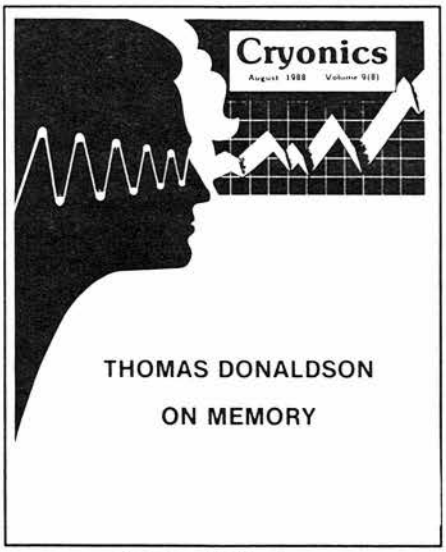
• "What You Can Do." August and October, 1982. Thomas Donaldson's ideas on what individuals can do to improve their chances for suspension. The first article of many on this theme, by many different writers.

• November, 1982. *Cryonics* becomes the newsletter of the Alcor Life Extension Foundation, following the merger of IABS and Alcor on September 12. Mike Darwin also became President of Alcor at that meeting, expanding his duties considerably.

• The first "Cryonics Poll." October, November, and December, 1982.



The *Life Against Death* conference.



Landmark literature.

• "Cryonics, Earthquakes, and Survival." December, 1982. Our first acknowledgment of the dangers of California.

• "Why We Are Cryonicists." January, 1983. The initial appearance of this essay, which is now given to all people who request information.

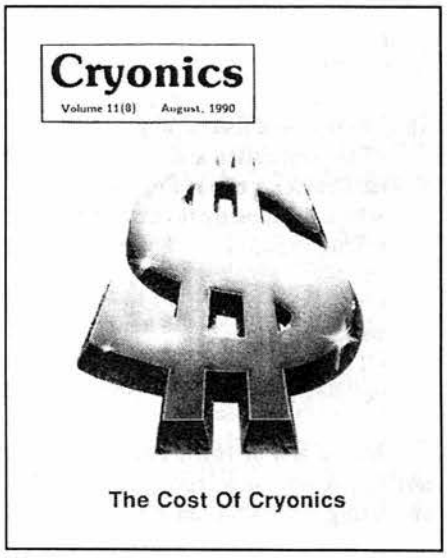
• "AIDS; A Dissertation on the Wisdom of Public Health." February, 1983. We were one of the first publications in the country to warn that AIDS would not stay a "gay" disease.

Also in February, we became Right-Justified when Alcor's new computer replaced the old typewriters. I visited Alcor soon after, developed computer-lust, and purchased my own machine that fall.

The suspension of Richard Clair Jones.

• As 1983 came to a close, Hugh Hixon had completely taken over for me as co-editor of *Cryonics* although that fact would not appear on the colophon until October, 1984. I was still plenty busy, of course, deep into a complete rewrite of Alcor's suspension paperwork and other projects, including occasional articles.

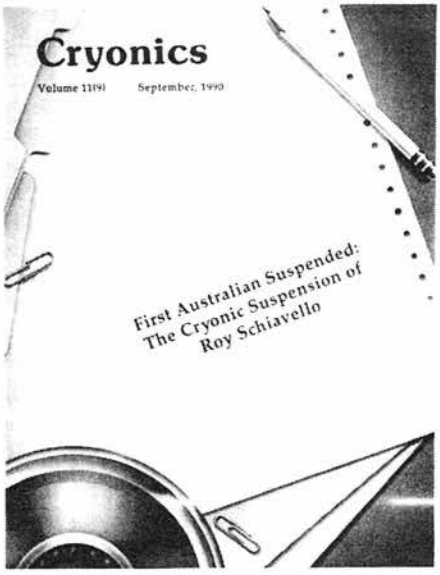
1984, 1985, 1986, and 1987 now seem like a blur to me, and I expect they seemed like that to the people at Alcor. Alcor was rapidly expanding in membership and in suspension capability. Research was being done as rapidly as money could be found. Few suspensions occurred, but this was fortunate, because Alcor's team was still learning how to perform suspensions and patient transport more efficiently. Change was occurring so rapidly that just keeping the news in the



The first truly exhaustive financial diatribe.

magazine current became a major chore. *Cryonics* continued to expand until the typical issue was 42 pages long, with one as large as 56 pages. Cryonics as a whole was back into the expansion stage, but this time we were much more aware of the direction in which we were headed.

During this time, the appearance of the magazine gradually begin to improve, with more illustrations and with spaces between paragraphs to open up the page and make it more readable. We bought a Macintosh and a dot matrix printer to help with diagrams. We added photos throughout the magazine and began producing flashier covers.



***Cryonics* goes 8.5 x 11.**

Highlights included:

- Adding the Cephalarium vault (for neurosuspension patients).
- The post-mortems done on the bodies of two whole body patients who were converted to neurosuspension. This was a major breakthrough, because it gave us the first real knowledge of the cracking damage done during suspensions.
- The merger of the Cryonics Society of South Florida with Alcor.
- Months of rancorous arguing between Alcor, the Bay Area Cryonics Society (BACS, later the American Cryonics Society), and Cryonics Institute over prices, techniques, philosophy, honesty, and morality. Perhaps we should list this as a "lowlight."
- The creation and expansion of the Alcor Area Coordinators program.
- The publication and excitement over K. Eric Drexler's book, *Engines of Creation*, which led directly to many members.
- The expansion of cryonics into Britain.
- The assault on the Life Extension Foundation by the FDA.
- The move into Alcor and Cryovita's new building in February of 1987.

By the end of 1987, *Cryonics* looked terrific. It was interesting, full of news, and being published on a regular basis. Alcor was growing steadily, the intergroup rivalries were starting to ease a bit, great research was being done, and a major cryonics conference was in the works for the following Memorial Day. Alcor personnel (except for silly paranoid Mike, of course) were confident that the future held only good things.

Oops. If you were a subscriber in January, 1988, you got your first issue of the year a bit late—about two months. In December of 1987, Saul Kent's mother, Dora, was cryonically suspended by Alcor, and the Riverside coroners hit the fan. The Coroner raided Alcor *twice*, hauled several Alcor personnel away to jail on "suspicion," and told the national press that cryonicists were insane murderers with explosives and automatic weapons. Thomas Donaldson leaped into the brink with an emergency newsletter to everyone, and hundreds of phone calls around the country substituted for the magazine. Suddenly Alcor was the focus of publicity all over America—negative publicity at first; but slowly the coverage became more positive, directed by the strength and patience of Alcor's leaders and aided by the incompetence of the Coroner. Of course, it didn't hurt that we were *right*.

Blazing a litigious trail.

As Alcor regained its balance and *Cryonics* came out again (under the most trying conditions—the office computers and printers had been seized by the Coroner), the magazine became essential reading for every cryonicist. And it continued to improve. Mike stepped down as President of Alcor (to be followed by Carlos Mondragón); but he and Hugh Hixon kept plugging away as editors of *Cryonics*.

Even with the accent on rapidly changing current events, the magazine continued with research results, science reporting and speculation, and cryonics philosophy. The June, 1988 issue included Brian Wowk's insightful article, "The Death of Death in Cryonics," which provoked months of discussion. Steve Harris began a series of articles dealing with the "mythology" of cryonics. Suspensions somehow began occurring at a more rapid rate, almost keeping pace with the number of lawsuits. *Cryonics* continued to report on the Dick Jones case, the suit against the California State Department of Health, the growth of cryonics in Europe, and our first international suspensions.

I took a leave of absence from my job in Indianapolis in the spring of 1990 and worked at Alcor for three months. I even got to guest-edit an issue of *Cryonics* (May, 1990), and I was in the middle of things for the next major cryonics story—the lawsuit by Thomas Donaldson asking the California courts for permission to go into cryonic suspension BEFORE his legal death, should his brain tumor begin to grow again. The media deluge that followed that event was even greater than the press coverage after the Dora Kent suspension, so you got your issues of *Cryonics* late again for a while.

While I was in California, I also managed to achieve some public permanence for this little newsletter which Mike and I had started so long ago. A full set of *The IABS Newsletter* and *Cryonics* magazine are now in the collection of the library at University of California/Riverside. Scholars and writers can now have access to all of those great adventures they missed over the past ten years.

The time machine tour is over; we have returned to March, 1991. *Cryonics* is back on schedule, but with some fresh faces (or fingers, at least). The determination of Mike Darwin carried this publication through the past decade (thanks for pushing me along with it, Mike). I am also grateful for all of the work Hugh Hixon did, especially in the lit-

tle details that are the difference between "good" and "impressive." Now Ralph Whelan has appeared out of nowhere to take on the new position of "Managing Editor," leaving Mike and Hugh Hixon more time to pursue their other Alcor tasks (although they still maintain an editorial presence on the magazine). Final layout and printing is now being done by Eric Geislinger and Jane Talisman in Oregon (the miracles of desktop publishing). *Cryonics* appears to be ready for the decades ahead, until some distant editor changes its name to *Resuscitation Reports.*

I am overwhelmed. The power and durability of this magazine was something I would not have predicted. But I am glad to see that it has had the same ability to endure as does the idea that it is named for. As members of Alcor and as individual cryonicists, we can be proud of its survival and take heart for our own. The phoenix continues to be reborn.

Looking at Yesterday, Seeing Tomorrow

Mike Darwin

Steve Bridge has written what is for me a deeply moving account of the first 10 years of *Cryonics* magazine. I was 25 when the first issue rolled off the presses; I am 35 now. It has been an eventful 10 years, a 10 years that has put lines on my face and turned my hair from solid brown to near solid gray (only my hairdresser knows for sure).

It has also been a very, very good ten years. To those of you who have been along for all or most of the ride, congratulations: you made it possible too!

Twenty-two years ago, when, at the age of 13, I first got involved in cryonics, suspension patients were prepared in the back rooms of mortuaries using dirty embalming pumps and anything *but* sterile technique (and sadly, truth to tell, some are getting scarcely any better care elsewhere today). A few hundred dollars worth of equipment was all you needed. And believe me, the patients suffered for it. We weren't able to quantify it or even qualify it then, but we knew it wasn't good. Thirteen years later, when I first arrived in California, due to the almost single-handed efforts of Jerry Leaf (with contributions from Fred and Linda Chamberlain along the way) the quality of care for suspension patients had improved enormously, particularly with respect to perfusion.

Over the past nine years there have been even more stunning advances. In fact, so good has our Transport technology become, we are now able to deliver patients deanimating under favorable circumstances in essentially **viable** condition to the operating table for subsequent cryoprotective perfusion and freezing (hopefully, very soon, we can document that fact in the pages of *Cryonics*: another first). It is no understatement to say that Alcor's Transport technology is now to the point that anesthetics are required for purposes other than reducing cerebral metabolic demand.

What, you may be asking, does all this have to do with *Cryonics* magazine and its 10th birthday? The answer is P-L-E-N-T-Y! Much of the research and advances that have been made were driven by *Cryonics*. Driven by the openness of its editorial policy, driven by the willingness of this magazine to confront all the facts, the good, the bad, and the ugly: face them unflinchingly, and attempt to solve them.

The success of *Cryonics*, and much more to the point, the success of cryonics, and in particular **Alcor cryonics** is an affirmation of the unbending faith Steve and I had in the intelligence, good judgment, rationality, and sheer guts of our readers and suspension members. Am I trying to butter you up? No. It is important to understand that ten years ago, when *Cryonics* was born in that drafty kitchen in Indiana (some issues were actually typed with **gloves** on) there were many (then) influential naysayers in the cryonics community who insisted that we would fail because we discussed problems, because we talked about "negative issues" and disclosed unpleasant facts like the organ-cracking problem and the loss of early suspension patients. "You'll alienate people, we were told." "No one wants to hear about bad things, print only good news..."

Well, look over the last year's worth of issues. What do you see? Negative things, sure, a few. But just a few. Mostly what you see is reports of progress, and what you can't miss is the solid reality of a vital, living organization which is growing, churning with ideas and bursting at the seams with creativity. The reason for this is that you, our readers and our members, were smarter than our critics gave you credit for. No one with a good head on his or her shoulders believes in a pollyanna universe. "Life," as long-time contributor Thomas Donaldson has often said, "is hard." We, the Editors, and you, the readers, have shown that we are tough enough to take it, and to not merely survive, but to prosper.

We have come far in the past decade. We have far to go. We are now in some cases able to deliver patients to our door with very little or no detectable ischemic injury (and yes, we can even measure the damage now!). We now need to do what we can to increase the odds of this happy circumstance being available to everyone (not just those lucky enough to "go down" under ideal conditions). Working towards legal reform that will limit and in some cases exclude cryonicists from being autopsied and gaining the right to pre-mortem suspension are two areas which need much work. Lobbying, exchange of ideas, drafting of model legislation, and coroners' protocols are just a few of the things that need to be done and that *Cryonics* can help to facilitate *getting done.*

However, aside from this frontal attack approach, there is another way to achieve these objectives, *and more.* We urgently, desperately, need to improve the second and third phases of suspension procedures: cryoprotective perfusion and freezing/cooling.

The incredible advances that have been made in Transport (nimodipine, end-tidal CO_2 monitoring, antioxidant therapy, the Mobile Advanced Life Support Cart, Portable Ice Bath (Pizer Tank) Viaspan, and on and on) seemed impossible nine years ago. Successfully washing out the blood of dogs and perfusing them for four hours and then getting them back essentially every time, time after time, (13 times in fact!) seemed impossible when we started publishing this magazine. But it

wasn't, and *Cryonics* played no small part in making it possible. Reporting on the breaking research we were doing galvanized our membership, raised tens of thousands of dollars, and drove Alcor suspension technology forward at a blinding pace.

I believe the next ten years will do the same. The past few years in particular have seen the emergence of a number of advances in perfusion/freezing research which we have chosen to remain quiet about for both logistical and practical reasons. I believe that is about to change.

I am hardly a person who is accused of too much optimism. I am noted for painting the darkest picture and taking the most conservative stance. This has its downsides, and there have been months when some of the readers of *Cryonics* have complained that they had to read the magazine with one hand while shoveling in antidepressants with the other.

The upside of this kind of demeanor is that when I say I'm optimistic, people tend to pay attention. And one of the few things I am optimistic about is that, over the next decade, with the same application of hard work, and lot more money (but then we're 20 times as big as we were then!) we can greatly reduce the amount of injury we are doing to the brain as a result of cryopreservation. **In fact, I think it not unlikely that we may be very close, by then end of the decade, to true suspended animation for the human brain.**

I say close, because I think that developing the technology to the point where we are doing almost no damage, forming very little if any ice, and controlling where that ice forms is within our grasp. I would caution (my dark demeanor emerging here) that getting the last little way to the point of doing NO injury (true reversible suspended animation) and extending these techniques to the whole body may be very costly and time-consuming. But then, who among us would not trade off the massive cell, tissue, and gross damage we are experiencing now for being in a state where the only thing between us and viability are a couple of denatured enzymes and some modest (foreseeably reversible, even by conservative, non-nanotech means) cell membrane changes.

Cryonics has always been a vehicle for telling you not only about what has happened and is is happening in cryonics, but about what needs to happen and how we can **make** it happen.

I think we are all agreed we need to improve the quality of suspension techniques. It is a major barrier to the acceptance of cryonics and it is a major legal barrier. I am, here and now, saying that I think that with the same kind of effort and commitment we've shown over the past decade, we can develop and deliver brain preservation technology good enough to generate near-normal EEGs after perfusion and cooling to deep subzero temperatures.

If we can do this, we will largely (although in my opinion not completely) silence our critics, and we will stand before the courts and the legislatures with credible evidence that patients who are treated by these techniques are not only not hopeless by the standards of **tomorrow's** law and medicine, they are not even dead by the standards of **today's** law and medicine.

And there is a powerful moral and personal imperative to do so. The first issue of *Cryonics* (the old IABS newsletter) opened as follows:

"We are offering you an opportunity you will find few other places - the chance to change the world. We have dreams that may seem beyond reach: the elimination of disease and old age, the end of hunger, biological adaptations that could allow us to live on other planets or travel to the stars, a greatly extended lifespan - even immortality. We have the courage to stretch our hands and minds towards those dreams. They are not impossible, which is a belief we hope you will come to share with us. We are the radicals, the outer fringe of the scientific world. We are the ultimate revolutionaries. What is the overthrow of a government, or even the founding of a new nation compared to the elimination of death? To make a permanent change in the world, the human lifespan is where you must direct your attention. Some will call us mad; I say we have vision. This is your invitation to the help determine the future of the future."

Steve Bridge

These words are as true today as were a decade ago. What we are doing is a deeply moral thing. Today, literally billions of dollars are being spent on medical research into specific degenerative (read age-associated) diseases, the cure of which will result in the extension of the average lifespan by, at most, a decade. Yes, that's all, just ten lousy, decrepit years. And at the end of that 10 years, everybody still ends up dead. By contrast, the development of suspended animation for the brain opens up the possibility of rescue and indefinitely long lifespans for almost everyone. And yet, not one single cent of non-cryonicist contributed money (government, private, or otherwise) is being spent on achieving this objective. (Par for the course if you know anything about the history of major advances in any area of science, and particularly in medicine.)

And the stakes are high. The lives of our parents and friends may well be possible to save if we can cross the gap between the maybes of repair in some distant tomorrow via nanotech magic and the certainty of perfected, or near-perfected viable preservation today. How many of our parents, our lovers, our husbands, wives, and our children will perish because of this technology "gap?" And, how many of us will lose part or all of our memories (identity) as a result of this gap? And the point is, it is now primarily a "technology gap" and not a "theory gap." The past decade has seen enormous progress in our understanding of how organs are injured from freezing. Thus, the theoretical part of the problem appears to be largely solved.

So, to those of you who have read Steve Bridge's piece on the history of *Cryonics* and who may be feeling wistful about what you've missed. Don't give it a second thought! Yes, it was great to have lived through it (correction fluid, paste-up, disk errors, handcuffs, and all). And I am damned proud about what I, and everyone else at Alcor has done over the past decade. But believe me when I say, if we (you and I) have half the guts and determination we've shown over the past decade, and the world holds together for another ten years, then **the best is truly yet to be.**

I will be 45 years old on the 20th anniversary (which will also be the year *2001*) of *Cryonics'* publication if I live that long. How old will you be if you live that long?

And, very much to the point, what will you have accomplished to insure that you will be around for the 100th Anniversary? In the coming months and years the editors of *Cryonics* will work very hard to offer you the opportunities you need to answer that question proudly and well.

A Busy Week

Part II: The Cryonic Suspension of A-1268

Ralph Whelan, with Fred and Linda Chamberlain

Day Five

(For those of you who missed days one through four (see the February, 1991 issue of Cryonics*), day five of the Busy Week was slated to be the final day of the Transport Protocol Training Course, in which eleven cryonicists would strive for the accolade of* Transport Technician. *We'd trained for four straight days, taking our final exam on day four to leave day five open for hands-on training.)*

Things were going well. After four days of training, we'd only lost one cryonicist. (Okay, down with the melodrama: Joe Tennant had to return to work, it being Monday. The rest of us were playing hooky.) Remaining were: Fred and Linda Chamberlain, Arel Lucas, Arthur McCombs, Carlos Mondragón, Mike Perry, Naomi Reynolds, Mark Voelker, Ralph Whelan, and Russ Whitaker. Mike Darwin was directing the course, and Hugh Hixon was filming it for distribution to all the major networks. (Not really.)

New Year's Eve, 1990, circa 10:00 AM:

Meet Miss Piggy. One hundred and five pounds of enthusiastic volunteer. (She'd seen the Donahue Show, and given a choice between Oscar Mayer and Alcor... well, there was no turning back.) Miss Piggy, with only minimal cajoling, stood up and took her thorazine like a pig. The rest of us donned our scrub gear and began prepping the Operating Room. The effects of the thorazine would be a few minutes yet.

But a lot can happen in a very few minutes. With the final preparations underway, Carlos stepped out to take a phone call from the son of a suspension member. He returned after a couple of minutes with the news: an elderly suspension member at a local hospital had developed a serious abdominal aneurysm, an ominous prognosis for someone of her advanced age and weakened state.

This put us in an awkward position. With the deanimation of a member likely to occur within the next day or two, did we dare begin our work on the pig? The concern was not supplies and personnel so much as it was facility readiness. That is, performing the transport protocol on a pig was sure to contaminate the facility and some of the equipment that we would want to use if there was a suspension. But, on the other hand, we hadn't yet heard from the member's physician, and family members in distress could inadvertently exaggerate the situation.

Just after Mike and Carlos agreed that the pig transport should be called off, the member's physician called and informed us that the aneurysm had started to leak badly and her blood pressure was down to about 60 mmHg. He and Mike spoke in detail about the member's condition, with the doctor making it quite clear that she was almost certain to deanimate *very soon* no matter what he did, but that he would operate and attempt to surgically remove the rupturing aneurysm and replace it with a Gortex graft, in hopes of maintaining the patency of her circulatory system.

It seemed that, given the situation, we were extremely fortunate. The doctor was not just willing to cooperate, he was eager. He described in detail her condition and what he wanted to do, and asked if there was anything *we* wanted him to do. Mike recommended that he proceed with the operation as soon as possible, and informed him that our transport team would roll within minutes.

Then, with things starting to pick up speed, we hit a snag. Jerry Leaf, the only person fully capable of setting up the heart-lung machine (changes to the circuit had been made recently) and performing the actual surgery, was vacationing in Hawaii. The paging system beeper that he wears does not function outside of the Southern California area, and he couldn't be reached at his hotel. We left messages with the hotel staff to the effect that Jerry was desperately needed to perform surgical techniques that no one else could perform.

Meanwhile, Mike rallied the team and the equipment, much of which had been diverted for use on the pig. About 20 minutes after the call came in, seven people (the Chamberlains, Carlos, Mike, Russ, Arel, and Mark) left for the hospital in the ambulance and Carlos' car. Since I—along with Naomi, Arthur, Hugh, and Mike Perry—remained behind to prep the lab and the operating room (which I'll describe in a little bit), I'm going to beg off narrating the transport and let you have it first-hand.

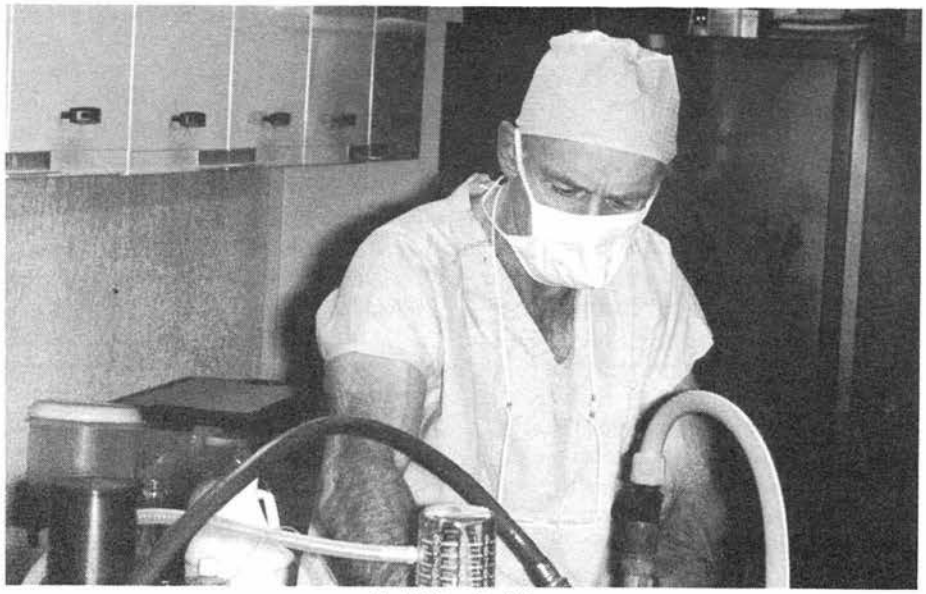
Transport and Support of A-1268

Fred and Linda Chamberlain

We rapidly moved equipment into the ambulance, since much of it had been taken into the operating room for the training course. One piece of critical gear (the remote-sensing thermometer) was left behind, but we noticed this before reaching the freeway, so a hasty turnaround sufficed.

Mike Darwin drove the rescue vehicle and Fred, Mark, and Russell began drawing up medications en route; Carlos and Linda followed in a "chase car." It was difficult—careening along freeways—to get sterile containers opened properly, penetrate them with needles, and extract just the right amounts of pharmaceuticals needed, but most of this work was done (without any accidental sticks) before we reached the hospital.

In spite of fears that the patient might not survive until we arrived, surgery was still underway as we pulled up. Fortunately for us, a heroic effort to sustain the patient's life went hand-in-hand with facilitating a good cryonic suspension, since without the operation the patient would not have had a viable circulatory system. But our good fortune went beyond mere serendipity; throughout the standby, the medical staff was helpful and coopera-



Fred Chamberlain.

Photo: Saul Kent

tive. Many of them were plainly intrigued with the efforts put forth by Alcor on the patient's behalf.

After arrival, we continued to prepare and cross-check the many medications that we would use to protect the patient from damage after deanimation. Mike and Carlos spoke with the patient's nurses and doctors to assess the situation. After all the medications were prepared and taped to a shelf on the MALSS (Mobile Advanced Life Support System) Cart, we all felt that the initial crisis was contained. It might be hours or it might be days. . . but now we were ready!

One member of the standby team stayed near the operating room at all times to keep abreast of changes in the patient's condition. This person was relieved every half hour by another team member. The patient's son had rented an apartment in a building adjacent to the hospital. While we waited tensely to learn how the patient would respond to surgery, he graciously invited us to his apartment for fresh fruit, muffins, sandwiches, and other life-saving staples. Many of us had not eaten since breakfast and evening was fast approaching.

The patient's son had equipped the apartment for his mother with a hospital bed, heart monitor, and (among many other things supportive of cryonics objectives) a small freezer filled with crushed ice. He (the son) had not slept well for some time and was now finding it very hard to relax, even though a full standby team was on hand. We could empathize with that. Barely six months before, the two of us (Linda and Fred) had gone through much the same experience with Linda's Mom (see Linda's article "Her Blue Eyes Will Sparkle" in the December 1990 issue of *Cryonics*).

Back at the hospital, doctors now informed Mike and Carlos that the patient had survived surgery and might live a day or so more. Her prognosis was clouded, due to age and poor health, but there was a relief from the feeling she might go at any moment. We discussed renting a nearby motel room so team members might sleep in shifts.

In expectation of a more drawn out operation, Carlos and Fred departed for Alcor, with instructions for Carlos to be paged if the situation should change. Ten minutes later we were informed that the patient was going into shock. She was losing blood very rapidly due to a condition called Disseminated Intravascular Coagulation (DIC), and it seemed that she might die suddenly. In DIC the patient develops countless microscopic clots in the small vessels and this results in the consumption of all of the patient's clotting capacity resulting, paradoxically, in *bleeding*. We were back in crisis mode. Mike phoned the lab and had Ralph page Carlos, with instructions for Carlos and Fred to return.

Mike then assigned specific responsibilities to all the remaining team members. The MALSS was lowered from the ambulance on the ambulance lift gate and moved—together with several ice chests—toward the emergency room entrance, close to the ICU in which the patient lay in a maze of monitoring equipment. Fifteen minutes after being paged, Fred and Carlos were back. There was the sense that we might be called on any moment.

Many moments passed. As is common with surgical crises, the patient clung to life. Better than an hour came and went with the patient in deep shock with a blood pressure of 50 mmHg or less. Some of the hospital staff came out and looked at the MALSS cart, asking questions. We were told that the patient's condition was worsening, so the cart was moved to a closed waiting room even closer to the ICU.

Then came the most agonizing wait of all. The hospital staff informed us that the

Linda Chamberlain.

Photo: Saul Kent

Arthur McCombs begins preparation of the perfusate.

Photo: Saul Kent

patient had deanimated. But since the patient had just undergone surgery, the Los Angeles County Coroner had to be called to waive autopsy and provide the hospital with a "release number." This call *cannot* be made until *after* the death occurs. (The Coroner does not waive autopsy in "anticipation" of death. That's not how the system works!) Even though the Los Angeles Coroner's Office is staffed twenty-four hours a day, we couldn't help worrying. After all, it was New Year's Eve!

Every moment of this wait was torture for us, knowing oxygen levels were dropping in the patient's tissues, calcium was flooding into her cells, blood pH was dropping. The very structure of her being, of her potential to-be-restored life, was being eroded. But finally, after seventeen agonizing minutes, the waiting came to an end. The call came through, and the hospital staff gave us the go-ahead.

The ICU seemed to be packed with hospital personnel as the MALSS Cart rolled in. The medical people stood and watched, fascinated with our urgency in supporting circulation and respiration, in preparing to administer protective medications, in removing the patient from their facility as if we were paramedics coming upon a dying person on a street corner. Did they see us as people on a life-saving mission, or something else? We don't know, but it makes us wonder, sometimes. Can it be so obscure, what we are trying to accomplish?

Back in the separate waiting area near the hospital entrance, intravenous medications began stabilizing cell membranes, blocking and chelating calcium, feeding cells hungry for energy to maintain homeostasis, inhibiting blood clotting, protecting the digestive tract from acidosis, and maintaining the circulatory system. With antibiotics, foreign organisms were suppressed. Scavengers of free radicals were infused, to further limit cellular damage. And of course, concurrent with all of the foregoing, we had also completely packed her in ice/water to begin dropping her core temperature as quickly as possible. We were beginning to do what we'd come to do.

As soon as the initial medications were administered, we were out of the hospital and into the ambulance, with the heart-lung resuscitator thumping away and the patient's son waving and imploring that we drive safely. Then we were on our way back to Alcor.

An hour later, as the MALSS was unloaded, transport came to an end. The rest of this story is about the suspension operation itself, and Ralph will unfold it in his inimitable style.

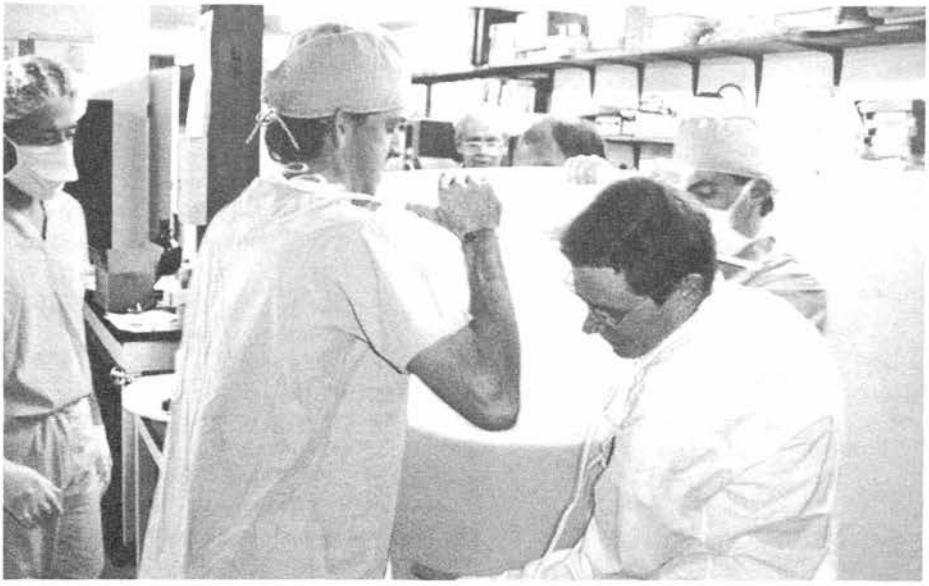
Meanwhile, back at the lab. . . .

Once the transport team rolled, the real preparations began. Arthur hunkered down to the most onerous task: the mixing of the perfusate. Naomi began prepping the operating room. Hugh Hixon made a dry ice run, and Mike Perry began organizing and labeling the myriad sample tubes that would be filled during the suspension. I began ringing Jerry's hotel in Hawaii every ten minutes, and helping out on odd tasks between times.

By the time the team arrived at the hospital (about an hour after they left the lab), the patient reports coming back to us had become sufficiently pessimistic about her prognosis that we felt certain the suspension would begin within the next few minutes to couple of hours. So we started to worry just a little bit. Setting up the perfusion tubing system was a task for which no one but Jerry was completely prepared. Jerry, however, was still unreachable. Hugh had returned from his dry ice run and had begun studying the per-

Just after arrival: adjusting the "squid."

Photo: Saul Kent



More perfusate preparation.

Photo: Saul Kent

fusion schematics, but he was not optimistic.

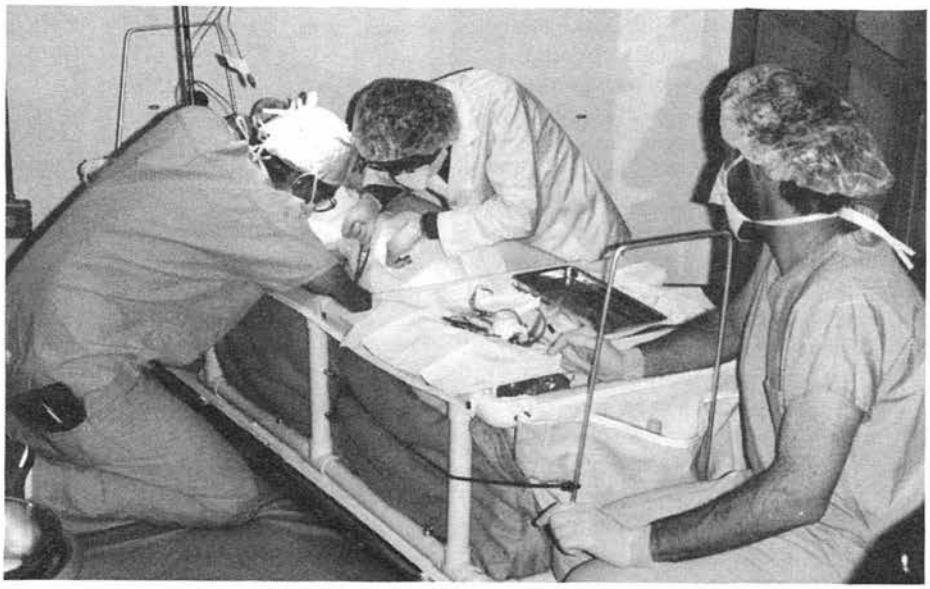
Word came back that the team had arrived at the hospital and the operation had begun. As we waited, the news came in bits and pieces: the patient survived the operation, then she was fading fast, then she was stabilizing and likely to hang on for a few days. As we all let ourselves relax just a little bit, a call came in from Jerry in Hawaii. He said that he'd be catching the next available flight, but that he wouldn't be reaching Los Angeles International Airport until about 1:00 AM. Since it was already early evening and the patient seemed to be holding her own, the crisis seemed past.

Then she deanimated. Things kicked back into the fast lane. Suddenly there was no end of things to do and no time to do them. Ninety minutes later—the quickest 90 minutes of my life—the transport team was back with the patient. The news was: while the transport meds were given OK, the patient had lost so much blood volume that CPS (Cardiopulmonary Support) was not effective at restoring adequate circulation, and everything that was administered to support her "volume" was just as quickly lost through the bleeding incisions. We began to wonder how thoroughly she'd been perfused with the transport medications. Thankfully, later laboratory analysis of Transport blood and effluent samples disclosed that her serum tissue-specific enzymes levels were much lower than expected, and certainly far lower than would have been the case if adequate distribution of transport medications had not occurred (unfortunately, we have "controls" in the form of patients with whom transport was not possible due to circumstances beyond Alcor's control).

The cooldown, though, was going very well. We dropped her temperature *very* quickly considering the lack of adequate circulation, and shortly after she arrived we switched her from the now heavily contaminated Patient Ice Bath on the MALSS to a fresh ice pack in a fresh Patient Ice Bath. By the time we did this, her temperature was down to 16.3C (a drop of 21.7C in 104 minutes) and her circulation was poor enough that we felt comfortable discontinuing use of the Thumper.

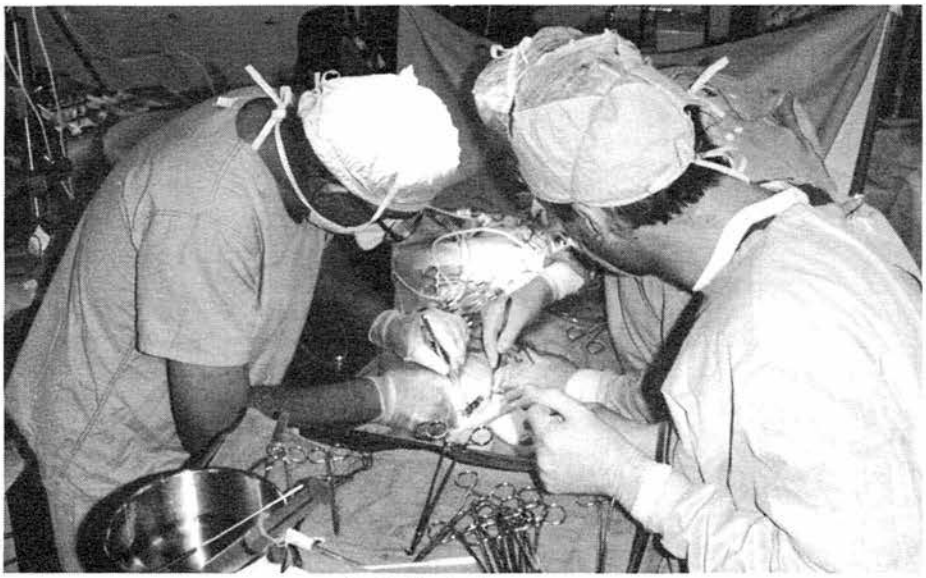
While some of us worked hard to clean up the facility contamination and others continued preparation of the perfusate, Mike Darwin and Carlos moved the patient into the operating room and began work on a femoral cutdown. This was a daunting task for several reasons. First of all, her femoral artery was almost completely occluded with atherosclerotic plaque and had been bypassed with the Goretex graft. This meant that Mike had to reopen the surgical wound, *cannulate the graft* and locate the femoral vein under very adverse circumstances. Mike managed to cannulate the graft and the vein and flush the patient with six liters of Viaspan, the solution used to store organs for transplant. The Viaspan perfused very well, cheering us and encouraging us to believe that the transport medications perfused well also. This also bought us some time, since, with the Viaspan substituting for blood, the patient could be maintained on ice with little deterioration for many hours.

It was getting on into the evening now (about 9:30 PM, I believe), the patient was very cool (about 2C), completely packed in ice, and well-perfused with Viaspan, so we turned our attention to what final preparations for surgery remained. We were also still hard at work on final preparation of the perfusate; principally it was still being slowly filtered. The filtration process would continue even after Jerry's arrival and set-up of the perfusion circuit, so as it turned out, his absence did not really delay cryoprotective perfusion at all. As most tasks were wrapped up and the clock was mere minutes from the New



Mike cannulates the Gortex graft with Carlos' assistance.

Photo: Saul Kent



In the heat of surgery.

Photo: Saul Kent

Year's countdown, we sent most of the team off to bed. (Naomi and I utilized the lull to process the 80-or-so suspension sign-up letters that had arrived during the transport training course!)

Saul returned from LAX with Jerry at about 2 AM. Jerry spent a few hours setting up the heart-lung machine and supervising the last part of the perfusate filtering while most of the team slept. Russ and I spent the night watchdogging the filtering (the tubing likes to leak if you increase the pressure too much) and assisting Jerry.

At about 7:00 AM the sleepers were called in and the surgical team—consisting of Jerry, Thomas Munson, M.D., and Arthur—scrubbed in while the patient was prepped and the rest of the team asked for straight IV infusions of 50% caffeine solution (but had to settle for coffee instead). Somebody mumbled "happy new year," I'm not sure who.

The surgery in preparation for perfusion took about one and a half hours. Mike made a burr hole in the skull, which disclosed that blood washout with Viaspan was good; much better than expected considering the DIC. As cryoprotective perfusion proceeded she developed some brain swelling and the microscopic clots from the Disseminated Intravascular Coagulation caused very patchy perfusion in her tissues. Nevertheless, her terminal venous glycerol concentration was measured at 3.98 M, a very respectable number considering her adverse pre-deanimation medical complications. After the perfusion and the closing procedures were completed, the final preparations begin cool-down were completed and we prepared to transfer her into the silicone oil bath for gradual cooling to -79C.

The transfer (taking place a little after noon) went very well. We placed the patient on to a specially fabricated stretcher of tubular aluminum and expanded aluminum metal devised by Mike Darwin and constructed by Hugh to allow the silicone oil—which is circulated by a pump—to easily flow beneath the patient. That done, the patient's temperature was lowered to -79C at a slow and controlled rate. A new cooling protocol was used on this patient for the first time, and this resulted in far more effective and rapid temperature descent during the entire procedure. This task fell to Dr. Mike Perry, who endured nearly 24 additional hours without sleep.

This is not to say that there were not other tasks in need of doing. We had to C-L-E-A-N U-P. While most of the team departed for their respective and (for some) distant homes or jobs (yes a couple people actually went into to work at their regular jobs after leaving Alcor), a few of us (Mike, Hugh, Jerry, Mark, myself, am I missing anyone?) remained to restore the facility to some semblance of order and decorum. Things came out of overdrive at last; the adrenalin wells ran dry.

I think that the cryonic suspension of A-1268 went about as well as it could have, which was in fact rather well. The ischemic insult time was an artifact of the medical red tape (despite the unprecedented cooperation), rather than our response time (which was good) or the delay in Jerry's arrival (which really didn't interfere at all).

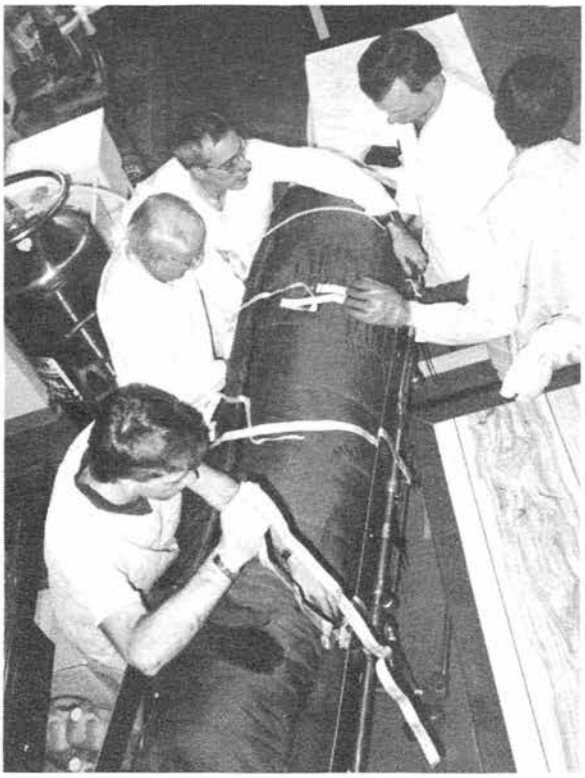
The transfer to LN_2, a few days later, was relatively smooth and uneventful. This was the first time that we used the new Alcor pod system and the new pod performed well. Many of the bugs we have observed with competing organizations' pod systems were missing from the unit Hugh had fabricated (our thanks to our competitors for the reservoir of experience). The fastener system Hugh developed allowed rapid, reliable closure of the pod and a reliable rapidly applied system of immobilizing and protecting the patient within it; two major problems with

Carlos and Ralph monitor the cooldown to dry ice temperature.

Photo: Saul Kent

Coming out of the silicone oil bath.

Photo: Steve Harris



Preparing to close off the pod.

Photo: Steve Harris

the other systems we've observed. Cooling to liquid nitrogen temperature was uneventful and was completed in a little over 24 hours.

Currently, the patient rests in a dual patient storage dewar. However, she will soon be transferred to a new Bigfoot unit.

Another cryonaut joins the ranks of the hopeful.

About Metamorphosis

Thomas Donaldson

This is a reply to Ralph Merkle's comments in the January, 1991 issue of *Cryonics*, which were made about my own article in the May, 1990 issue. I'd like any serious reader to look at both articles while reading this one, most especially since Ralph's comments are filled with his usual tendentious density.

First, I would like to point out the tentative terms in which my own comments were written. I am glad that Dr. Merkle has attained such a thoroughly complete physical, chemical, biochemical, physiological, anatomical, and computational understanding of the human brain. My only regret is that he has not found the time, amidst his computational trivia, to enlighten the rest of us. By thinking of our brains *as* computers we do after all use a model, *not* an identity. Since Ralph has assured us that this model is correct, questions and exploration about its edges have been clearly put out of order. I await Ralph's detailed and specific discussion of the architecture and operation of this computer, which I am so blind as to misunderstand.

Second, on the matter at hand: the question in uploading, I presume, is not whether we can *model* brains, but whether we can *improve* ourselves by becoming such a model. Ralph produces his usual hackneyed answer to a question which was not asked or addressed. Or perhaps I misunderstood the question: proponents of uploading care *nothing* about improvement, but simply have an orgasmic relationship to silicon, which they hope to finally consummate by uploading. If so, I'm happy that Ralph will come so soon, and apologize for my misunderstanding of uploading.

In order to address the question asked in my own comments, we must first decide what a "computer" is to be in the first place. Clearly it isn't enough to say that a "computer" is something which can be modeled on a computer! I was suggesting that separation between the program, and hardware which could, without modification, run many different such programs, was essential for a device to *be* a computer in the first place. If the only "program" *your* brain can run without modification is *you*, then your brain is *not* a computer.

Reading my article from the beginning in computer terms, I was pointing out the issue with *porting* programs: taking a program designed to run on one platform and making it run on another. If the "software" which is *you* depends for its memory and operation upon a precise, *unique* configuration of connections, then you cannot run *unchanged* on a computer using *switches* to reconfigure. If so, the same porting questions I asked in my comments will still apply. Will the result be You?

Among other points, in a computer reconfiguring by switches, software and memory for reconfiguration must be added. This will have effects even at macroscopic levels: among other traits, timing of messages between separate processors will differ. This means that if

you were uploaded *unchanged*, then you'd suddenly find that you had lost *all* bodily and mental coordination. Again, Ralph's "switching computer," as usual in his comments, remains in an unspecified Fairyland. If I understand the switching network envisioned, he proposes a hierarchical one. There is hierarchy in our brains, but lots of cross-connection too, and even neurons synapsing upon themselves. *Your* network simply will not fit in a hierarchy. Your brain cross-connections are (almost) certainly present just to prevent messages taking a path up the tree and then down again. This fact portends disaster for You, the uploaded program. And if the switching network is *not* hierarchical, the number of connections needed will exponentially exceed Ralph's estimate and his computer fails as hardware, even before his quivering and eager Soul receives its Uploading.

My comments, then, were about how to *improve* ourselves, not how to *model* ourselves. Since Ralph so clearly feels himself to be already perfect, I'm grateful for his interest in this issue.

Money Matters

Life Insurers at Risk?

Carlos Mondragón

In March of 1990, IDS Financial Services (a subsidiary of American Express) published a position paper entitled *Will the U.S. Life Insurance Industry Keep Its Promises?—Solvency Issues in the 1990's.* IDS then publicized their paper, issuing a press release on April 16th, 1990. The October 1st, 1990 issue of *Barron's* ran a lengthy (and scary) piece about potential problems in the life insurance business. The article was for the most part based on the IDS study. This is the sort of news that gets my attention. Is there another national financial crisis (similar to the S & L situation) in the offing? Is it time to panic?

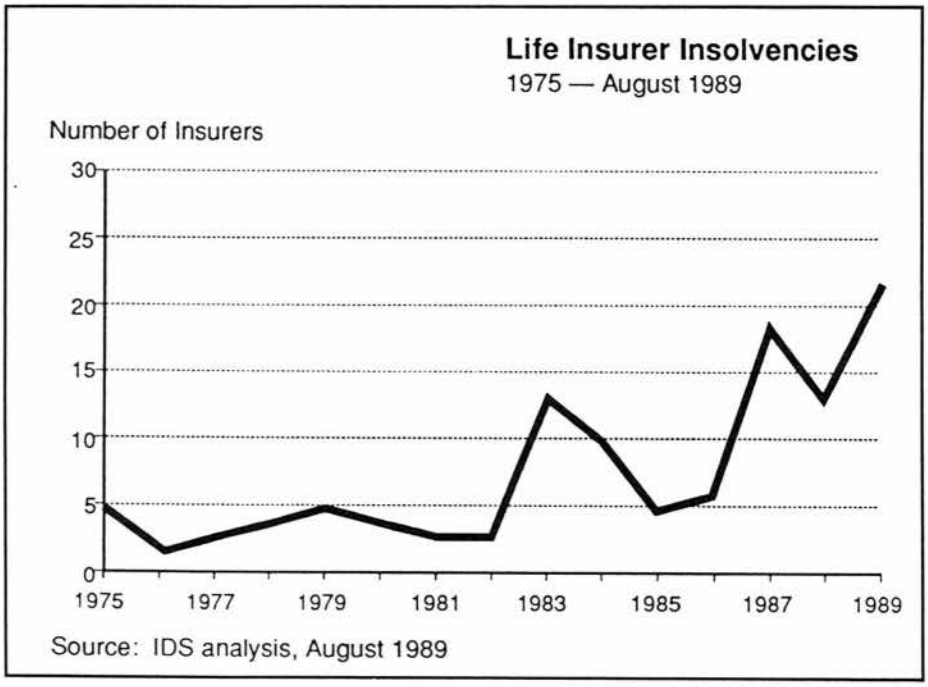
From day one, cryonicists have relied on life insurance to provide funding for cryonic suspension. It has been the only logical choice. Most of us don't have $120,000 in liquid assets at our disposal when we decide to sign up. Saving up that amount would take years—without suspension coverage. Life insurance also provides the advantages of bypassing the probate process, and allowing the policy holder to change beneficiaries or cash in the policy without financial penalty. This set-up is enormously convenient to both the suspension member and the cryonics organization. So much so that even wealthy cryonicists use life insurance.

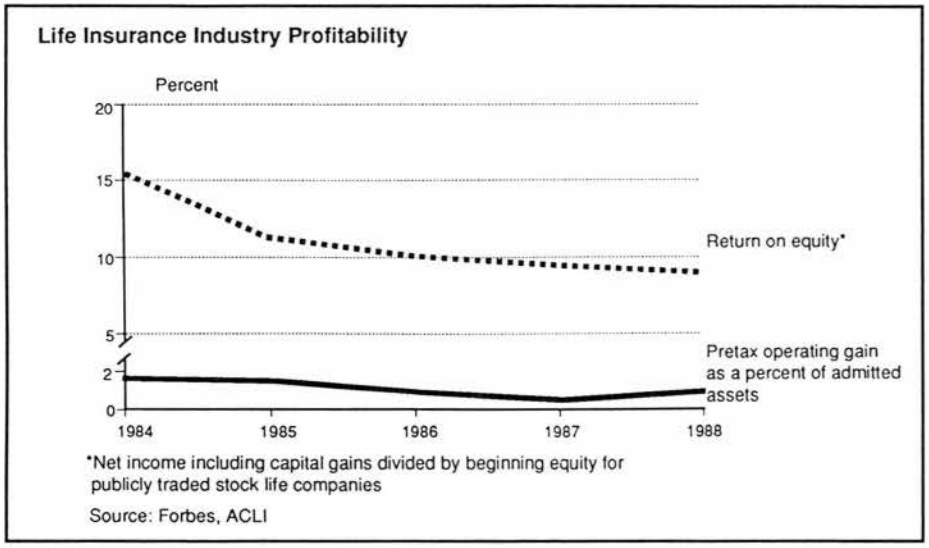
Some Background

While I was in college in the mid-seventies, majoring in business finance, I was also active in libertarian organizations. At the time there were dozens of books out which titles can be congobulated like this: "How You Can Profit/Prosper/Survive In The Coming Bad Years/Bad Times/Monetary Crisis/Worldwide Depression/Hyper-Inflation/Stock-Real Estate Market Crash." I think most people with my combination of interests read some of these books. I read most of them. It's a good thing I didn't have a lot of money with which to follow their investment advice. What experience and hindsight have taught me is that while the potential factors which could lead to macro-economic catastrophe undeniably exist, there is little chance that enough of these *possibilities* will become *actualities* simultaneously, thus giving rise to whichever economic doomsday scenario one may be contemplating.

So now I am asking myself, are enough things wrong (or likely to go wrong) with the life insurance industry to cause a widespread collapse? Do cryonicists need to find another method of funding their suspensions?

There are two things a life insurance company must do to survive. First, it must make realistic actuarial projections of mortality. This isn't hard. Smaller companies rely on outside services to provide their actuarial tables. At present, there is no serious concern on this front. (For a while, the doomsayers were predicting that an insurance crash would result from the AIDS epidemic, but because of the nature of the disease and the time-frames involved the industry was able to avoid that by modifying its underwriting practices and adjusting the actuarial tables.) A highly infectious and rapidly fatal epidemic dis-





ease (such as smallpox or pneumonic plague) could cause a life insurance disaster, but fortunately no such problem currently exists.

Second, the insurer must invest the premium money it receives and achieve a rate of return that exceeds the rate which it pays its policyholders by at least enough to cover its operating expenses. In the process, it must also match its assets to its liabilities (in other words, have cash at the ready when it's needed). Given the humongous amounts of cash they have to play with, insurers have easily been able to widely diversify using the best investment advice money can buy. It was especially easy when they could get away with paying three to four percent on whole life policies. Things got tougher when the banks and S&L's were deregulated. Life insurers had to compete by raising the interest rates they give to policyholders, yet they still pay one or two percentage points below what the banks must pay. Insurance companies have always used the full spectrum of investment possibilities.

Among the investments made by insurance companies in the past decade, there are two types which are at the root of the present concern: corporate bonds and real estate. The IDS study concentrates on bonds.

Corporate bonds are promissory notes issued by businesses to finance growth or acquisitions. Bonds issued by big "blue chip" companies are considered safe (aka "investment grade"), and they pay a correspondingly unexciting rate of interest. But most of the business in this world is not done by the Fortune 500. In the 1980s a market was created for the bonds of lesser corporations. These are businesses that have annual sales of about 25 to 250 million dollars. Their debt issues are generically called *junk bonds*. Since they don't have IBM's credit rating, they pay very attractive interest.

What's The Worry?

There is now a great deal of worry about the junk bond market in general. The insurance companies that the IDS study is worried about have substantial investments in junk bonds. Does this mean that they are in trouble? If so how much trouble? Will they fail?

In my opinion, yes, they're in trouble; they will suffer serious losses. But most of them won't fail. Executive Life (the only company IDS mentions by name), has a much larger exposure to junk bond defaults by far than any of the others. To date, Executive Life hasn't become insolvent—though clearly, it is hanging by a thread.

Before going on, at least a brief discussion of junk bonds and the junk bond market is needed:

The economic enthusiasm of the '80s made possible a liquid market (medium for secondary buying and selling) for below-investment-grade bonds. Without the existence of this market, few of these bonds could be sold in the first place. Companies that otherwise would have gone hat in hand to their banker for a loan started to go directly to the individual investor with bond issues. Bankers are, in effect, middlemen who make a profit on the spread (difference) between what they charge in interest for the money they loan and what they pay in interest to the depositor (investor). Eliminating the middleman is not always a good idea. These middlemen in particular contributed expertise to the credit decision, or risk factor, present in any loan. The securities brokers ("investment bankers" if they get a big paycheck) who sold the junk bonds weren't as nit-picky as traditional bankers. (Although many banks then turned around and purchased as investments the bonds of companies to whom they wouldn't have lent money! Priorities differ by department: credit officers want to minimize losses, investment officers want to maximize gains.)

The "leverage" in a leveraged buy-out (LBO) refers to the high percentage of debt to assets used to acquire a business. Junk bonds were used to finance most of this debt. The ability of companies to service this debt while the economy was booming was often just marginal. Since few of the LBO's were structured such that they could survive a downturn in business, many of them quickly set about reducing their debt by selling off parts of the company—more LBO's. Schemes which rely on a never-ending supply of greater fools don't last, and LBO's which were structured only for the sake of making a quick buck are no exception. By 1990, several junk bond issues had gone into default. Financial analysts are now busy figuring out which ones will be next. The market, however, didn't lose any time depressing prices.

Insurance companies, unlike banks and S&L's, aren't required to carry their bond investments at market value on their books. First Executive (the parent of Executive Life) had a junk bond portfolio of $14.65 billion as of September 30, 1989. In the fourth quarter of '89, First Executive announced a $515 million charge against prospective losses in its bond portfolio. But even after that charge, the *Wall Street Journal* reported that that portfolio "...would still be worth $1.4 billion less in the market than on First Executive's books." That's more money than the company is worth. (Net worth is called *Surplus* or *Capital & Surplus* in insurance lingo.) IDS puts it concisely: "An insurer can afford to lose money only until the surplus runs out. Beyond that point, liabilities exceed assets and an insurer is technically insolvent."

The following is a compendium of the most important observations made by the IDS paper:

In the life insurance industry as a whole, the trend has been a decline in the

amount of capital and surplus relative to assets. The current industry-wide ratio of 6.5% is down from 7.2% in 1980 and 8.4% in 1970. Profit margins have also been declining. Life insurers own about 30% of the $200 billion of junk bonds outstanding. This equals 6.4% of their invested assets.

Because the most recent financial crisis occurred in the S&L industry, it is the current standard with which the difficulties of other financial institutions—including life insurers—are often compared. In reacting to the similarity between financial trends in the life insurance industry and the events leading up to the thrift crisis, observers frequently comment that, although they present cause for concern, these trends do not indicate the life insurance industry is on the brink of a "crisis." This conclusion is based on data indicating that collectively life insurers are in relatively sound financial condition compared with savings & loans and other financial institutions. In a general sense, we agree with this conclusion.

The life industry's profit squeeze, while serious is nothing like the one that afflicted the thrift industry. During the. . . early 1980's, the thrift industry reported negative earnings, not just a slowdown in earnings. In comparison, life industry earnings were flat for three years during the early 1980's, but then increased from $4.8 billion in 1983 to $8 billion in 1988. Moreover, the life insurance industry has traditionally held a more diversified and more liquid portfolio than savings & loans, and has taken steps to reduce the interest-rate mismatch on their books generated from offering more investment-oriented products. Without this corresponding shift in the average duration of their assets, life insurers would be exposed to substantial interest-rate risk. This is the problem that plagued thrifts: they used short-term deposits to finance long-term, fixed-rate mortgages. Finally, erosion in the capital base has not been as severe for life insurers as for the thrift industry.

Putting all this together, the life insurance industry appears financially sound—at least when compared the savings & loan industry. The "industry," however, is not the real issue. **Individual companies become insolvent, not industries.**

. . . one-fifth of today's major insurers are at risk of insolvency in the event of a severe economic downturn or decline in the major investment markets.

We cannot predict if or when a severe economic or market downturn will occur. It is imprudent, however, to assume that a downturn will not occur. A recurrence of stagflation . . . or continued deterioration of the junk bond or real estate markets, conceivably could lead to the insolvency of a major insurer.

Against that background, we believe a financial crisis could well occur in the life insurance industry in the 1990's. The crisis would stem from one or more of the major life insurance companies in the United States becoming insolvent—touching off a domino effect in the industry. Consumers, anxious about the safety of their investments in insurance company products, potentially would react to a major insolvency, or threat of one, by withdrawing billions of dollars from the industry by surrendering outstanding policies for their cash value. Massive cash withdrawals could in turn lead to the insolvency of other less financially secure insurance companies.

The threat of a "run on the bank" is not an idle one. First Executive's survival may depend on its ability to stem the outflow of cash initiated by policyholder's loss of confidence.

. . . a sudden spike in interest rates could also trigger massive cash withdrawals. . .

. . . the likelihood of an insolvency problem in the 1990's is high enough to justify both concern and action.

I believe all of the above is either true or reasonable. (Note the frequency of qualifiers used in the above: "at risk," "could," "conceivably could," "potentially could," "may depend," etc.)

IDS goes on to recommend that state insurance guarantee funds and state or federal level regulations be updated and strengthened. To date, the insurance industry has suffered only token regulation. Hiring more state insurance examiners and giving them more "tools"—as IDS suggests—is not the answer. Putting the complexity and enormous resources of the insurance industry under the thumb of state bureaucracy is, in my opinion, more likely to cause a crisis than any of the economic factors mentioned by IDS.

The Future

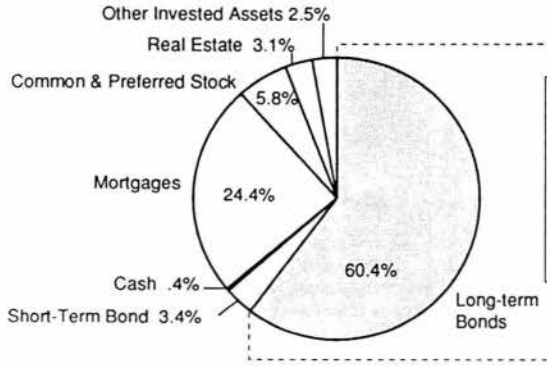
What then needs to be done, and by whom? IDS hoped its paper would prompt **insurers** and **consumers**, as well as regulators and legislators, to take action. Insurers, of course must make changes in their portfolios, especially with regard to their corporate bond positions. Consumers need to know if this is happening (and if they don't, what does that do to the probability of the "run on the bank" scenario which IDS expects would affect weaker, but still solvent companies in the event a single major insolvency?).

A follow-up study, looking for effects caused by the concern engendered by the first study, would be most welcome. In the course of 1990, have insurers done anything to strengthen their financial positions in light of problems which have been made evident by IDS and the popular media? I hope IDS or another organization of equal reputation conducts an investigation after the 1990 annual reports are published.

Meanwhile, though I don't have the time or resources to do a comprehensive industry study myself, as a consumer I can and have looked at the company that insures **my life**. One of the companies iden-

Distribution of Investments for the General Account

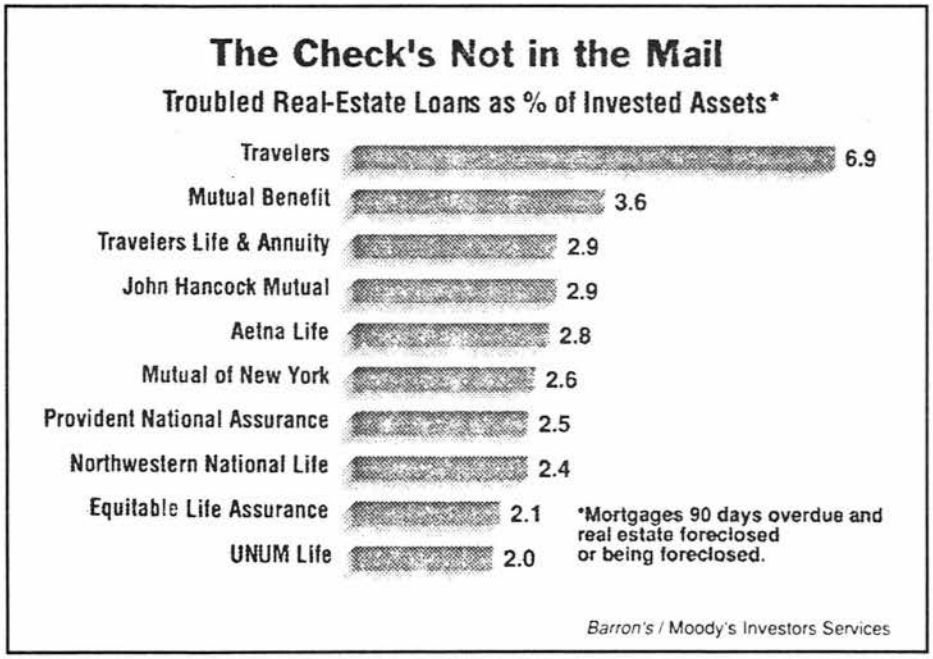
1988 Cash and Invested Assets, Excluding Policy Loans



Long-Term Bonds

Type	%
Corporate	44.8
Government	7.4
Gov't. Agency	4.3
Special Revenue	3.6
Affiliated Debt	.3

Source: Best's Aggregates and Averages — Life/Health, 1989
Life Insurance Fact Book, 1989



tified by *Barron's* as having an excessive junk bond position, as defined by IDS, was **Jackson National Life Insurance.** It so happens that Jackson National provides my suspension funding—**me along with about 20% of Alcor's suspension membership.**

Jackson National was founded 29 years ago and has since become a major insurer. In late 1986, it merged with Prudential Corporation plc of London, England (no relation to Prudential Insurance Company of America). Prudential of England is the largest insurer in that country. It was founded in 1848 and in 1989 it had assets of $63 billion and a pre-tax profit of $621 million. Jackson National reports that its parent, Prudential, has not interfered with Jackson's management since the merger.

The latest available annual report for Jackson National is for the year ending December 31st, 1989. The company's total assets were $7.8 billion, of which $7.5 billion were its investments. 95.7%, or $7.145 billion was invested in bonds. Of these bonds, 15.2%—$1.086 billion—were "non-investment grade," i.e. junk bonds.

According to the IDS study, as well as other others in the financial analysis business (as reported by the business press), about 30% of junk bond issues are in danger of default. (For further verification of this estimate, I checked with a former colleague of mine; he told me that he is currently extending short-term credit to about 70% of the LBO companies he does business with.) Suppose all of these bond issues which are at risk defaulted in quick succession? If the recession is severe and lasts a year, that's a plausible supposition.

Assuming that Jackson National's mix of junk bonds is no worse than average, it would stand to lose $326 million. Since Jackson's total capital & surplus was $278 million, such a loss would render it insolvent. This did not occur in 1990, so Jackson has had a year to reduce the proportion of its junk bonds likely to default versus its total investments and its capital & surplus.

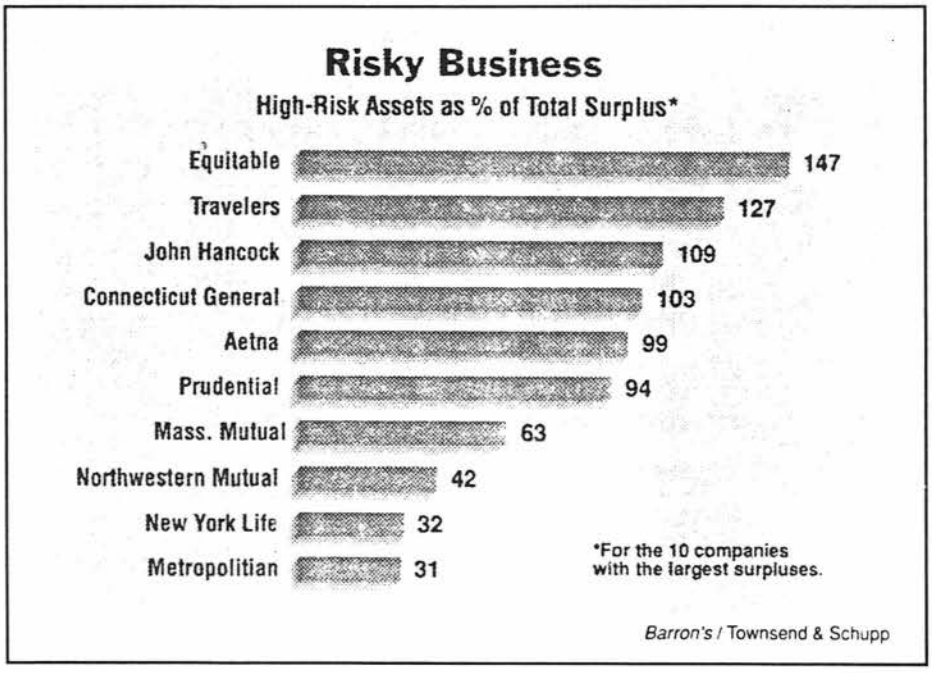
In 1989, Jackson National took in revenues of $2.738 billion, of which $675 million was from investment income. After taxes, net profit for the year was $88 million. If total revenues and income from investments was more or less consistent in 1990, this should have been an easy task to accomplish. But did they do it?

According to the investment officer I called, appropriate portfolio adjustments were made in 1990. Since Jackson National's 1990 annual report hasn't yet been released, he wouldn't give me many specifics. He did, however, say that 30% of their junk bonds now equal less than 100% of their surplus & capital. Once I have received the 1990 report, I will pass on the particulars in these pages.

Under IDS' worst-case scenario, 34 of the 100 largest insurers could become insolvent (33 if we take Jackson National off the list). The losses from such a cataclysm could be $11.5 billion (if it happened to all of them). This is the amount by which liabilities would exceed assets among those companies, per IDS' analysis. With total life insurance industry assets being over **$1.2 trillion**, even a very minor adjustments in investment portfolios could mitigate the potential losses. For individual companies which haven't made those adjustments, insolvency occurs if enough of their junk bonds default.

I intend to look closely at several insurance company 1990 annual reports. I don't intend to lose sleep due to my concern.

The IDS people are to be commended for publishing their paper and making it available without copyright to all interested persons. The dissemination of their concerns might well be enough to prevent enough of the possibilities from becoming actualities, enough to prevent an insurance industry crisis.



Where Do YOU Stand?

The box which accompanies this article provides a *basic* rule of thumb for evaluating the health of your insurance company. But, the fact of the matter is, there is no easy way to determine for sure how your company is doing. One major reason for this is that it is the insurance company who determines what and how much you know about their operations. All you can do is to request a copy of their most recent annual report and then crunch the numbers. Similarly, the big insurance "rating" companies like A.M. Best also rely largely on data obtained from the insurance companies themselves. In the case of large, reputable insurers, this information should be reliable. Although it bears pointing out that, under enormous pressure, pressure to survive, almost any institution is likely to put the best face on its financial statements.

Consider the case of Transit Casualty, an insurance company so poorly run it it would takes two pages just to catalog their sins. The relevance of Transit Casualty's situation to the life insurance industry is that Transit managed to maintain an "excellent" rating with A.M. Best for many years, and a "good" rating up until a year before they collapsed. The reasons this was possible were that Transit had a long history of conservative management, and the data the company was providing Best was inaccurate, indeed downright fraudulent: garbage in; garbage out.

What You Can Do

So, where does this leave **you**? There are no easy answers, nor any that apply to everyone. How you protect your insurance assets (and thus perhaps you very life) will depend in large measure on your personal situation. What kind of assets do you have at your disposal, how's your age and health, what kind of investment/business acumen do you have?

These limitations notwithstanding, there are a number of alternatives or suggestions I can offer:

First, try to do what you can to determine whether or not your insurer is likely to remain solvent (use the box accompanying this article, or if you're really wringing your hands, request a copy of their annual report and then send it to Carlos Mondragón at Alcor and ask me to check them out for you).

Second, consider diversifying your insurance "portfolio." If you have, or are considering buying more than the minimum in cryonics insurance coverage, use several different top quality companies. Buying the neurosuspension minimum several times over with different carriers is probably a reasonable, if costly, way to safeguard yourself. For some, this will represent no "extra cost" because they want funding over the minimum in any event; or if you're signed up for whole body suspension, three policies from different insurers at the neuro minimum isn't a bad idea.

Paper-Thin Portfolios

	% of Invested Assets Accounted for by Bonds Below Investment-Grade	Junk as % Of Total Surplus
Executive Life	50.7	620
Presidential Life	26.4	385
First Capital Life	20.2	432
Fidelity Bankers	18.3	462
Jackson National	14.5	245
United Pacific	14.2	217
Kemper Investors	13.8	327
Southwestern Life	10.3	103
Sun Life of America	9.6	137
Guardian Ins. & Annuity	9.2	N/A

Barron's / Moody's Investors Services and Townsend & Schupp Co.

Keep in mind that, much as is the case with cryonic coverage, you are buying not only your insurer's *current* management, assets and so on, you are buying their future solvency as well! If you purchase a whole-life policy at age 21 and your insurance company goes bust when you are 50 and uninsurable because of high blood pressure, diabetes, or depression, you are really going to be in the soup. No doubt you would recover the lion's share of the cash value of your policy, but unless you're still healthy, you could have trouble buying another policy with that money.

Third, if you are young, in good health, and don't smoke, consider carrying convertible term with several companies. For example, for a 21 year old male, a $100,000 convertible term policy would cost only about $120 per year. If your "primary" carrier becomes insolvent, you can then "bring-up" one of the cheap term policies (if you've become uninsurable in the interim) or simply buy other whole-life insurance; meanwhile you remain covered at all times. (Do NOT buy any term insurance which isn't convertible.)

Companies To Avoid?

Are there any companies out there you might want to avoid insuring with? Probably, but short of doing a thorough financial analysis on every company in the industry, I can't really tell you who they are likely to be (with the notable exception of Executive Life).

The *Barron's* issue mentioned above gives a list of insurers whom they claim their analysis indicates have "paper-thin portfolios," and whom, one would presume, are at greatest risk of failing in a severe economic downturn.

We have reproduced the graphic from *Barron's*, although I don't not know how they arrived at their conclusions. I would also point out that Jackson National, which appeared on the *Barron's* list, had very little to do in order to deal with their junk bond problem, and they claim they have done it.

Once again, there is no easy way to predict who will or will not be here, short of a comprehensive financial analysis using accurate information.

Summing Up

So, to sum up: There may well be problems in life insurance coming, but they are unlikely to be of the magnitude of the S&L crisis, or even of the magnitude that the banking industry is likely to face over the next few years. Careful evaluation of the financial health of *your* insurer is the most important thing you can do.

For those who want to take no chances, purchasing a more diversified portfolio of coverage and/or switching coverage only to the strongest life insurance companies is yet another option.

And rest assured, we'll keep you posted.

(Refer to box on following page.)

How to calculate the junk bond risk to your insurer

Please Note: There is some other, generally less significant exposure that some companies face in the form of questionable commercial real estate investments. Analysis of this risk is beyond the scope of this article; the following addresses only the risk from junk bonds.

1) Get a copy of your insurance company annual report. They'll send one if you call and ask for it.

2) Once you have your insurance company's latest annual report, find out the dollar amount of its investment in junk bonds. They may give this as a percentage of either total investments, or of bond or corporate bond investments—so you may have to do some arithmetic. Junk bonds may be referred to as "below investment grade." If the report does not disclose this information, call the company and ask for it.

3) Multiply the dollar amount above by 0.3 (30% of junk bonds are at risk of default in a recession).

4) Compare the number above to the total Capital and Surplus (net worth) of the company. If the investment in junk bonds at risk of default is greater than the amount of Capital and Surplus, the insurance company is in serious danger of insolvency.

5) Look at the Income Statement. If revenues from investments are greater than the amount of junk bonds at risk, then the company could easily correct the situation. Call them and ask if they have taken steps to do so, and inquire as to what those steps were.

Book Review

Great And Desperate Cures

by Elliot S. Valenstein

Review by Thomas Donaldson

Many readers may already have read Charles Mackay's book, *Extraordinary Popular Delusions And The Madness Of Crowds*, published in 1841 and still in print. This is the famous book about the South Sea Bubble, the Mississippi Scheme, and the mania for tulips that struck Holland ...plus many other instances of quite deluded and manic behavior: witch hunts, black magic, and many more. Perhaps contrary to its title, Mackay's book doesn't deal merely with the "common" people but with the aristocracy, government, and church authorities as well. The popular delusions he describes could not have gone so far without delusion among everyone they touched, not merely the "people."

But one class of authorities remained (relatively) undiscussed in Mackay's book: medical doctors. Valenstein has written a book about one particular mania among doctors, one which took place in a time uncomfortably close to our own. The mania was for prefrontal lobotomy of patients as a cure for depression, schizophrenia, intractable pain, and sexual offenses. At a time when doctors understood almost nothing at all about how our brains worked, some of them happily severed essential nerve tracts with blunt knives inserted through holes drilled in the skull (without any use of stereotaxy even to localize the cut regions precisely). At its height, Walter Freeman, the main (and most prominent) advocate of lobotomy, traveled about the country doing lobotomies through patients' eye-sockets as an outpatient surgical procedure. Almost universally, results of these lobotomies were reported as "good." Again, almost universally, throughout the period of lobotomy mania, almost no actual controlled studies of the effect of lobotomy on the patient existed. It was enough that the operation produced a superficial pacification. By the time use of lobotomy had declined drastically, in 1960, over 20,000 patients had been lobotomized in the U.S. alone.

Freeman did not invent the operation. That accolade goes to a Portuguese surgeon, Egas Moniz, who received (in 1949) the Nobel prize for his discovery of prefrontal lobotomy. (This event should make clear what Nobel prizes are and are not!).

Valenstein makes clear his disapproval throughout his story, without preaching. His language is not strong compared to Mackay's. Yet looking at actual results of this medical mania it's clear that the story of prefrontal lobotomy deserves to go into a medical version of Mackay: *Extraordinary Medical Delusions and Madness of Physicians*, perhaps. No one involved acted out of the usual motives people call "evil" (if, say, a desire to suck patients empty of their money and their Selves would count as evil. Everyone acted from the highest of motives). Certainly the story has the usual number of priority disputes and personal frictions: more a lack of perfection than evil itself. But it's possible to devastate the lives of thousands of people while acting only from the very highest motives. There is another deeper evil, then, that this story does discuss: an unwillingness to *see* (the results of one's actions, the significance of what one does). Inability is not enough: that again is a lack of perfection, which no one can blame. But unwillingness is something else.

Cryonicists already know this kind of evil. It happens when all the bioethicists and doctors discussing treatment of terminally ill people refuse out of hand to listen to cryonicists, refusing even to admit them into their discussions.

Valenstein himself, in a concluding chapter, discusses what might be done to avoid tragedies of this kind. I doubt many readers would have much confidence in his proposed solution, which involves increased government regulation of surgical experiments on human beings. (Nor do I: if a mania afflicts many doctors, what keeps it from afflicting government officials, too? Perhaps if such regulation had existed, prefrontal lobotomy would have been the required treatment of *all* hospitalized mental patients!). What this tale tells me is to question my doctor closely, and try to get second, even third opinions before proceeding. Who disapproves of the therapy proposed for you, and why do they disapprove? And if you can't do this, anyone acting as your substitute should.

Finally, I see no reason to believe that cryonicists themselves are immune to manias. One reason I personally have criticized *cryonicist* nanotechnology so much is that I have a sense of a cryonic mania here. The Philosopher's Stone has *not* been discovered; all our questions are *not* answered. But that sense may come from my own imperfect mind rather than the thing itself. Mania is hard to see when you're in the midst of it, whether you feel it yourself or not.

Lincoln

Mike Darwin

Fourscore and seven years ago our fathers brought forth on this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field as a final resting place for those who gave their lives that this nation might live. It is altogether fitting and proper that we should do this.

But in a larger sense, we cannot dedicate—we cannot consecrate—we cannot hallow—this ground. The brave men, living and dead, who struggled here have consecrated it, far above our poor power to add or detract. The world will little note, nor long remember what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus so far nobly advanced. It is rather for us to be here dedicated to the great task remaining before us—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain —that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, for the people, shall not perish from the earth.

--Abraham Lincoln
Gettysburg, Pennsylvania
November 19, 1863

The mind that wrote these words was brutally rent by a lead ball on Good Friday evening, 4 April, 1865. He was one of the most controversial men of his times and even today, 126 years later, he is still controversial, still hated by some in the South as violently as if the Civil War were still being waged and Confederate blood was still fresh upon that field in Pennsylvania. For good or ill, one of the most intriguing minds that ever lived was stilled that evening.

For any serious student of American history there are really only two watersheds: the Revolution and the Civil War. The Revolution had a cast of strong characters contending for center stage: Paine, Jefferson, Adams, Washington, and others. And depending upon the frame of reference from which you choose to view history, one or the other of these gentlemen holds the lamp.

But the Civil War has only one central, unifying figure: Lincoln. No one who has any feel for the evolution of this nation can fail to appreciate the pivotal role that that conflict and the man who made it played. Lincoln is an enigma. A complex and difficult man to understand. Deeply intellectual and deeply emotional. A man who, as he did with the Gettysburg Address, could cut to the core of the issue in three paragraphs and yet open up a field of emotion that could not be contained in a hundred.

Now, nearly 180 years after his birth, we are still wondering about who exactly Abraham Lincoln was, where he came from, and why he came to be. We have his writings, we have the historical record. And we very likely have his genes.

On 9 February, 1991 the National Museum of Health and Medicine announced the appointment of an "expert" committee to "study the technical and ethical feasibility of examining samples of hair, bone, and blood from Lincoln to see if any genetic material remains 126 years after his assassination."

The ostensible reason for determining the condition of the 10+ grams of Lincoln bone and the hair and blood samples that are in the museum's custody is to determine if they contain intact DNA so that DNA cloning can be carried out. There is great interest in this on the part of medical historians who want to know if Lincoln was afflicted with Marfan's Syndrome, a rare genetic disorder that leads to weakening of the major arteries, usually resulting in death from a ruptured aortic aneurysm. Lincoln's appearance and other medical details are consistent with a diagnosis of Marfan's syndrome.

It is also the case that having Lincoln's genome at the disposal of researchers would allow other questions —questions about the bearing his heredity may have had on his behavior—to be answered. It has long been speculated that Lincoln's well known "melancholia" was in fact chronic depression, a disease many feel will be found to have a strong genetic component.

A growing amount of research indicates that genetics may determine as much as 50% of an individual's personality and behavior. Thus, the ability to access any historial person's genome opens up the possibility of exploring their behavior and their "motivation," by examining their genes.

Humans are driven by a powerful need to know. Lincoln was a man who any thinking person would agree had a deep and complex personal life, only the tip of which was displayed during the course of his public life. His genes offer us the opportunity to explore that life a little more.

The researchers who are proposing this project are both quick and careful to point out that they have no intention of producing a "science-fiction-like" recreation of the man. They would have us believe that their intent is just to answer this one question—perhaps one or two more.

But one question leads to another, and, as the ancient Chinese proverb so wisely says: "You cannot do just one thing."

So too it shall be with Lincoln. Who Abraham Lincoln was we may never really know. Is it ever really possible to "grok" any man? But you can rest assured that somewhere, somewhen, someone will want to try. It is no accident that Walt Disney, another complex and interesting man deeply fascinated with the history of this country, used the best technology of his time in an attempt to re-create and capture Lincoln.

If the gentlemen at the National Museum of History want to be sure that no attempt to reproduce the man is ever made, they have, from a historical standpoint, very little time left to act.

Once again, the central problem of cryonics is thrust upon us: what is personal identity? How much of us is genes, how much much memory? And *how much* memory is needed? Perhaps the mind that wrote the Gettysburg Address will never live again. But there are those of us who would try, with the best technology of our age to, if not to make it live, at least to come as close to understanding it as our technology will allow.

BANNED IN B.C.

This just in: We have received word from Canadian Alcor Suspension Member Brian Wowk that the Provincial Legislature of British Columbia enacted a law in 1990 **expressly forbidding cryonics.** The law is a single paragraph in Bill 42, the Cemetery and Funeral Services Act which received its "third reading" on 22 June, 1989 and passed into law presumably early in 1990. The law, which runs to over 40 pages, includes the following paragraph:

"57. No person shall offer for sale or sell any arrangement for the preservation or storage of human remains based on cryonics, irradiation, or any other means of preservation or storage, by whatever name called, that is offered or sold on the expectation of the resuscitation of human remains at a future time."

Presumably the intent is to completely outlaw cryonics in British Columbia. To our knowledge, this is the first time anywhere that legislation has even been proposed, let alone actually enacted to ban cryonics.

It is not clear to what extend this law would prohibit a funeral director from assisting Alcor or any other cryonic organization with the recovery and transport of a Member who deanimated while living/visiting in British Columbia. It *is clear* however that the intent of the law is to ban cryonics from being offered to citizens of British Columbia.

This is an alarming and unfortunate bit of ignorant malice. It is also quite probably the work of the local mortuary/cemetery establishment since these gentlemen are usually self-regulating and deeply involved in drafting legislation.

Brian has agreed to look into the matter further and try to determine HOW this law came about. In the meantime, we want to be sure that any prospective Alcor members living in British Columbia should understand that Alcor will be unable to service them until the law is changed or they relocate.

We would be very interested to know if there are any other Alcor members in Canada who would be interested in lobbying for the repeal of this ugly bit of legislation?

We will report more to you on this matter as soon as we know more.

N.Y. Transport Capability Withdrawn

As most of our members and prospective members are aware, Alcor has Coordinators in the field who are trained in the first steps of stabilization and transport of suspension patients. We have maintained trained Coordinators in New York, Indiana, Florida, Northern California, and of course the team in Southern California where Alcor is headquartered.

Recently we made a decision to upgrade the status of Coordinators in the field and go to "certification." Certification means that the Coordinator must go through basic training on his/her own (usually EMT certification) and then complete Alcor's certification course successfully. Refreshers are required on an annual basis. We are also trying to put the Coordinator program on a more organized and formal footing and plan to have a model agreement ready for use with local groups sometime in the next few months.

The start of the implementation of the certification program prompted a careful reassessment of our field capability. A decision was made to withdraw equipment from areas where there was not a sufficiently broad base of support and/or adequately skilled people.

Despite the fact the New York and Eastern Seaboard region is a high growth area, we have had very, very few people from that region willing to "get their hands dirty." Almost everyone from that area wants to be a "customer" as opposed to an involved member. The problem is, **that simply isn't possible at this time.**

An added problem is that customers demand a high level of service. And we know from experience that they are relying on our Coordinators to at least be able to respond in an organized fashion. After careful assessment it was decided that the level of capability we had to offer in New York was sufficiently low that it represented a potential liability rather than an asset; we would rather people be clearly informed that we do not have *any* quick-response service in their area.

Naturally, we hope that things will change and that we will be able to redeploy a kit sometime in the future in that area. In the meantime, we will be responding to emergencies in the New York area using the Indiana and Florida Coordinators.

Patient Air Transport Module Completed

Mike Darwin

After months of on-again, off-again work, the Alcor Patient Air Transport Module-Mark II is done. Yes, yes, yes, you say, "So what?" Well, if we have to come get you in an emergency, this puppy is what you'll likely make the ride back in. And it was badly needed.

In the early days of Alcor (and, as far as we know this is still the case with all other cryonics organizations) we used to use "sealer caskets" or mortuary air shipping boxes to move patients around in. We quickly discovered that so-called sealer caskets are anything but sealed. THEY OFTEN LEAK. This is doubly the case for the standard mortuary air-shipment box which is usually little more than poorly welded sheet metal with a pieced together, porous, adhesive foam gasket. Morticians get by with this kind of slip-shod packaging because corpses are basically *dry*, and if they aren't, they are in body bags with lots of absorbent material.

Not so cryonics patients. Inside the container is not only the patient but several hundred pounds of *melting ice*. And if that ice leaks, we have a serious problem our hands; the airline will pull the patient, and call the local health department. **This is not a good thing.**

Additionally, there are two other problems Alcor personnel have experienced in the past when some of us were involved in doing suspensions for other cryonics organizations. The first is misrouting. This is a euphemism for the airline *losing* the patient. And yes, this actually happened to one of our competitors (fortunately the patient was found within a reasonable period of time, but it was a close shave and the casket arrived with nothing but cold water in it!). Closer to home, the shipping box that we sent from Alcor UK to Melbourne, Australia in mid-1990 was mis-routed to Asia. Fortunately, there was no patient in it at that time. We try to use direct flights wherever possible to minimize this risk, but that is not always possible and mechanical trouble, terrorist threats, etc., can cause even a direct flight to get unloaded onto another aircraft.

The other risk is mishandling. In one instance, right before this author's very

eyes, I observed a patient in a mortuary shipping box almost fall off a cargo loading conveyor onto the concrete runway apron—a fall of over 10 feet. Needless to say the shipping box would have been in pieces and the patient would have been lying on the ground damaged and sans refrigerant and a shipping box. We have also had an empty patient shipping box punctured by the tines of a forklift (that is how they are moved around on the docks).

To address all these problems we decided to engineer a strong, reasonably light, and very well insulated container which seals well. The outer box is constructed from 1/2" exterior plywood with a coat of bright orange epoxy paint (the bright orange color makes the box stand out and facilitates identification if it is mis-routed and stacked amongst tons of other freight). This outer wooden shell is framed with a welded steel skeleton to provide rigidity and reduce the risk of disintegration should the container be mishandled.

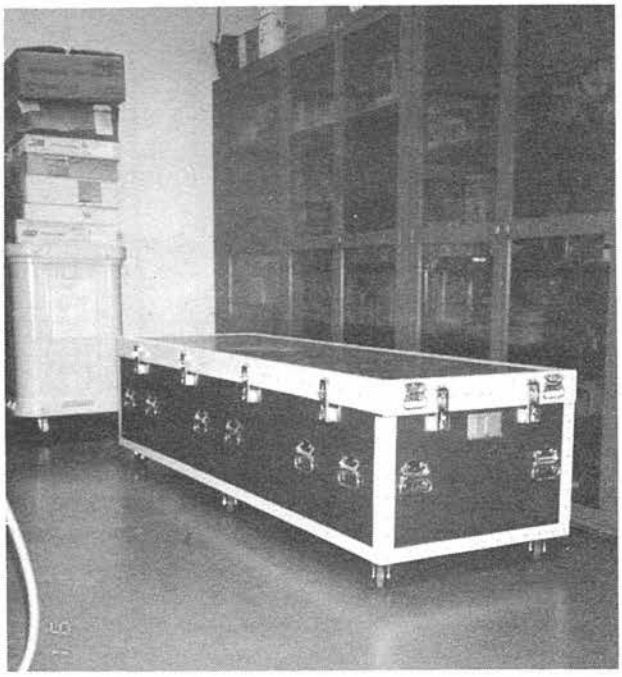
The outer box also has casters so that the unit can be rolled around, and a small covered door on one end that houses an LCD display for a remote sensing thermometer that operates continuously to monitor the temperature inside the sealed inner box. Thus, if the container is mis-routed, we can get an immediate status report by simply having the freight handling personnel open the spring-loaded cover on the thermometer and read us the patient core temperature or internal box temperature.

The space between the outer box and the inner box is insulated with two inches of expanded polystyrene foam; this is sufficient to hold a typical 250 lb. load of ice for nearly a week.

The inner box is a technological triumph. It is fabricated of welded high impact polypropylene and is completely leak-free. It is also sufficiently temperature resistant that it is capable of holding anything from water-ice to liquid nitrogen, and is chemically inert as well. It represents state-of-the-art technology for secure patient transport. The top of the inner container is secured with quick-release spring-tension clips, eliminating the need for time-consuming screw closures which were prone to stripping and failure in the field.

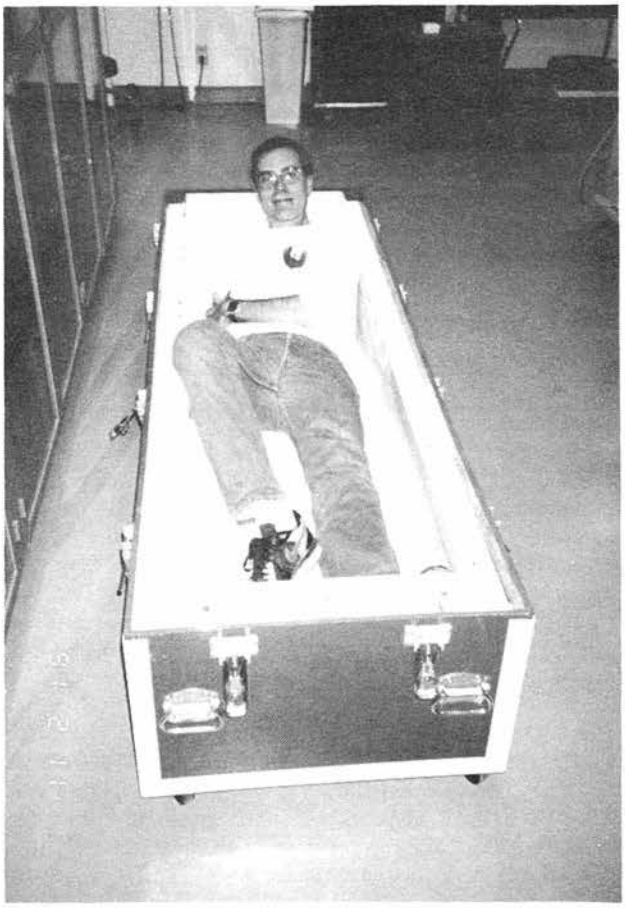
Well over 200 hours and $1000 in materials went into fabricating the new air transport module. We believe that every hour and every dollar was well spent. This unit should greatly enhance our ability to securely recover and transport members from the field on water ice or even dry ice.

Our special thanks to Hugh Hixon, who put most of the effort into construction of this unit.



The new air-transport shipping box.

Photo: Mike Darwin



We bring them back alive.

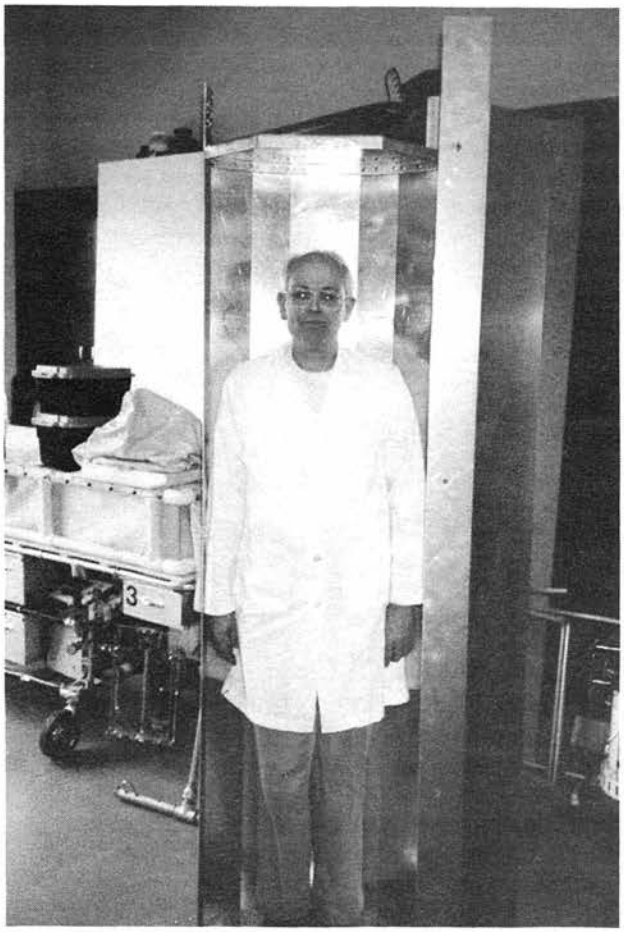
Photo: Ralph Whelan

Pods For People

The pods have come to Alcor. No, its not the *Invasion of the Body Snatchers*. Rather, it's the completion of the first suite of patient protective pods for liquid nitrogen storage. Design of these pods has required a great deal of time and effort. Fabrication of them is requiring even more, although we are generating jigs and other tooling which will turn it into more of an assembly-line operation.

The pods are designed to protect Alcor suspension patients during liquid nitrogen storage. Contrary to popular belief, a patient storage dewar is not forever. Patients need to be transferred periodically out of old storage dewars into back-up units so that the dewars can be "freshened" by hardening their vacuum. This re-pumping of the vacuum requires that the dewars be heated up, inside and out, to over 300F. Clearly, this cannot be done with the patients inside.

The system under which most Alcor patients are currently stored employs a stretcher to hold the patient. The patient is provided with thermal and some mechanical protection by two heavy sleeping bags. Unfortunately, this system falls short of providing the protection we really want over the long haul. Also, it cannot be used economically with the new Bigfoot storage units. We had always intended to switch to a box or protective pod type system, and the design of the Bigfoots provided the



Hugh Hixon models the whole-body pod.
Photo: Mike Darwin

perfect opportunity to do so.

The first patient is already in a pod, although, contrary to our expectation, it was not the *first* patient, James Bedford. The unexpected suspension of an Alcor member in January resulted in that patient being placed in the first pod.

Now, work is well underway on the second group of pods and it is anticipated that the next three patients will be moved into them in the next month or two. In the meantime, we thought we'd give you a sneak preview of the pods while under construction and even of the first one in use.

Alcor Gets A New Area Code: You Get New Bracelets

But don't pat us on the back for our generosity yet. This isn't something we want to do—its something we're going to have to do. And here's why:

At the end of 1992 the city of Riverside, Alcor included, gets a brand new area code. We even know what that area code will be: **909**. We don't get a choice about this. The area code change is needed because of the tremendous growth in this area and the unexpectedly heavy demand for telecommunications generated by computer modems, beepers, fax machines and car phones. There are only so many combinations a given string of digits can support and they are pushing the envelope now. Indeed, of the 774 available prefixes in the 714 area, only 170 are unused.

So, like it or not, we get a new area code. There isn't anything we can do about it except issue new bracelets/necktags to everyone with the old number. This will cost us a pretty penny. Current estimates are that the cost, not including administrative time, will run close to $6000!

One way or another we have to pay for it. And when we say we, we mean you the members and us the members (or we the people, if you prefer). True, Alcor can just "absorb" the costs, but the absorption will have to absorbed *from* somewhere. And in case you haven't noticed, our budget isn't brimming with excess liquidity.

So, what to do? Charge each member for the news tags as s/he gets them? Add a surcharge onto this year's dues of X dollars per quarter? Something else? We'd like to hear from you on this matter.

Effective immediately, all new U.S. Suspension Members will be issued bracelets with Alcor's "800" number. We have been assured by AT&T that this number will remain unchanged for the working life of this universe—and they put it in writing. Overseas members will continue to get the currently used number with the old area code, since 800 numbers work only in the U.S. and Canada.

Recent Abstracts of Interest

Ghigo E Goffi S Nicolosi M Arvat E Valente F Mazza E Ghigo MC Camanni F
Growth hormone (GH) responsiveness to combined administration of arginine and GH-releasing hormone does not vary with age in man.
J Clin Endocrinol Metab 1990 Dec;**71(6)**:1481-5

At present, the mechanism(s) underlying the reduced spontaneous and stimulated GH secretion in aging is still unclear. To obtain new information on this mechanism(s), the GH responses to both single and combined administration of GH-releasing hormone (GHRH; 1 microgram/kg iv) and arginine (ARG; 30 g infused over 30 min), a well known GH secretagogue probably acting via inhibition of hypothalamic somatostatin release, were studied in seven elderly normal subjects and seven young healthy subjects. Basal GH levels were similar in both groups, while insulin-like growth factor-I levels were lower in elderly subjects (76.7 +/- 9.2 vs. 258.3 +/- 29.2 micrograms/L; P = 0.01). In aged subjects GHRH induced a GH increase (area under the curve, 314.9 +/- 91.9 micrograms/L.h) which was lower (P = 0.01) than that in young subjects (709.1 +/- 114.4 micrograms/L.h). On the other hand, the ARG-induced GH increase in the elderly was not significantly different from that in young subjects (372.8 +/- 81.8 vs. 470.6 +/- 126.5 micrograms/L.h). ARG potentiated GH responsiveness to GHRH in both elderly (1787.1 +/- 226.0 micrograms/L.h; P = 0.0001 vs. GHRH alone) and young subjects (2113.0 +/- 444.3 micrograms/L.h; P = 0.001 vs. GHRH alone). The potentiating effect of ARG on the GHRH-induced GH response was greater in elderly than in young subjects (1013.0 +/- 553.5% vs. 237.9 +/- 79.1%; P = 0.0001); thus, the GH increase induced by combined administration of ARG and GHRH overlapped in two groups. In conclusion, these results show that, differently from the GHRH-induced GH increase, the somatotroph response to combined administration of ARG and GHRH does not vary with age. Our finding suggests that an increased somatostatinergic activity may underlie the reduced GH secretion in normal aging.

Umezawa M Hanada K Naiki H Chen WH Hosokawa M Hosono M Hosokawa T Takeda T

Effects of dietary restriction on age-related immune dysfunction in the senescence accelerated mouse (SAM).

J Nutr 1990 Nov;**120(11)**:1393-400

The effects of age and dietary restriction on immune response were investigated using an animal model of accelerated senescence (senescence accelerated mouse, SAM). The experimental groups consisted of control (ad libitum fed) and restricted groups (fed 60% of energy intake of the controls). Spleen weight and total number of splenic cells were significantly lower in the food-restricted group at 8 mo of age. Percentages of T (Thy-1.1+) and B (surface Ig+) cells in the splenic cells were not significantly different between the two groups. The number of direct hemolytic plaque-forming cells per 10(6) spleen cells 4 d following immunization with sheep red blood cells and dinitrophenyl-Ficoll was significantly greater in the 8-mo-old mice in the food-restricted group than in the control group. In the latter group, antibody responses Progressively decreased with age. Mitogen responses to concanavalin A and lipopolysaccharide were maintained in the food-restricted group but were depressed in the control group at 8 mo. In addition, though autoantibody to single-stranded DNA increased in the control group with advancing age, there was a steady decrease in the food-restricted group until 8 mo. Serum immunoglobulin (IgA and IgM) concentrations were significantly lower in the food-restricted group than in controls at 8 mo of age. Therefore, our results suggest that when senescence accelerated mice are subjected to food restriction, there may be a modulatory effect on the immune dysfunction associated with advancing age.

Ai KZ Vermuyten K De Deyn PP Lowenthal A Karcher D

A serum protein involved in aging?

Mol Chem Neuropathol 1989 Dec;**11(3)**:131-41

Aging of the brain is characterized, in part, by the appearance of protein anomalies. The proteins deposited within the nervous system structures are hardly soluble. This physiological phenomenon turns out to be pathological, quantitatively at least, and perhaps even qualitatively, in dementia of the Alzheimer's type (DAT). One might wonder whether the brain protein anomalies are related to a general process and, thus, could generate anomalies of the serum proteins. Therefore, we examined, with two-dimensional electrophoresis (2DE), 120 serum samples collected from different neurological patients and 24 serum samples from a control group, and we reached the following conclusion: a protein spot, normally not found and named 10M, corresponding to a molecular weight of 30 kDa with an isoelectric point of +/- 8, is seen in 31% of the patients affected with a neurological disease and in 90% of patients affected with DAT. The frequency of the appearance of this spot, seen after 2DE, increases with age. We wonder whether this protein is playing a role in the formation of the neuropathological lesions observed in DAT.

Sandin M Jasmin S Levere TE

Aging and cognition: facilitation of recent memory in aged nonhuman primates by nimodipine.

Neurobiol Aging 1990 Sep-Oct;**11(5)**:573-5

Impairments of recent memory are a common complaint associated with aging and especially with respect to certain neural pathological conditions that may accompany aging. While this is well recognized, there is little clear evidence for a viable therapeutic treatment. Recently, however, certain investigations have suggested that blocking neuronal calcium channels may be an effective treatment for the memory impairments that are associated with brain injury as well as the memory failures that may occur during aging. The present research supports this suggestion by demonstrating that the dihydropyridine calcium channel blocker, nimodipine, will significantly improve the stabilized performance of 28-29-year-old rhesus monkeys when they are tested on a delayed-response task which depends upon trial-specific, or recent, memory.

Barnes CA Markowska AL Ingram DK Kametani H Spangler EL Lemken VJ Olton DS

Acetyl-1-carnitine. 2: Effects on learning and memory performance of aged rats in simple and complex mazes.

Neurobiol Aging 1990 Sep-Oct;**11(5)**:499-506

Acetyl-1-carnitine (AC) was administered via drinking water for six months to one group (OLD-AC) of male F-344 rats beginning at 16 months of age, while another group (OLD-CON) of rats was given water only during that period. The rats were maintained on this treatment throughout behavioral testing, which began at 22 months of age. Performance of the OLD-AC and OLD-CON rats was compared to that of young control (YG-CON) rats on the following set of tasks: spontaneous alternation in the arms of a T-maze, two-choice simultaneous discrimination in the stem of a T-maze, rewarded alternation in the arms of a T-maze, spatial discrimination and reversal on a circular platform, spatial working memory in the radial 8-arm maze, long-term memory in the 14-unit T-maze, and for preference of the light or dark chamber of a two-compartment box. AC improved the long-term memory performance in the split-stem T-maze and on the circular platform but had no discernable effects on performance of aged rats in the other tasks. Possible reasons for the selectivity of this agent's action on behavior are suggested.

Markowska AL Ingram DK Barnes CA Spangler EL Lemken VJ Kametani H Yee W Olton DS

Acetyl-1-carnitine. 1: Effects on mortality, pathology and sensory-motor performance in aging rats.

Neurobiol Aging 1990 Sep-Oct;**11(5)**:491-8

Three different test sites assessed the effects of acetyl-1-carnitine (AC) on age- related changes in general health, sensory-motor skills, learning, and memory. Two groups of rats began the experiments at 16 months of age. One group (OLD-AC) was given AC, 75 mg/kg/day, beginning at 16 months. The other group (OLD-CON) was treated identically except it was not given the drug. Beginning at 22 months of age, these rats and a group of young (3-4 months old) rats (YG-CON) were given a series of sensory-motor tasks. AC decreased mortality, and had no reliable effect on body weight, fluid intake, or the general health of the rats. These data indicate that a chronic dose of AC does not interfere with food and water intake, and may increase longevity. An age-related decline of performance occurred in most of the sensory-motor tasks; locomotor activity was reduced in a novel environment and in a runwheel, and the ability to prevent falling was reduced in tests on a taut wire, rotorod, inclined screen, and several types of elevated bridges. An age-related decline of performance did not occur in grooming, or in the latency to initiate several different behaviors. AC had no effect on performance in any sensory-motor task. These data indicate that the improvements produced by AC in some tests of spatial memory may be due to the effects of AC on cognitive abilities rather than on sensory-motor skills.

Does the memory survive Cryonic suspension?

Could a modern day person adapt to living in the future?

Who forgot to put the heads back after defrosting?!?!

To answer these and other important questions, play

HEAD GAME

CAN YOU KEEP THE HEADS WHEN ALL ABOUT YOU ARE LOSING THEIRS?

In a lonely corner of a windswept industrial park in the mythical Riverside County,
a valiant band of Cryonicists wage an unrelenting battle to keep their Heads on ice;
frozen solid, frozen safe from those who would turn the Heads to mush.
Outside they lurk, hungry for the Heads: diseased packs of mongrels, weeping televangelists ransoming
souls for dollars, and the eternally-funded Riverside Coroners, maddened by autopsy lust.

Respected opinion makers, such as Dan Quayle and Morton Downey, Jr. join sides,
infesting the nation with their memes. The Cryos agonize over priorities:
sustain the Heads?, fund nano research?, conceal Dora? or invest in their own suspension?
Their foes use raids, legislation, and sound bites to "turn up the heat".

And the Heads, eyes frozen in silent trust; as the heat increases, their brains begin to ooze.
Can they be saved from death? $39.99 Prepaid, Postpaid (Visa, Mastercard Accepted)
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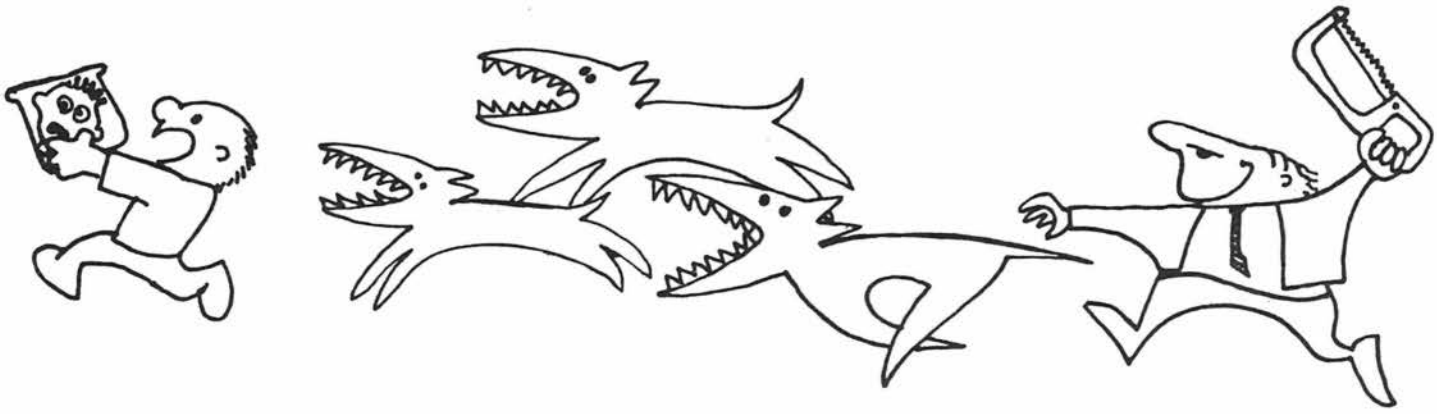

Advertisements And Personals

The Alcor Life Extension Foundation *and* Cryonics *reserve the right to accept, reject, or edit ads at our own discretion and assume no responsibility for their content or the consequences of answering these advertisements. The rate is $10.00 per line per month (lines are approximately 90 columns wide). Tip-in rates per sheet are $90 (already printed and folded); or $180 (printed one side) or $270 (printed both sides), from camera-ready copy. Tip-in ads must be clearly identified as such.*

FREE. LifeOwners Letter. Insurance savings. C. Hartman; 514 NW; Stuart, IA 50250. Phone/FAX (515) 523-1116. 75500,535. hghv51a. Many strong companies. Long-time cryonicist.

MARY NAPLES, CLU and BOB GILMORE – CRYONICS INSURANCE SPECIALISTS. New York Life Insurance Company; 4600 Bohannon Drive, Suite 100; Menlo Park, CA 94025. (800) 621-6677.

EXTROPY: Vaccine for Future Shock. #6 available, $3 per copy. Futurist philosophy, avoiding the heat death of the universe, neurocomputation, reviews of futurist and transhuman books, and much more. EXTROPY; c/o Max More; P.O. Box 77243, Los Angeles, CA 90007-0243.

Meeting Schedules

Alcor business meetings are usually held on the first Sunday of the month. Guests are welcome. Unless otherwise noted, meetings start at 1 PM. For meeting directions, or if you get lost, call Alcor at (714) 736-1703 and page the technician on call.

The **SUN, APRIL 6** meeting will be held at the home of:
Marce & Walt Johnson
8081 Yorktown Avenue
Huntington Beach, CA

Directions: Take the San Diego Freeway (Interstate 405) to Beach Blvd. (Hwy 39) in Huntington Beach. Go south on Beach Blvd. approximately 4-5 miles to Yorktown Ave. Turn east (left) on Yorktown. 8081 is less than one block east, on the left (north) side of the street.

The **SUN, MAY 5** meeting will be held at the home of:
Linda Abrams
856 N Harper
Los Angeles, CA

Directions: Harper street is parallel to and between Fairfax and La Cienega in the West Hollywood area. 856 N Harper is between Melrose Ave. and Santa Monica Blvd. on the corner of Harper and Willoughby. Take Fairfax or La Cienega north from I-10 or Santa Monica east from I-405 or west from the Hollywood freeway.

The *Alcor Cryonics Supper Club (Southern California)* is discontinued until further notice.

There is an Alcor chapter in the **San Francisco Bay area**. Its members are aggressively pursuing an improved rescue and suspension capability in that area. Meetings are generally held on the second Sunday of the month, at 4 PM. Meeting locations can be obtained by calling the chapter's Secretary, Carol Shaw, at (408) 730-5224.

The **SUN, MAR 10** meeting will be held at the home of:
Joe and Connie Tennant
1467 Don Ave.
Santa Clara, CA

Directions: Take the 82 (El Camino Real) through Santa Clara to Scott Blvd. Go north on Scott to Warburton (next street) and turn right on Warburton. Don Avenue is the first street on the left (Triton Museum on corner).

The **SUN, APRIL 14** meeting will be held at the home of:
Ralph Merkle and Carol Shaw
1134 Pimento Ave.
Sunnyvale, CA

Directions: Take US 85 through Sunnyvale and exit going East on Fremont to Mary. Go left on Mary to Ticonderoga. Go right on Ticonderoga to Pimento. Turn left on Pimento to 1134 Pimento Ave.

There two Alcor discussion groups in the **Greater New York area**. Details may be obtained by calling either Gerard Arthus, at (516) 474-2949, or Curtis Henderson, at (516) 589-4256.

The *New York Cryonics Discussion Group of Alcor* meets on the the third **Sunday** of each month at 6:30 PM, at 72nd Street Studios. The address is 131 West 72nd Street (New York), between Columbus and Broadway. Ask for the Alcor group. Subway stop: 72nd Street, on the 1, 2, or 3 trains.

Meeting dates: **March 17, April 21, May 19, June 16.**

The *Long Island Cryonics Discussion Group of Alcor* meets on the first Saturday of every month, at the home of Gerry Arthus. The address is: 10 Jefferson Blvd.; Port Jefferson Station, L.I., telephone (516) 474-2949.

Meeting dates: **April 6, May 4, June 1, July 6.**

There is a cryonics discussion group in the **Boston area**. Information may be obtained by contacting Eric Klien at (508) 663-5480 (work) or (508) 250-0820 (home).

The **Houston area** has a discussion group on cryonics, life extension, and the high/low diet. Meetings are typically held the second Saturday of every month. For more information call Ravin Jain at 713-797-1076 or Rupert Hazle at 713-480-3309. Correspondence may be addressed to Rupert Hazle at 15107 McConn, Webster, TX 77598.

Other Events Of Interest

There will be an Alcor party on Saturday, April 20 at 7 PM at the home of Marce and Walt Johnson, 8081 Yorktown Ave., Huntington Beach, CA. This will be an informal social event for members and those in the process of becoming members. You are urged to bring guests. Refreshments will be served.

There will be an Alcor fund-raising dinner on Saturday, June 15 at 7 PM at the LAX Marriott Hotel, 5855 W. Century Blvd., Los Angeles. The goal is to raise money to continue Alcor's research to improve cryonic suspension services. Reports will be given on recent advances in cryonic suspension, ongoing research in cryonics, and plans for future research. Reservations are $100/plate, check or money order to Alcor at 12327 Doherty St., Riverside, CA 92503; or by credit card to 1-800-367-2228.

ALCOR LIFE EXTENSION FOUNDATION
12327 Doherty Street
Riverside, CA 92503

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For information on cryonics call Alcor:
1-800-367-2228 (toll-free, non-members only) or 1-714-736-1703 (members).