

Cryonics

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Cryonics

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Cover:

Dr. James Bedford

The Bedford Saga

Most of this issue details the history of the first "Cryonaut," Dr. James Bedford, who we transferred from his capsule of 18 years on Saturday, May 25. Since we have *so much* to tell about Dr. Bedford the man and Dr. Bedford the cryonaut, we've divided the account over two issues, with the historical information presented this month, and the details of his recent transfer to run in August. We hope you'll find satisfaction in the continuing story of the good Doctor.

The Standby Standby

Most of the Remote Standby Surveys that we sent out last month are still remote and we're still standing by. The sooner we gather the information from you, the sooner we can get *our* ducks in a row on how we can offer remote standby contracts for all Alcor Suspension Members. Thanks for your help!

Membership Statistics

Carlos Mondragón

As of May 22, 1991, 239 people had completed suspension membership arrangements with Alcor. There were still 211 people in the sign-up process. Below are some statistical facts about our suspension membership which we found interesting.

- 181 are male (75.73%), and 58 are female (24.27%). We're still not sure why there is such a big disparity, although everyone has one or two pet theories.
- The average suspension member is 42 years old.
- 87 are signed up for whole body suspension (36.4%) and 152 are signed up for neuro suspension (63.6%). So much for the theory that neuro is a detriment to the cryonics movement. Notably, however, whole body is gaining slowly — three years ago less than a third were signed up for it.

• The average suspension member has been signed up for 4.6 years.

• The total funding which our members have provided for their suspensions amounts to \$22.2 million. \$8.2 million of that is funding over Alcor's required minimums.

• 140 members (58.6%), have provided funding over the required minimum.

• The average funding per member is \$92,880.

• 26% of our suspension members are insured with New York Life and 14% are with Jackson National Life — the two largest providers of cryonics life insurance.

Many thanks to Tanya Jones for compiling the data. We are working toward a system that will keep this information current and readily available. Additional facts and breakdowns will be available once the system is complete.

Early Cryonics Book Reissued

The Society for Venturism has reprinted *Immortality: Physically, Scientifically, Now* by Nathan Duhring (pen name for Evan Cooper). It is among the earliest detailed presentations of the hypothesis that freezing the newly deceased might lead to their eventual reanimation and restoration to health; what is now known as the "cryonics" thesis. Originally published in 1962, the book was never produced in quantity and remains a rarity today (current printing: 100 copies). Although overshadowed by Robert Ettinger's *The Prospect of Immortality*, it contains significant independent thinking on such issues as the informational basis of identity, and the elimination of death and the automation of labor in future society. Softcover, 5.5" x 8.5", 101 pp., indexed. \$11.95 ppd. from Alcor Foundation, 12327 Doherty St., Riverside, CA 92503.

IMMORTALITY:

PHYSICALLY,
SCIENTIFICALLY,
NOW



Nathan Duhring

Survey

Jim Stevenson, Alcor member, is conducting a study involving people who think that cryonics might work, but have emotional or intellectual (rather than financial or religious) reservations about signing 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.

Patching Up the Membership

The new Alcor patches are in, and they look *great!* Sew one on your jacket or sweatshirt or carry-all, use it to strike up conversations about Alcor and spread the word. At \$5 each, you can't afford to get less than, well, one, at least. Use the order form in the back of this issue.



Letters to the Editor

Hi:

Fresh viewpoint: Saw a brief Alcor write-up in a recent *Whole Earth Review*, so called the listed 800 number and requested information. My initial reaction to the literature: fascination and shock. The idea of deep freezing took some time to adjust to and digest, not to mention accept (my wife is still hostile to the idea).

Reflecting back on that reaction, I believe that if more emphasis had been placed on concept — biostasis — and less on technique — cryonic suspension — my reaction (and possibly my wife's) would have been far more balanced.

I have since subscribed to *Cryonics*, which I believe to be misnamed for the aforementioned reasons. *Biostasis* or *Suspension* or an equivalent title would be far more accurate, far less loaded.

You want new members? Emphasize concept, not technique. Concept has the carrying capacity to bring a newcomer from introduction to participation. Technique does not. In fact, emphasis on technique probably scares away many potential members.

Sincerely,
Paul Mallamo
New Mexico

Cold War: The Conflict Between Cryonicists and Cryobiologists

Part II

Mike Darwin

Counterattack

During the late 1960s to mid-1970s, criticism by cryonicists of the attacks of cryobiologists on cryonics was very mild and never *ad hominem*. Cryonicists adopted an exclusively defensive posture and tried a program of appeasement and quiet reason in dealing with the increasingly hostile attacks of cryobiologists. This approach did not work and, in fact, even seemed to contribute to the heat of the public denunciations issued by cryo-

biologists.

Cryobiologists increasingly began to use the words "fraud" and "quackery" to describe cryonics and its advocates. They also began the practice (which continues to this day) of representing to the public as "facts" a welter of misinformation about their own discipline (principally involving the mechanisms and extent of cryoinjury) in order to prove their point that cryonics could not work (see the television show exchanges between the author and A. Trounson, reproduced below). All dialogue

and exchange of information between the groups broke down.

"Peace Talks"

In the late 1970s a renewed effort was begun, largely by Alcor's Jerry Leaf, to establish a dialogue with the Society and to educate them about cryonics. It was felt that much of the misunderstanding between cryobiologists and cryonicists may have been the result of lack of communication. These efforts at opening dialogue by

Jerry Leaf, Thomas Donaldson, Paul Segall, the author, and others were rebuffed. The Institute for Cryobiological Extension (a cryonics-associated cryobiology research support group) was denied institutional membership in the Society because of its (and its president, Jerry Leaf's) association with cryonics (Letter from H.T. Meryman, President of the Society to J.D. Leaf dated 5 October, 1981). These efforts at dialogue apparently resulted in further polarization of the Society against cryonicists (see the letter from Mazur to Carr quoted below) and resulted in escalation of the conflict.

On 4 September, 1981 Society President Harold Meryman wrote, and circulated within the Society, a "Policy Draft: Cadaver Freezing," the purpose of which was to inform the media of the "truth" about cryonics and separate the Society for Cryobiology from the activities of the "cadaver freezers." This "Policy Draft" is reproduced here. Note that it contains the following statement: "...to encourage individuals to invest many tens of thousands of dollars in post-mortem freezing with the implication of ultimate reanimation borders more on fraud than either faith or science." As was previously noted, a modified version of this Policy Statement was adopted at the same time the Society changed its bylaws in 1982.

In 1985, (after the previously mentioned Society meeting in Madison) a research abstract and paper on subjects unrelated to cryonics (i.e., canine bloodless perfusion and deep hypothermia) were rejected for publication *after* presentation at the Society's 1985 annual meeting, solely because the work was sponsored and conducted by cryonicists and cryonics-related organizations (Dr. Gregory M. Fahy, personal communication). Despite the fact that the paper was well-received and was "defended" by both Society President, Stanley Leibo and Society Treasurer, Greg Fahy (Letter from G.M. Fahy to J.D. Leaf dated 26 July, 1986), and further, despite the fact that the authors agreed to the extraordinary request by Leibo and Fahy to have the paper appear *without* any indication of the (cryonics) institutional affiliation or sources of funding support (Letter from J.D. Leaf to S.P. Leibo dated 15 July, 1985).

The intensity of the animosity and hatred of cryonicists by cryobiologists can perhaps best be gauged by a remark reported to have been made by John Baust (then the Society's President-elect) at the 20 June, 1985 Society Board Meeting (which

The Board of Governors of the Society for Cryobiology has received inquiries regarding the policy of the Society toward individuals and organizations engaged in the long-term, low temperature storage of human cadavers in anticipation of eventual reanimation.

The Board recognizes and respects the well-established freedom of individuals to hold and express their own opinions and to act, within lawful limits, according to their beliefs. Preferences regarding the disposition of the dead are clearly a matter of personal belief and, therefore, inappropriate subjects of Society policy.

The Board also recognizes that the goals of cryobiology include not only achieving an understanding of freezing injury and its avoidance but also applying this knowledge to the preservation of cells, tissues, organs and organisms. A future achievement may well be successful mammalian cryopreservation. However complex the social consequences of such a development might be, this is no basis for discouraging research in cryobiology. The cryopreservation of biological systems remains a legitimate scientific endeavor which the Society for Cryobiology is chartered to support.

Current understanding in cryobiology is at best fragmentary. Many cells and tissues are refractory to cryopreservation by the best available techniques. There is no confirmed report of successful cryopreservation of an intact animal organ. It can be stated unequivocally that mammalian cryopreservation cannot be achieved by current technology.

Nonetheless, certain organizations and individuals are advocating that persons be frozen subsequent to death on the premise that science may ultimately develop the capability both to reverse the injury of freezing and to revive the cadaver. The Board does not choose to involve itself in a discussion of the degree of remoteness of this possibility. The Board does, however, take the position that cadaver freezing is not science. Freezing and indefinitely storing a cadaver is not an experimental procedure from which anything can be learned. The knowledge necessary for the revival of whole animals following freezing and for reviving the dead will come not by freezing cadavers but from conscientious and patient research in cryobiology, biology, chemistry and medicine. The sole motivation for freezing cadavers today is the remote hope on the part of individuals that this may be a means of avoiding death. It is an exercise of faith, not of science. Furthermore, to encourage individuals to invest many tens of thousands of dollars in post-mortem freezing with the implication of ultimate reanimation borders more on fraud than either faith or science.

The Board finds human cadaver freezing to be at this time a practice devoid of scientific or social value and inconsistent with the ethical and scientific standards of the Society. The Board recommends to the Society that membership be denied to organizations or individuals actively engaged in this practice.

4 September 1981

followed the paper's presentation) to the effect that accepting such work for publication from cryonicists, even valid, scientifically sound work, was like accepting for publication human hypothermia studies done on Jewish concentration camp victims by Nazi war criminal Josef Mengele. The final verdict as reported in the minutes of the Society's 20 June annual Board Meeting was:

"The Board shall instruct the Editor-in-Chief of the Journal of Cryobiology to not publish abstracts numbered 48 and 49 submitted for presentation at the 1985 Annual Meeting of the Society for

Cryobiology on the grounds that publication would be detrimental to the Society for Cryobiology.

The motion was seconded and after considerable discussion the motion passed with ten votes in favor and one abstention."

This incident caused intense anger and resentment among cryonicists. However, it was by no means the first example of grossly unfair and prejudicial treatment of cryonicists by cryobiologists. In 1981 an internationally renowned organ cryopreservation researcher was called into his supervisor's office (the supervisor was

also an Officer and Director of the Society) and threatened with dismissal if he continued not only his low profile association with cryonicists, but also his suspension membership. It was also pointed out to this researcher that if his association with or belief in cryonics in any way became public he would never again get grants from the NIH or other routine sources. This individual, who was already wearing his suspension bracelet on his ankle* to avoid public comment, was thus faced with a terrible dilemma: a choice between his chance at continued life via cryonics, or his career.

(It is ironic to note that bracelets worn around the ankle are commonly called "slave bracelets.")

A little less than a year after the meeting in Madison, the Society felt sufficiently threatened by cryonics that director Peter Mazur sent a letter to the Society's legal counsel, Mr. Joel Carr of the law firm Patterson, Belknap, Webb, and Tyler, which is quoted below:

"Some body-freezers are attempting to become members of the Society, and, whether members or not, are attempting to present papers at our Society annual meeting (abstracts of which are ordinarily published) and to publish papers in our Journal. A few have succeeded in doing so despite our efforts to prevent them.

Our reasons for wishing to prevent them are that we feel that their association with our Society and publishing under the Society's name will have a highly detrimental effect on a legitimate field of science and consequently will have a detrimental effect on the careers of those of us in the field of cryobiology. Secondly, the association may well cause bona fide members to leave the Society or result in potential valuable members deciding not to join the Society. At our last annual meeting there were strong rumblings from some younger members about the former. Our concern is based partly on our feeling that their basic approach has no scientific validity, partly on the repercussions of media attention to their thesis and practice, and partly on the fact that they charge their clients money for the practice.

But the other face of the coin is whether we open ourselves to legal action by preventing them from gaining association with the Society. The basic problem then is what should the Board do to protect the Society from being damaged from their association while at the same

time minimizing the probability of being sued?....

The problem that we have faced is that one can conceive of three main categories of body-freezers (with many possible intergrades):

Category 1: Individuals who are publicly known members of body-freezing organizations who wish to present or publish papers clearly relevant to body-freezing or become members of the Society.

Category 2: Individuals like (1) except that the work they wish to present in our Society is adequate scientifically and obviously related to body freezing.

This category gives us the most problem because they also publish pseudo-science body freezing articles and are publicly associated with body-freezing organizations.

Category 3: Individuals privately known to espouse the aims of the body-freezers but who otherwise act as bona fide cryobiologists as we define bona fide. This category does not cause us much concern..." [Nor should it have, since they had already succeeded in thoroughly terrorizing them into silence. --M.D.]

...Two events the past month are transforming the problem from an academic exercise to reality. One is that our director's and officer's insurance is to go up five-fold next summer. The other is that we have heard that two individuals whose abstracts the Board refused to publish last fall are angry enough to possibly initiate legal action."

Cryonicists began to react to these

very unfair actions on the part of the Society for Cryobiology. It was one thing to publicly criticize cryonics and to question its workability. It was quite another to accuse innocent people of fraud, suppress free exchange of scientific information, interfere with free trade, and terrorize cryonicists (who also had the misfortune of being professional cryobiologists) with destruction of their careers and loss of livelihood, and give out misinformation about basic cryobiology in the bargain.

By the mid-1980s this reaction had crystallized into a new and aggressive stance by cryonicists in dealing with cryobiologists. Cryobiologists who appeared on talk shows or in public forums opposite cryonicists no longer found them meek and amiable. Instead, they found cryonicists who were increasingly organized, capable, and willing to debate cryobiologists on the technical and scientific assertions which cryobiologists formerly made unchallenged and without supporting evidence. And above all, the cryobiologists found themselves confronting people who were bitterly angry and feeling, with plenty of justification, that through their actions cryobiologists might kill them.

Cryonicists' Growing Militance

The cryobiologists were also unaware that the passage of years had seen a number of radical changes in cryonics. Cryonics was no longer the undertaking of



Left: David Pegg, Right: Stanley Leibo

a few amateurs with little scientific background and inadequate debating skills. Cryonics had begun to grow up. The typical active cryonicist was now highly educated, articulate, and scientifically knowledgeable. Indeed, many cryonicists had a broader and deeper understanding of the basic principles of cryobiology and the mechanisms and extent of cryoinjury than many of the over-specialized cryobiologists they confronted in public debates.

And just as important, the technology of cryonic suspension had been vastly improved over the decade between 1970 and 1980. No longer was cryonics a back-room operation carried out by morticians and unskilled helpers. Rather, cryonic suspension was being carried out using state-of-the-art surgical and medical technology by trained professionals — including physicians, registered nurses, and, yes, professional cryobiologists (who also happened to be members of the Society for Cryobiology).

Thus, the cryobiologists who chose to debate cryonicists both publicly and privately found themselves confronting an enemy that was affluent (compared to the past!), skilled at debating, presentable, personable, professional in appearance, and fully capable of aggressively, yet rationally, challenging each and every one of the cryobiologists' unproved assertions about the evidence against cryonics.

Cryonicists also became intolerant of any public assertion on the part of cryobiologists that cryonics or its practitioners were engaged in fraud. Communications were sent apprising the Society that assertions that cryonics was fraud constituted both a serious criminal and civil allegation and that appropriate legal action would be taken if such allegations continued (cf. Series of letters from Robert Ettinger and Michael Darwin sent to the Society in the mid 1980s: specifically Letter from M.G. Darwin to H.T. Meryman dated 21 April, 1982). As a result, by and large, allegations of fraud ceased.

Yet another problem cryobiologists confront as a result of the existence of cryonics is the problem of *envy*. Shortly after the start of the cryonics program, cryobiologists began to suffer not only from the confusion in the public mind between cryobiology and cryonics, but from a singular lack of media attention as a result of cryonics "stealing their thunder." David Pegg, a leading organ cryopreservation researcher, has complained bitterly to the media and to cryonicists that his "valuable, serious work is virtually ignored by

the media and the public in favor of the macabre lunacy of the cadaver freezers..." (conversation between David Pegg and Judith Hann, Presenter of BBC's *Tomorrow's World* following Pegg's appearance opposite the author on the *Kilroy-Silk Show*, aired 3 March, 1989).

Media attention on cryonics is constant and unremitting, and while often not favorable, it nevertheless remains that cryonicists have the ear of, and access to, the international public; an *entre* denied even the most successful and hardworking cryobiologist. Because most cryobiologists consider cryonics unworkable at best, and fraud at worst, this situation of perceived unfair media attention infuriates them and perhaps makes them feel justified in using the questionable tactics they have in attacking cryonics as a whole and individual cryonicists within their ranks.

Errors of Fact?

A more subtle problem is that cryobiologists are experts in two closely related areas: the nature of cryoinjury, and possible strategies for preventing it. As is usually the case in any scientific discipline, initial progress was made almost exclusively on the basis of empirics: a trial-and-error approach to achieving successful cryopreservation. Additionally, as is also usually the case, understanding of the mechanisms of injury (reasons why it won't work) has proceeded faster than the innovation of techniques to prevent injury from occurring.

An added problem is that until very recently there has been no unifying theory of cryoinjury which was capable of pointing the way toward a common technical method for preventing such injury in most living systems. Thus, cryobiology is a science rich in researchers whose careers have focused on the idiosyncrasies of preserving (and understanding injury in) individual systems such as red blood cells, tissue culture cells, embryos, and so on. An investigator may spend years working out the mechanics of a preservation protocol and understanding the nature of injury to a single class of cells or tissues. Thus, a red blood cell cryobiologist will employ techniques and use research approaches which are liable to differ greatly from those used by an investigator interested in cryopreserving embryos. Entire careers or significant fractions thereof may be spent on mastering the preservation of a single cell type.

Furthermore, moving from cells to organs presents a whole new series of problems to overcome. Until the work of Mazur (Mazur, P., "Causes of injury in frozen and thawed cells." *Fed Proc.* (Suppl. 15) S175-S182, 1965.), Pegg (Pegg, D.E. and Diaper, M.P. "The mechanism of cryoinjury in glycerol-treated rabbit kidneys." in *Organ Preservation: Basic and Applied Aspects* edited by D.E. Pegg, et al., MTP Press, Ltd., Lancaster, 1982.) and Fahy (Fahy, G.M., "The relevance of cryoprotectant 'toxicity' to cryobiology." *Cryobiology*, 23:1, 1986.), there was no clear, unifying understanding of cryoinjury on both the cell and tissue/organ level. With the work of Fahy in particular, a common pathway to achieving cryopreservation was laid out (vitrification, wherein no ice is formed upon cooling) which should in theory work for virtually all mammalian tissues (Fahy, G.M., and Hirsch, A., "Prospects for organ preservation by vitrification." In *Organ Preservation, Present and Future* (D.E. Pegg, I.A. Jacobsen, and N.A. Halaz, Eds.) MIT Press, Lancaster, 1981.)

As a consequence, cryobiologists tend to be "microspecialists," often with a sad lack of awareness of progress in other areas even within their own discipline. Recently, the internationally renowned *in vitro* fertilization expert and human embryo cryopreservationist Alan Trounson appeared opposite the author on Australian TV (the Peter Couchman program in Melbourne, Australia, 3 October 1990). Trounson vigorously asserted on that program, in front of an estimated audience of 500,000 people, that all mammalian cells freeze intracellularly (that is, the interiors of the cells freeze), even at slow cooling rates and with cryoprotectants present, and that cryonics patients are reduced to chewed-up debris by this intracellular ice.

Intracellular freezing is somewhat more of a problem with early embryos because of the tightly packed arrangement of the cells which slows water loss during freezing. This can be easily overcome by using slow enough cooling rates. It is *not* a problem for other mammalian cells (with the exception of egg cells; due to their large size and resulting poor surface to volume ratio, mammalian eggs must also be cooled very slowly). There can be little doubt that other cryobiologists with expertise in cell and organ cryopreservation would be aghast at the assertion that mammalian cells freeze intracellularly at slow or even moderate cooling rates! Consider the following exchange between myself

and Dr. Trounson on the Couchman Programme:

Trounson: "Now what would be happening with these tissues [in a cryonic suspension patient] that have been frozen in this way, if you watch under a microscope you get a flash, which is the formation of intracellular ice, that is ice forming inside the cell. Now, in some ways if you looked at that in histology, yes, some of the structures would be pushed out of the way. But the ice also encapsulates many, or all of the small intracellular components of that cell, disrupting them. So that when the cell is thawed out even though it still has a structure, which has been pushed around, all of those minute and essential parts of the cell are destroyed. They won't function. You can look at them in histology and they are still there, but they won't function."

Couchman: "I gather that you are not prepared to accept, even letting your scientific imagination run free here that —"

Trounson: "Well the problem is, Peter, that that most of those cells will in fact be destroyed [by the freezing process]. Mike's using a lot of license here in the way he is portraying this. Because he's saying "OK in 600 years we'll have great whoopee science," and that may be so; we may be able to freeze whole bodies in 100 years time because we might have worked out a totally different system."

Couchman: "That's right, because

your science now would now have been great whoopee science for people in the middle ages."

Trounson: "But if you freeze a complicated group of cells, and if you take a brain that you freeze in this way — I'll tell you one possible scenario is that all the tumor cells might survive and none of the other brain cells, so that what you get back is a tumor and not the brain —"

Couchman: "[Mike.] without getting involved in a really complex scientific argument that none of us can understand —"

Darwin: "I'll try very hard, but he has raised scientific issues that he is simply wrong on. I must say I'm appalled. For a professional cryobiologist to sit there and say the things you did about flashover of ice inside cells.... That only occurs with intracellular freezing! You couldn't intracellularly freeze this man's brain (gesturing at Thomas Donaldson) or mine if you tried because you couldn't get a high enough freezing rate for that if you tried. When you cool at moderate rates cells are dehydrated by freezing..."

Trounson: "You're wrong because we freeze embryos at the slowest possible rate, 0.1 °C per minute, and they form intracellular ice."

Donaldson: "How many brains have you frozen?.... We're not discussing freezing embryos."

Trounson: "You're just wrong!"

Darwin: "We have done freeze-substitution studies on human and animal

neuronal tissue and we know they do not freeze intracellularly."

Trounson: "You're wrong! You must not mislead these people. These cells are damaged beyond repair."

Darwin: "How can you say that? You're an expert on injury and you don't even seem to know about injury in tissues that are frozen slowly. You cannot sit there and say that it's never going to be possible to repair that [damage]. How can you say that?"

As the above illustrates, Trounson, a respected scientist and so-called cryobiologist, was (and presumably still is) unaware that cells cooled at a slow or moderate rate, indeed even cells cooled at 1 °C per minute do not freeze intracellularly. Nor is this knowledge very arcane; most competent cell, tissue, or organ cryobiologists would be aware of this. I quote from cryobiologist Peter Mazur's excellent review paper "Freezing of living cells: mechanisms and implications." (*Amer. J. Physiol.*, (Cell Physiol. 16), C125 (1984)):

Fate Of Intracellular Water During Freezing

"The chief physical events occurring in cells during freezing are depicted schematically in Fig. 1. Down to ~-5 °C, the cells and their surrounding medium remain unfrozen both because of super-

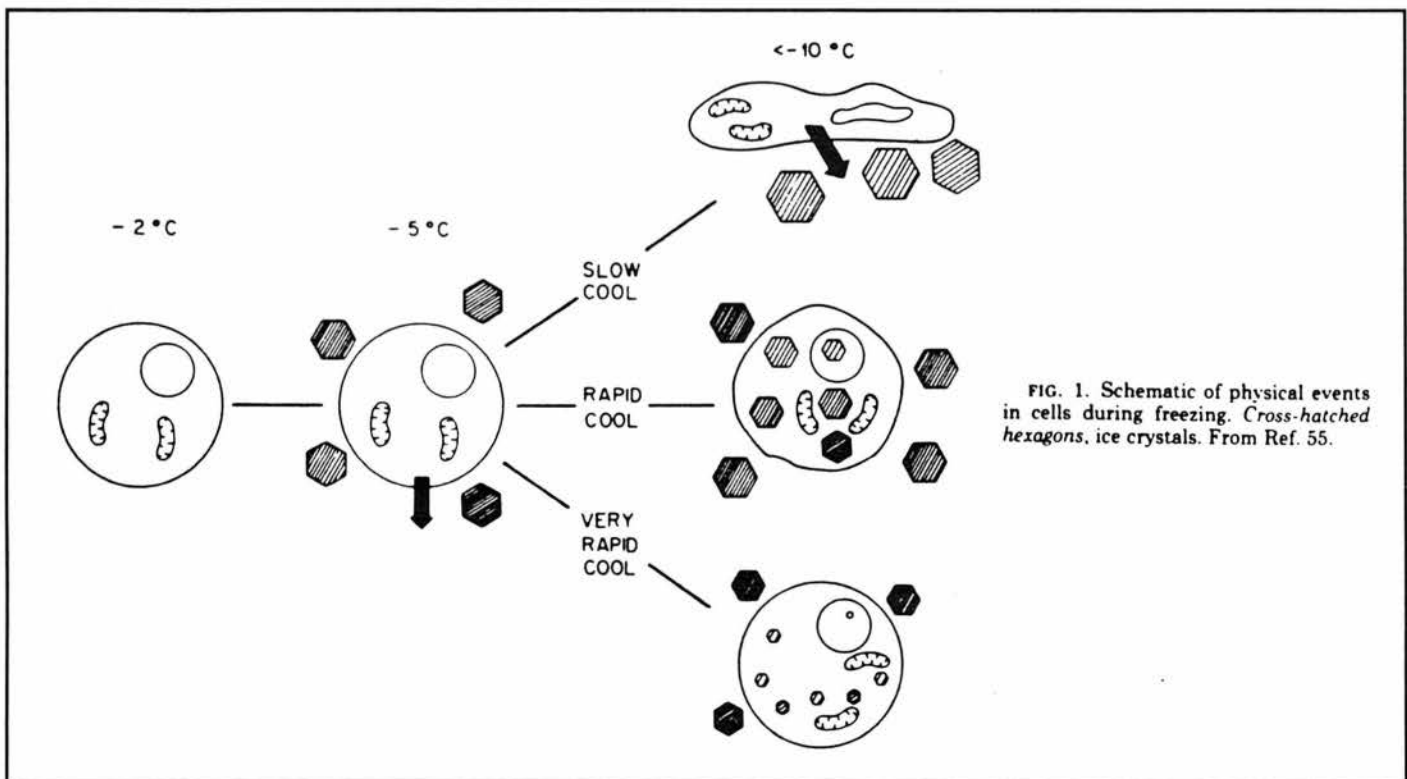


FIG. 1. Schematic of physical events in cells during freezing. Cross-hatched hexagons, ice crystals. From Ref. 55.

cooling and because of depression of the freezing point by the protective solutes that are frequently present. Between -5 and \sim -15 °C, ice forms in the external medium (either spontaneously or as result of seeding of the solution with an ice crystal), but the cell contents remain unfrozen and supercooled, presumably because the plasma membrane blocks the growth of ice crystals into the cytoplasm (see below). The supercooled water in the cells has, by definition, a higher chemical potential than that of water in the partially frozen solution outside the cell, and in response to this difference in potential, water flows out of the cell and freezes externally.

The subsequent physical events in the cell depend upon the cooling velocity. If cooling is sufficiently slow (Fig 1, upper right), the cell is able to lose water rapidly enough by exosmosis to concentrate the intracellular solutes sufficiently to eliminate supercooling and maintain the chemical potential of the intracellular water in equilibrium with that of extracellular water. The result is that the cell dehydrates and does not freeze intracellularly. But if the cell is cooled too rapidly (Fig. 1, bottom and center right) it is not able to lose water fast enough to maintain equilibrium; it becomes increasingly supercooled and eventually attains equilibrium by freezing intracellularly."

As Mazur then goes on to note, for cells such as red blood cells the critical cooling rate for intracellular freezing to occur would be in excess of 1000 °C per minute! For human lymphocytes 40 °C per min, and for mouse or human embryos frozen in 1M DMSO, 3 °C/min (Trounson's assertions to the contrary notwithstanding). Please remember that the typical cooling rate for a human cryonic suspension patient is on the order of 3 ° to 4 °C per hour, or 0.06 °C/min!

A few other references documenting the absence of intracellular ice in cells and organs frozen at moderate or slow rates are presented below (there are many, many others):

Lovelock, J.E., "The mechanism of the protective action of glycerol against hemolysis by freezing and thawing." *Biochim. Biophys. Acta.* 11:28, 1953.

Meryman, H.T., "Modified model for the mechanism of freezing injury in erythrocytes." *Nature* 218:333, 1968.

Fahy, G.M., "Analysis of 'Solution Ef-

fects' Injury: Cooling Rate Dependence of the Functional and Morphological Sequelae of Freezing in Rabbit Renal Cortex Protected with Dimethyl Sulfoxide" *Cryobiology* 18, 550-570 (1981).

Pegg, D. E., "Ice crystals in tissues and organs" in the *Biophysics of Organ Cryopreservation*, pp. 117-136, Plenum Press, New York and London, 1987.

Trounson's remarks are a telling example of the effects of over-specialization and fragmentation of knowledge about cryobiology. As Thomas Donaldson correctly asked Dr. Trounson during this exchange: "How many brains have you frozen?" This was a question Trounson never answered.

A consequence of this fragmentation and over-specialization within the cryobiological community has been a failure to see the big picture. Few cryobiologists know anything about the true nature of freezing damage to organs or whole organisms. If called upon to describe the damage on an ultrastructural, tissue, and gross level, probably not three cryobiologists in 100 could do so (and keep in mind that the Society only has approximately 300 members). This ignorance, coupled with the arrogant and mistaken certainty that the injury they have observed in their area of specialization applies to cryonic suspension patients, has resulted in heated verbal exchanges between cryonicists and cryobiologists. Rarely, if ever, have cryobiologists taken the time to educate themselves about the issues they declaim on as experts.

It is also worth noting that when errors such as the one highlighted above are subsequently brought to the attention of such talk-show cryobiologists (with appropriate documentation, as has been provided here) there has never been a retraction, apology, or admission of error, either public or private. Indeed, the most common response is no response at all.

Another example of the public deceit engaged in by cryobiologists is the public denial by the Society of their policies and procedures toward cryonicists. The following dialogue occurred between Society Vice-President James Southard (a highly respected hypothermic organ preservationist from the University of Wisconsin) and the author on the *Larry King Show* (aired live, 11 July, 1989):

Darwin: The Society for Cryobiology has so harassed its members who are also

cryonicists that several prominent cryobiologists who are also cryonicists are afraid to come forward because of fear for their jobs, for their very livelihoods. In fact, the Society has a regulation which prevents cryonicists from being members.

King: Is that true?

Southard: Not true... The Society for Cryobiology will not eliminate anybody who is doing bona fide science and who will submit their scientific papers for review...

Given Southard's position in the Society and the fact that it was he who accepted the abstracts for presentation at Madison it must be said that his statements above reflect either profound ignorance, an incredible lapse of memory, or an outright lie. (A letter sent to Dr. Southard following the King program documenting these errors (and others) was never answered (Letter from M.G. Darwin to J.M. Southard dated 11 July, 1989).)

Southard then went on to comment in response to remarks from Alcor Member Brenda Peters that Alcor's hypothermic dog perfusion/recovery studies were not accepted for publication because they were found as a result of peer review to "not constitute bona fide science." This is hardly the picture painted in the communications from Fahy previously cited or what the 20 June minutes reflect as the real reason the work was rejected.

Beyond an often appalling degree of ignorance about the nature and extent of cryoinjury, the first half of the cryonics problem, there is a total lack of any knowledge or understanding of the second half of the problem: the problem of repair. Cryobiologists often refer to cryonicists' discussion of speculative strategies for repairing cryoinjury as "science fiction." Further, they are often opposed on ethical grounds. Consider the following dialogue between James Southard, Alcor Member Brenda Peters, host Larry King, and myself, again from the *Larry King Show* cited above which nicely illustrates both these points:

King: James, do you want this [cryonics] to work?

Southard: No. I don't see any reason why one isn't satisfied with the one life that they have on earth. I mean from a personal standpoint.

Darwin: That's a monstrous statement to make.

Peters: Dr. Southard, what is the advantage of a normal lifespan quote un-

quote?

Southard: Look at it this way, there are so many medical problems we have to solve nowadays, that's where the priorities should be. That's where the problems are and that's where the resources and that's where the money should go. I don't think we should hold out false promises to people. I mean these are false promises; it cannot be done.

King: But, and correct me if I'm wrong, all medical research, Doctor, help if I'm wrong here, all medical research is designed to extend life.

Southard: Medical research is designed to extend the quality of life.

King: Or extend it...

Southard: I don't believe it is necessarily to extend life itself.

King: 95% of all health care dollars are spent on extending life.

Southard: No, extending the quality of the life you're going to live on earth.

King: If you could make a good healthy person live a hundred years wouldn't you buy it?

Southard: (pause) I suppose.

Peters: That's exactly what we are talking about... we're talking about bring-

ing people back healthy and strong.

Darwin: Dr. Southard is all in favor of medical research as long as it's his medical research or medical research that he gets to make the decisions about. I am sure that Pasteur and Semmelweis and other people who were responsible for vast extensions of the mean lifespan that we experience right now had exactly the same kinds of criticisms leveled at them.

Southard: Mike, I have no complaints about the fact that you want to freeze people and promise them you're gonna bring 'em back... There is no scientific evidence that you can freeze a body or freeze a multicellular organism and thaw it out [successfully] at this point in time... What you're talking about is science fiction.

Cryobiologists like Southard vigorously attack any effort on the part of cryonicists to speculate within the framework of the current understanding of physical law on possible approaches to repair, stating in effect that until such approaches can be shown to work (i.e., proven by actual experiment) they are meaningless and not worthy of considering

as the basis for taking any current action (i.e., placing people into suspension now). Often they will categorically state that no repair process could ever result in recovery of patients frozen with today's techniques.

This attitude of taking no action in an otherwise hopeless situation until the action is PROVEN to work is incredible, and characterizes few, if any other human undertakings (with the possible exception of the United States drug approval process). It is essential to human survival that people take action and accept risks on the basis of reasoned speculation based on limited insight. When we invest, do an experiment, or venture into any other area of activity where we have no prior "proven" examples, we are pursuing a course of action identical to that being pursued by people choosing to enter cryonic suspension. Indeed, it can be argued that the typical day-to-day risk-taker has a far larger number of options and considerably more to lose that the typical patient entering cryonic suspension, who has no other viable options, nothing left to lose and who has after all been pronounced dead.

To be concluded next month. . . .

Future Tech

Nanotech Notes

Children or Equivalents

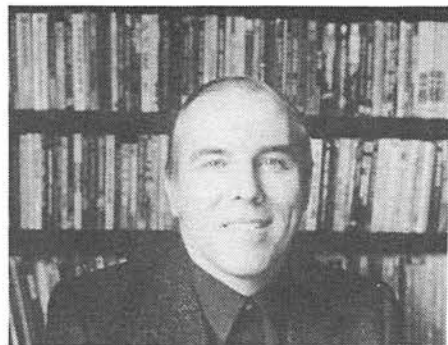
H. Keith Henson

When nanotechnology makes possible significant changes in a human activity as basic as reproduction, it might seem that we are going well beyond its trivial uses — no matter how simple it is to manipulate genes with nanotech tools. However, by that time nanotechnological methods to modify human genes may be considered a *minor* advance. It is already fairly common to sample the genes of the conceived but unborn and take a crude degree of control over the less desirable outcomes of human reproduction. By the time full blown nanotechnology arrives on the scene, ordinary progress in reading/writing DNA may

have reached the point where intervention is pre-conception, i.e., you get what you want without rolling the dice and deciding if you will play this round.

It is useful to look at the current reproductive-control technology and consider minor extrapolations from it before considering what further advances full-scale nanotech might bring.

Current criteria for fetus selecting is almost entirely negative. We select against things like Down's Syndrome and Tay-Sachs disease because we have learned to detect them, and the consequences of these conditions are so debilitating. I estimate



that out of the more than 3,000 known, separate, genetic-disease syndromes, perhaps 100-200 of them are relatively common and range from serious to fatal in their effects. Perhaps as a remote outgrowth of the human genome project we will be able to test for all of them. There is little argument against aborting homozygous Tay-Sachs cases (they live for two years and die horribly) but from there it gets a lot more complex.

Do you abort a fetus that has a 10% chance of becoming diabetic? 20%? 50%? 100%?

Positive selection (for traits such as

beauty, long life, or intelligence) is hard to do by post-conception means even if we had the tools to locate the genes involved. (The problem is that you want to select too many things at once from too small a population.) Eventually we will come to understand what genes contribute to these characteristics. A practical gene reader/splicer is something which could come about pre-nanotech since crude and limited examples of this technology exist today. Given these two advances, there will be a market for "gene editors" whose customers will be parents who insist on starting their children with the best set of genes they can provide.

Science fiction stories have explored these topics at least since "*Brave New World*." The near-term cut 'n splice, making-up-genes-sets from the best the parents have to offer was worked into the story line in the series by Alexis Gilliland. The series started with *The Revolution from Rosinante*. These are incidentally, the best stories on a space-colony theme I know about and the stories have an excellent treatment of how computer personalities could be given legal rights. Marc Stiegler made a passing mention of this stage of development in *The Gentle Seduction*, reviewed in *Cryonics* some time ago. Marc's description involved the next generation's being made from the best genetic traits of their parents.

Marc went on to describe the generation after *that* as being made up of the best personality traits of their parents, leaving genes (and perhaps bodies) entirely out of the equation.

At this stage (if Hans Moravec can be believed) some humans may well foresake flesh entirely, living in, or perhaps *becoming* hardware. Reproduction by the *avant-garde* in this era may well amount to the construction of personalities from the best traits of their "parents." How this would be done begins to drift into regions which get very speculative now, but may turn out to be no more difficult than picking a group of subroutines out of a library.

One point I missed in this discussion is that there should be a choice at some point in this development at which babies do not have to be grown in women, or for that matter, come out of the process as babies. Of course, fully developed nanotechnology could just run off copies of people, memories and all.

Next time I might take up the ethics of copying people, messing with the copying process, and the "human rights" of constructed entities.

THE BATTLE OF THE AGES!



On September 29th, the day after the Alcor Fund-Raising Dinner for Cryonics Research, the *real* fund-raising event will occur: the Basketball BATTLE OF THE AGES. The *Whippersnappers*, two robust, strapping young cryonicists by the names of Derek Ryan and Ralph Whelan, will try to take it easy on the *Elders*, lingering Alcor members Saul Kent and Dr. Peter Gouras (should they remember to get up that day). Donations to the Research Fund in the form of Pledges are encouraged. Some suggested pledges are:

- 10 DOLLARS FOR EVERY BASKET RALPH/SAUL SCORES
- 10 DOLLARS FOR EVERY SHOT DEREK/PETER BLOCKS
- 5 DOLLARS FOR EVERY TUBE OF BEN-GAY SAUL GOES THROUGH
- 5 DOLLARS FOR EVERY INTACT RIB OF THE *ELDERS* AT GAME END

The social event will begin at noon on the Sunday after the Dinner at the residence of Saul Kent (directions available from Alcor). There will be plenty of swimming, eating, sporting, and of course the usual heady conversation. Don't miss it!

I pledge:

_____ for every _____
 _____ for every _____
 _____ for every _____

Please call (714) 736-1703 or write in with your pledges, or bring them to the game.

Citizens for an Extended Lifespan

Allen J. Lopp



In the early months of 1988 the Dora Kent Crisis unfolded and I remember many moments when the entire world seemed to be a conspiracy to make sure that I would die on schedule — *their schedule* — despite my best efforts to the contrary. In addition to my very rational anger in response to the actions of the Riverside County Coroner and the UCLA Police and the news media, I also experienced an enveloping paranoia, a feeling that except for a hundred or two blessed individuals the entire sum of humanity was my enemy. Maybe not out of their explicit malevolence toward me, maybe just by evidence of their thorough indifference to the injustices that “I” was being subjected to. There were literally a night or two that I dreamt that someone was choking me and I could not scream because the hands around my neck were already clenched too tight on my larynx. After weeks in this mental state I decided that indeed, I and other cryonicists must find our political voice and cry for help before the fist of The State closed its awful grip and silenced us forever.

I took my anxiety that year and channeled it into forming a new corporation called *Citizens for an Extended Lifespan, Inc.*

Citizens for an Extended Lifespan, or simply CEL, was formed specifically to educate public officials about life extension and cryonics, and to seek to influence legislation if necessary. I saw a need for a new organization to do this for two reasons: 1) A non-profit charitable corporation, such as Alcor, cannot engage in political activity to a major extent without risking its 501(c)3 status with the IRS; and 2) since legal and political concerns are common among all cryonics organizations, supporters from all cryonics groups might work together on such matters if an organizational structure separate from existing groups was formed.

CEL was incorporated in November,

1988. To be honest, since then it has not done much: It has sent a dozen or so letters to legislators and it has held a few meetings.

Organizationally, CEL is a board of five directors, plus whatever corporation officers and special committees they designate. Currently the Board of Directors consists of Keith Henson, Linda Chamberlain, Jerry White and John Day of the American Cryonics Society, and myself. Keith is President and I am Secretary/Treasurer.

CEL also has a Scientific Advisory Board. Those who have been named to this special committee are Thomas Donaldson, PhD; Greg Fahy, PhD; Steven B. Harris, MD; Ralph Merkle, PhD; and Jim Stevenson, PhD. The purpose of the Scientific Advisory Board is to review CEL literature for scientific accuracy and to provide scientific testimony at governmental hearings. We have not really utilized the services of the Scientific Advisory Committee yet.

I do not want to create the impression that CEL is a do-nothing organization. I would rather characterize it as a temporarily dormant organization. It is possible that CEL was formed several years before it was really needed and, if so, I accept responsibility for this. (So sue me!) Just the same, I still have guarded optimism that CEL will develop into a very worthwhile organization in the future, and maybe soon. Our need for an entity such as CEL is likely to grow in coming years, and only when cryonics is totally mainstream will this need lessen and eventually disappear.

I am writing these installments in *Cryonics* because I would like to encourage the entire Alcor constituency — and members in other cryonics organizations as well — to think seriously about what may be needed politically to protect our right to practice cryonics and to choose cryonic suspension for ourselves.

Even though I am willing to continue to be maybe the only Alcorian who writes regularly to legislators about keeping cryonics legal in California, obviously the more of us who do this, the better. And not only write letters, but also call their offices and visit their offices. In California there may be only about two hundred people with cryonic suspension arrangements with *any* organization, so it is vital that *every single one of us* be willing to lobby in favor of cryonics if necessary.

Washington Initiative 119

In the state of Washington this November, voters will cast their ballots on Initiative 119, which allows a physician to administer “aid in dying” to a terminally ill patient upon request by the patient. It appears that, if passed, the measure would enable a cryonics organization to place a terminally ill patient into cryonic suspension before natural death, presuming the patient requests this properly and a cooperative physician can be found.

The initiative is supported by the national Hemlock Society, the largest of the right-to-die groups now in existence. The Hemlock Society is based in Eugene, Oregon.

Personally, I support right-to-die laws if it is required that the patient request the termination of his or her own life. (In contrast, I do NOT support the right of family members to “pull the plug” on comatose patients that have not expressed their wish for this in writing.) So even if I were not interested in cryonics I would support the goals of the Hemlock Society.

Cryonics proponents have had limited contact with leaders in the Hemlock Society and, sadly, their attitude toward us is not good. Most of them are not willing to even entertain a fantasy that cryonics might work and they certainly don’t want to be associated with us. I have found that their lawyers, however, are always very

open-minded and agreeable toward me. . . .

Just the same, even if they don't want our public support, I suspect they WILL cash our checks if given the chance. Passage of Initiative 119 in Washington would at least give someone like Thomas Donaldson a place to go for pre-mortem cryonic suspension, and passage in Washington would hopefully encourage passage in California as well. Thus I would encourage anyone so inclined to

donate to the cause. I understand that right-to-life groups are fighting the measure ardently, and contributions are needed. You may send your contributions to support Initiative 119 to this address:

Washington Citizens for
Death with Dignity
P.O. Box 84463
Seattle, WA 98124

Your gift is a political contribution and is *not* tax deductible.

I would heartily encourage you to include a note saying that you support their effort because you are interested in cryonic suspension and may need such an option yourself someday. They probably won't appreciate this — but do it just to gall them, if nothing else.

For the Record

First Suspension no "Blue Sky" Event

Mike Perry

The freezing of James Bedford in January 1967 was the first (albeit crude) cryonic suspension. It was a major milestone, but like many other such occurrences, it didn't happen in a vacuum. Here I'd like to summarize some events that led up to this turning-point, and briefly relate the event itself, as it was seen in the budding cryonics movement.

Early on, there had been optimism. Robert Ettinger wrote in *The Prospect of Immortality*, "My own guess is that most of us will be frozen by nondamaging methods..."¹ It wasn't long though, before it was recognized that there would be problems in getting even one person frozen, despite the best efforts of a few dedicated individuals, and the fact that over 50 million people were dying each year. After two years of promoting the concept, Evan Cooper in December, 1964 fumed in exasperation, "Are we shouting in the abyss? How could 110 million go to their deaths without one, at least trying for a life in the future via freezing? Where is the individualism, scientific curiosity, and even eccentricity we hear so much about?"²

To expedite matters, Cooper's Life Extension Society, in June 1965, offered to freeze the first person free: "The Life Extension Society now has primitive facilities for emergency short term freez-

ing and storing our friend the large homeotherm (man). LES offers to freeze, free of charge, the first person desirous and in need of cryogenic suspension."³



Dr. James Bedford

(Despite the generous offer, however, LES would never freeze anybody.)

By this point, there had already been a tragic near-miss. Wilma Jean McLaughlin



of Springfield, Ohio expired of heart and circulatory problems May 20, 1965. Ev Cooper filed a report the following day, from which the following is excerpted:⁴

"The woman who almost became the first person frozen for a possible reanimation in the future died yesterday. The attempt to freeze her was abandoned. The reports on why the freezing was given up vary considerably according to the newspaper, newscast, or long distance call. However, the following are apparently some of the obstacles that developed.

"1. Though the husband was pre-freezing, some of the relatives and their minister were against it. The minister was reported to have been opposed because the operation was untested and the doctors could not assure him the experiment would succeed.

"2. The physician would not aid in the experiment, according to the N.Y. *Herald Tribune*.

"3. The hospital administration and trustees met in emergency session, according to reports, and refused to go along with certain procedures after death, according to the Philadelphia *Inquirer* and other press agencies.

"4. Leonard Gold of Juno, Inc., as reported in the Washington *Post*, said his company's 'capsule' or insulated container wasn't available. His company had been

caught off guard, he said, and only a prototype was in existence which was still being tested.

"5. The minister warned, according to the UPI and the Washington Post, that 'the idea was new and laws had not been enacted to regulate the company involved.'

"6. The subject for freezing was unconscious and did not know anything about the plan according to most reports."

Another tragic near-miss occurred later in the year.⁵ Dandridge M. Cole was a brilliant scientist and technology forecaster who had received a pre-publication copy of Ettinger's book in 1963, and had been deeply impressed. His own most recent book, *Beyond Tomorrow*, had devoted several pages to the subject of suspended animation. He had expressed a wish to be frozen after death to several friends and relatives, and had had a long discussion on the subject with a close friend and colleague, Robert Prehoda. Prehoda was interested in cryobiology and wrote a book, *Suspended Animation*. He was, however, a determined opponent of cryonics, although he would later take part, reluctantly, in the Bedford freezing.

Cole was only 44 when, on Oct. 30, 1965, he suffered a fatal heart attack. After

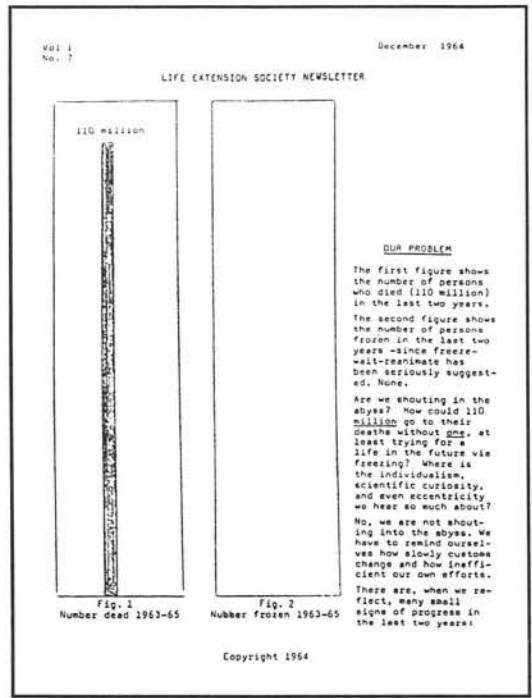
some delay a call was placed to Ettinger, who later would write, "I was consulted by long-distance telephone several hours after he died, but in the end the family did what was to be expected — nothing." Discussing the matter in *Suspended Animation*, Prehoda managed to rationalize that "Rational counsel prevailed, and Dan was given a dignified burial."

A success of sorts finally did occur, however, on April 22, 1966. An elderly woman (never identified) who had been previously embalmed was straight-frozen, though only after a long interval of *non-frozen* storage. The freezing was by Cryocare Corporation in Phoenix, Arizona, and the woman appears to have come from the Los Angeles area. "Someone has been frozen at last!" Cooper jubilantly responded, but added a cautionary note:

"There is little or no thought that this first frozen pioneer will rise again in the 21st or 22nd century as considerable time elapsed between death and freezing. If the cooling and perfusion of the person with cryoprotective agents isn't begun immediately at death the memory, which is believed a matter of fine molecular place-

ment, would soon disintegrate. As this first person was frozen long after death there is no known hope for re-establishing the original memory and thus the personality. Yet this imperfect beginning may be a step forward toward bringing an extended life to others via cryogenics."⁶

(Within a few months the woman was



Doctor of Idealism

Bedford 'Experimented' On Behalf of Others

JAN 19 1967

By GEORGE S. GOSHORN
News-Press Staff Writer

Why did Dr. James H. Bedford choose a future in which he would be frozen into a "state of suspended animation?"

Jim Bedford knew many honors, wrote books on serious themes, lectured on innumerable occasions, taught for years in Glendale schools but at no time was known to have forecast an effort on his part to win a future life on this earth.

Dr. Jim, it is known by this time, made arrangements prior to his death last week for his body to be frozen for an indefinite period — perhaps a century or maybe several centuries — and to be revived if possible when a cure for cancer is found.

A serious-minded man of pleasant disposition, Jim made many friends. Mostly his talk

was about practical ideals such as vocational guidance for young people and readjustment of war-worn service men to civilian life.

These subjects occupied most of his attention and accounted for the habitual frown that marked his otherwise good natured countenance. It was a frown of concentration, not ill temper.

He wrote such books as "Youth and the World's Work" and "The Veteran and His Future Job." He founded a work experience program at Glendale College, the basis of which was on-the-job training.

"Progress must be made on the educational front," he once said, "to meet the challenge of the atomic age."

He would tell his students, "Don't be afraid to wear overalls. There is less competition in the overalls division of life

than in the white-collar section and also greater opportunities and better pay."

He directed vocational guidance studies at John Brown University. He and a school friend, Dr. Bert F. Steelhead, collaborated on articles and books with vocational themes.

Jim had served in World War I and, after that conflict, helped servicemen fit themselves for return to daily life at home. He was still devoting his spare time to that endeavor when another world war turned loose thousands more servicemen who were having trouble fitting themselves for humdrum civilian life. So his ideals in the occupational field never found an occasion for growing slack.

Occasionally Jim took a radical departure from his course

to the Canadian Northwest and to Alaskan lands. Despite the hardships, he found the journeys fun and came back with stories and camera slides so he could pass on his hard-won information to others.

Then he tried a wilderness tour in the Amazon country of South America and varied this research with an African safari which gave him close acquaintanceship with lions and other animals usually confined to zoos in civilized areas because of their lack of acceptable social qualities.

Such experiences might make even as mild-mannered a man as Dr. Bedford give a serious thought to what may happen when the curtain comes down on a worldly existence.

One of Jim's closest friends expressed surprise at the unusual aftermath of Dr. Jim's career.

"It seems fantastic," he remarked, "and I can't explain it. I can offer a guess, however, knowing Jim as I did, that he might well have been thinking of others more than of himself."

He was bound to know of the dedicated efforts of science to find a cure for cancer. He might well have read of the dream of scientists that successful freezing of man might open the way

removed from suspension.⁷)

Finally, the big event occurred: the freezing of Dr. James Bedford January 12, 1967, in Glendale, a Los Angeles suburb. Bedford was a 73-year old retired psychology professor who had written several books on occupational counseling. "A SECOND PERSON HAS NOW BEEN FROZEN IN CALIFORNIA. REVIVAL A GOAL" was how Cooper broke the news in the January, 1967 issue of *Freeze-Wait-Reanimate*, from which the quotations that follow were taken.⁸ The freezing was carried out by affiliates of the newly-formed Cryonics Society of California: Robert Prehoda, author and cryobiological researcher; Dr. Dante Brunol, physician and biophysicist; and Robert Nelson, President of the Society. Also assisting was Bedford's physician, Dr. Renault Able. Several advances were outlined in Cooper's report:

"1. The time between death and beginning the cooling has been drastically reduced. This means there may be some hope for reanimation in the distant future when reanimation techniques have been perfected and a cure for cancer [the cause of death] has been found.

"2. This reduction in time was made possible by the person in danger of death making his wishes known, in locating a suitable place and a willing doctor. A nursing home was located in this instance. Nursing homes, the home of a doctor or nurse, or the patient's home are the most likely places for these pioneering freezings. In these homes only one or a few people need to be convinced of the worth and rationality of freezing. Whereas, in a large hospital the chain of acceptance is a long one....

"3. Another advance is that this second person is reported to have been perfused with cryoprotective agents whereas the first person was embalmed. Is there a difference? Yes, perfusion at its

best in a good hospital or clinic under careful scientific control can be quite a complicated procedure in comparison to embalming. The aim of perfusion is to extend that process to man which has been most successful in freezing, storing and

Some details were exaggerated in the press:

"The newspaper reports in general gave an unemotional [account] of the freezing, but with some misunderstandings and exaggerations. The Los Angeles *Herald Examiner*, on the front page, stated 'an elderly man who died last night of cancer was placed in a state of deep freeze moments after death ...' The *Washington Post* carried two additional statements of impossibilities: 'The body of the man was quick-frozen "virtually instantaneously" with his death Thursday, according to Robert Nelson ...' and 'He said the body was quick-frozen and a mechanical heart machine was attached to the man's heart.'

"Obviously it wouldn't make any sense to quick-freeze a person and then attach a heart machine. Second, it is impossible by present means to quick-freeze a person. Experiments indicate that even the attempt to quick-freeze with present methods often leads to the rupture of organs. One needs to be quick in *beginning* the cooling and perfusion processes once the person has died, but the freezing should be rather slow."

Unfortunately, Nelson's penchant for misinformation and general misdealing would culminate, some years later, in the Chatsworth disaster, in which many of the early cryonics patients were lost. (Happily, Bedford escaped by being transferred by relatives, only six days after the freezing, to another facility, Cryo-Care in Phoenix, from which he would continue a long and eventful journey across time.) But for the moment, the problems seemed mercifully small:

"In spite of technical difficulties and possible exaggerations the Los Angeles freezing does appear to be a great step forward. Bob Nelson, LES member and now forming the Cryonics Society of California, is to be

Frozen Man Identified

JAN 18 1967 By DENNIS TRISTRAM
News-Press Staff Writer

A retired Glendale College professor was frozen into a "state of suspended animation," the Glendale News-Press learned today.

Dr. James H. Bedford, 73, a long-time Glendale resident, was pronounced dead at 1:15 p.m. Thursday in a Glendale home, but a group of scientists and physicians who froze the corpse say there is a good chance the man will someday be "revived."

A spokesman at Pierce Brothers Mortuary in Los Angeles said Bedford's body was delivered to them packed in dry ice in a metal casket.

The remains were scheduled to be transported by private carrier Tuesday to a Phoenix, Ariz., wig-maker who will reportedly seal the body in a capsule filled with liquid nitrogen.

Bedford's body will remain in the mortuary at -400 degrees Fahrenheit until a cure for the cancer has been found, according to the Westwood-based group which conducted the experiment.

The experimenters, Cryonics Society of California, have said the body can be stored for as long as 20,000 years, awaiting a revival to human life.

The freezing of the body was begun moments after the professor died, according to Mr. and Mrs. Raymond Vest, who cared for the dying man in their Glendale home.

Vest, a physio-therapist, and his wife, a nurse, said they did not know of the planned suspension attempt until the freezing process was started.

The couple refused to reveal Bedford's identity in loyalty to a promise made to relatives.



DR. JAMES BEDFORD

They said Bedford was conscious until his death, but he did not tell them of his plans to be frozen by the Cryonics Society.

Immediately after the professor was pronounced dead, Dr. B. Renault Able of Inglewood and Vest began artificial respiration and heart massage to keep the brain supplied with oxygen.

Three members of the Cryonics team arrived at the home and used a blood pumping machine to replace Bedford's blood with dimethylsulfoxide (DMSO) and glycerol.

reanimating micro-organisms, tissue and organs. Embalming fluids would be quite destructive to tissue in comparison to the protective action of DMSO and glycerol."

congratulated for his organizing ability and for his willingness to face the press. Dr. Able is to be congratulated for his courage in taking part as well as the nursing home. Many others are to be congratulated for their help though they may not have obtained or desired publicity. The 'patient', the cryonaut, who is reported to have volunteered is to be congratulated for his courage and foresight. And, also for his family who respected his rights and desires as an individual. With extreme good fortune we might be able to present our commendations in the distant future to this new type of pioneer Westerner who we hope is now in reasonably good cryogenic suspension."

One unidentified LES member had behind the scenes information, which Cooper condensed into a report:

"First, Robert Prehoda and Dr. Brunol are certainly to be congratulated for arranging and seeing the perfusion and freezing through. In fact if it were not for Prehoda the freezing might not, probably would not, have taken place, according to our observer.

"This is almost dumbfounding for Robert Prehoda presented the view in the August-September 1966 issue of this newsletter that to 'freeze the dying or dead at the present time (is) totally unfeasible ... When an organ as large as a human brain is perfused with DMSO and frozen to cryogenic temperatures, most of the cells are damaged beyond any conceptual means of future repair and restoration to original function.'

"Everyone is delighted that the freezing movement has been pushed a notch forward. It is a great service for those to follow. But if our facts are wrong, perhaps we could request of Bob Prehoda a note, article, or letter for our readers as to what actually happened as he saw it?

"But to continue our freezing and post freezing story ... [i]t would seem that after the cooling and partial perfusion and perhaps while the body of this elderly gentleman was continuing its journey downward toward the cryogenic state, it was transported away from the nursing home and into Prehoda's garage. Eventually Prehoda's wife found out about the body in the station wagon in the garage and our reporter indicates that she got pretty hysterical. As we understand it the windows of the station wagon were soaped so no one could see in and the wagon was moved up the hill.

"Our observer gave up describing the scene in detail at that point saying it could only be described as hysterical and chaotic. He said that if he had [had] a camera it would have made the movie of the year.

"During this same period LES and Cryonics members [evidently, members of the Cryonics Society of California and the Cryonics Society of New York] flew into and descended upon Los Angeles attempting to get extra publicity and adding to the confusion. For all the confusion and 'technical difficulties' the story has two happy endings. First and most important our frozen pioneer is reported to have been successfully spirited out of the state of California and into Ed Hope's Cryo-Care storage center in Phoenix where presumably he will be placed in a liquid nitrogen environment for his much longer journey through time. The second happy ending is that the activists and survivors are now being interviewed by *Life Magazine*." (The *Life* report appeared Feb. 3, but was suppressed because of the Apollo disaster and the burning of three astronauts, and only about 15% of the readership received copies, mainly in the Midwest and South.⁹)

Finally, Ettinger contributed a letter in which, after generous congratulations, he offers some brief thoughts:

"In a general way [the freezing] followed the suggestions I made in the May, 1965 issue of *Esquire*. Dr. Able, the attending physician, was present at death, and at once applied artificial respiration and external heart massage to maintain circulation of oxygenated blood while the body was being cooled with ice. Later, Dr. Brunol, Mr. Prehoda and Mr. Nelson perfused the patient with DMSO solution [actually he was injected, not perfused], and he was then frozen with dry ice, later to be transferred to liquid nitrogen ...

"Readers of the LES newsletter will probably be surprised to know that Mr. Prehoda provided such important help, in view of his expressed pessimism. He remains more pessimistic than most of us, and in fact says that at this date he still would not choose freezing for his own family, but it is greatly to his credit that he recognizes the possible validity of other viewpoints and is willing to help the optimists in practice. His chief concern remains to stimulate greater support for research, and we all agree on the importance of this.

"We have passed an important mile-

stone, but this is only the beginning of the journey nevertheless. We are still desperately short of equipment and organization. (For example, I had to ship our Westinghouse Iron Heart to Los Angeles, and in general there was a large element of luck in the fact that clinical death occurred under conditions so favorable.) How much momentum this incident will gain us is by no means certain. Perhaps we can be excused a little mild self-congratulation, but it is primarily an occasion for a sober look at our mistakes and shortcomings."

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1. Ettinger, Robert C.W. *The Prospect of Immortality*, Doubleday, 1964, p. 157.
2. *Life Extension Society Newsletter*, Dec. 1964, p.1.
3. *Freeze-Wait-Reanimate*, Jun. 1965, p.1.
4. *Freeze-Wait-Reanimate*, May 1965, p.10.
5. Prehoda, Robert W. *Suspended Animation*, Chilton, 1969, p.112.
6. *Freeze-Wait-Reanimate*, May 1966, p.1.
7. *Freeze-Wait-Reanimate*, Feb. 1967, p.4.
8. *Freeze-Wait-Reanimate*, Jan. 1967, pp.1,2,4,8.
9. *Freeze-Wait-Reanimate*, Feb. 1967, p.1.

DEAR DR. BEDFORD

(and those who will care for you after I do),

Mike Darwin

Twenty-four years ago a twelve-year-old boy with waxed-down hair and a clip-on tie stood in a long line of other youngsters at Butler University's Hinkle Fieldhouse. His father, dressed in a long, navy-blue overcoat, stood by his side. It was sometime in March or April and the first signs of spring were in the air, although it was still a bit of a chilly day.



Nelson simulating an injection into Dr. Bedford on the afternoon of 12 January, 1967.

Spring was welcome and full of promise. It had been a bitterly cold winter, and the memory of the boy's first Science Fair Presentation one frigid night late in February was vividly in his mind. There, too, his father had helped him, bringing his project into the basement auditorium of the school. The memory of that night came back him: of his father unloading the folding pegboard display, white clouds of breath billowing from man and boy. . . .

Despite the morning chill in the air the day was bright and the old steel skeleton of the stadium was alive with a

thousand voices full of hushed enthusiasm and fidgety anticipation. The boy was quiet, hardly exchanging a word with his father. He was lost in thought, full of excitement and nervous fear — and pride.

The boy had won first place at the cadet level in the local Science Fair and was now at the regional level competing against youngsters from all over the state of Indiana. He was very young compared to most of the other students who had progressed this far in the competition, and he was filled with a mixture of emotions: elation, pride and fear. His mouth was more than a little dry and his knees more than a little shaky as he began setting up his exhibit and rehearsing in his mind what he would say to the judges who would soon be making the rounds.

His project was entitled "Suspended Animation in Plants and Animals." The boy was an imaginative child with a rich (and some would say over-active) fantasy life. He had great hopes that he would win the competition and that this science fair was the beginning of a wonderful adventure for him. His teachers were very proud of him and offered much encouragement. Just as importantly they told him that he was special, different, and that his project was very original. Perhaps doors would open that would let him achieve what he most wanted and was very sure was his destiny: to become an astronaut and live and work in space.

One thing he was secretly sure of: this science fair was going to change his life.

In having this vision of his future the boy was not alone. The American space program was running full-tilt toward the moon, and every popular science book, newspaper supplement, and NASA hand-out predicted with complete confidence that by the time the boy was a young man, space, the last frontier, would be wide open. The boy was very confident he would be raising his family on one of the first lunar colonies.

It was 1967. Lyndon Johnson was President. The Beatles were very much the rage. The Vietnam war was in full swing and the college campuses were beginning to become places of antiwar foment. Ronald Reagan had just taken office for his first term as Governor of California. The "hot" car was the Ford Mustang. The political and social focus of the country was on the "Great Society" — the notion that poverty and social ills could be overcome by government programs as successfully as the pull of gravity was being overcome by the government space program. The United States was at the cross-roads of a heady period of power and self-confidence and the beginning of another period, marked as much by uncertainty, pessimism, conflict, doubt, and shame as the previous period had been by optimism, vitality, enthusiasm and, can-do spirit.

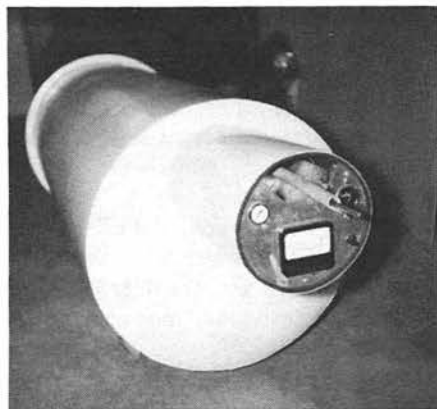
"Made in Japan" was still largely a joke; an unknown company called Toyota had made a grossly unsuccessful attempt to introduce an automobile into the U.S. market. Another Japanese company named Sony introduced an amazingly small portable television with a six-inch screen and, of all things, a ten or fifteen pound re-chargeable battery pack to run it with! The TV was a great success.

During the course of the Science Fair weekend, the boy explained the details of



Cryo-Care Equipment Corporation on Indian School road in Phoenix, AZ. Dr. Bedford's "home" from 1967 to 1969.

his project many times. He was excited by the many favorable comments he received and by the general hubbub and excitement around him. There were probably well over a thousand competitors on various levels; science, in 1967, was very "in."



Dr. Bedford's second Cryocapsule shortly after it was painted circa March, 1968.

Sometime during the course of that weekend a woman, perhaps one of the judges, made a remark to the boy that was both a question and a statement of fact: "Did you know they've frozen a man in California who died of cancer so that he can be revived when they find a cure?"

The boy hardly knew what to say. Was it true? It seemed so outrageous! How could they hope to do such a thing when he could not freeze a turtle to more than a few degrees below zero centigrade for more than half an hour without killing it? Had someone solved the suspended animation problem? Was the boy's project a waste of time and, much more important, *was there now a way for astronauts to get to the stars?*

The lady returned the next day with the newspaper article from the *Indianapolis Star*. The article chronicled how one James H. Bedford, a psychology professor from Glendale, California had been frozen to await resurrection when medicine found a cure for cancer and, incidentally, for the freezing damage inflicted on him by unperfected preservation techniques.

The boy felt a rush of excitement — and a rush of contempt and skepticism. He was intrigued, but the whole thing seemed so fantastic. And the boy knew about freezing damage; he had seen enough of it in fifty cent, red-eared slider turtles, purchased at the dime store, who were frozen too long to recover....

That boy, needless to say, was me. That science fair did change my life, but not in the way I expected. My registration was somehow lost and as a consequence my project, while reviewed by all the judges, was never formally JUDGED. I did not win. But I did not know why until later, when several of the judges who were impressed with my project unraveled the whole mess and tried to set things right. I was given an honorable mention and an apology by the Regional Science Fair Committee. It was a bitter disappointment. I do not know if I would have won and I will probably never know.

But there was a consolation prize: the newspaper clipping the woman had handed me. My life was about to change, and in a way I could hardly have been prepared, even in my wildest imaginings, to comprehend.

While I was preparing for my Science Fair project, busily freezing turtles, insects, and plants, and experimenting with trying to protect them from freezing injury with glycerol, you, Dr. Bedford, were busy dying. The passage of 24 years and my long involvement in both cryonics and medicine has given me a very good idea of what that must have been like for you. Your cancer was completely untreatable then (and is still largely so now) and while I have never seen your medical records, I have a pretty good idea of what your clinical course was like. The shortness of breath near the end as the cancer (metastasized from your kidney) consumed the air space in your lungs must have brought you to the edge of panic, and perhaps beyond.

I know very little about you personally. I know less about you than most of the patients who entered cryonic suspension after you. I have met your son, Norman, on a number of occasions, but actually know his second wife Cecelia, whom you never met, much better than I know him. What I know of you as a man has been gleaned from bits and pieces of conversations and overheard remarks. All of it has been good. I know that you were a reflective man who pondered your pur-

pose here in life and the meaning of death. I have been told that you were a gentle, quiet, decent, and responsible man. Your career and the recollections of several of your former students whom I have encountered testify to the fact that you had a fine intellect and a genuine love of teaching.

Recently, I have learned a little bit more about you. I have been pleasantly surprised to discover that you authored at least six books on vocational training and career counseling. And that — despite your quiet demeanor — you had a real sense of adventure, setting for an African safari in 1958, a wilderness tour of the Amazon rain forests, and extensive travels in Greece, Turkey, Spain, England, Scotland, Germany, and Switzerland. You were also one of the first to drive the Alcan Highway to the Canadian Northwest and Alaska. Perhaps that explains why you chose to take an even more fantastic and uncertain journey, the one upon which you are now embarked.

You, of course, do not know me at all. It is more than a little strange that two people who know almost nothing of each other, could find their lives so entwined and their prospects for survival so heavily dependent upon the actions of each other.

Your courage and your decision to undertake cryonic suspension, to be the FIRST "cryonaut," in the jargon of the



Cecelia Bedford (Dr. Bedford's daughter-in-law) with the Cryo-Care shortly before his transfer to the Galiso unit at Galiso, Inc., in April of 1970.

times, had a profound effect on my life. Over the course of 1967 I gradually became more interested in cryonics, and sometime in 1968 I sent away to the Cryonics Society of New York for literature and later visited what was left of Ed



Gallo technician Mogens Friedlow opens the inner cylinder of the Cryo-Care dewar with an abrasive cutting wheel in preparation for moving Dr. Bedford into the Galiso dewar.

Hope's Cryo-Care facility in Phoenix, where you briefly resided following your suspension on 12 January, 1967. Thereafter, I quickly became deeply involved in cryonics. But that is not the purpose of this letter. This is hardly the place for the complete narrative of my life story; besides, I doubt it would interest you very much.

I'm writing to tell you about how you were suspended and how you came into Alcor's care. My narrative will necessarily be brief and largely confined to issues and events which are not documented elsewhere. It is not my intention to repeat or summarize what has been covered in detail before or is part of the historical record (i.e., the media). Regrettably, my own struggle to survive leaves me neither the time nor the inclination to undertake such a daunting task. I could have accomplished this with dry technical prose: "The patient, a 73 year old caucasian male...." And in fact, a technical account of your condition at this time is in your file. However, communicating the technical facts about what has happened would not tell the story I want to tell. Because, you see, it was not just the dry technical facts which caused events to unfold as they did, and in any event those could be just as easily gleaned from the pages of logbooks and your case notes. Rather, it is the human story I want to tell because that is the real story of how you came to

be at Alcor and perhaps a big part of why you may have survived to read these words.

Since it is unclear how much of your short-term memory will survive cryonic suspension (it is no longer called cryogenic interment) I will begin this narrative at the beginning . . .

At 1:15 P.M. on 12 January, 1967 you experienced cardiorespiratory arrest in a nursing home operated by a Seventh Day Adventist couple, Raymond and Mildred Vest. You had apparently known the Vests for over 16 years (they rented the property they operated their nursing home in from you and your wife). The immediate cause of your legal death was inadequate oxygenation due to your kidney cancer, which had metastasized to your lungs. Robert F. Nelson (a.k.a. Robert Buccelli), President of the Cryonics Society of California, was nowhere to be found. Mr. Vest and your physician, Dr. B. Renault Able, began CPR, packed you in ice on the hospital bed in which you had deanimated, and began a frantic search for Nelson. An hour or so later he was located.

The Cryonics Society of California "suspension team" was woefully unprepared. From testimony taken from Nelson and Robert Prehoda it appears that your "perfusion," so glowingly detailed to the news media, consisted of multiple injections with either pure DMSO or a DMSO-containing solution of a composition which was unknown to Nelson. (Prehoda recalls that pure DMSO from Matheson Scientific was employed). Attempts were made to introduce the cryoprotectant into your carotid arteries bilaterally and to circulate it by performing manual chest compressions coupled with bag-valve respirator ventilations. According to Nelson, within approximately two hours of your deanimation you were transferred to a foam-insulated box, still wrapped in the bed sheet on which you deanimated (with some crushed water ice still on you) and covered over with one-inch-thick slabs of dry ice.

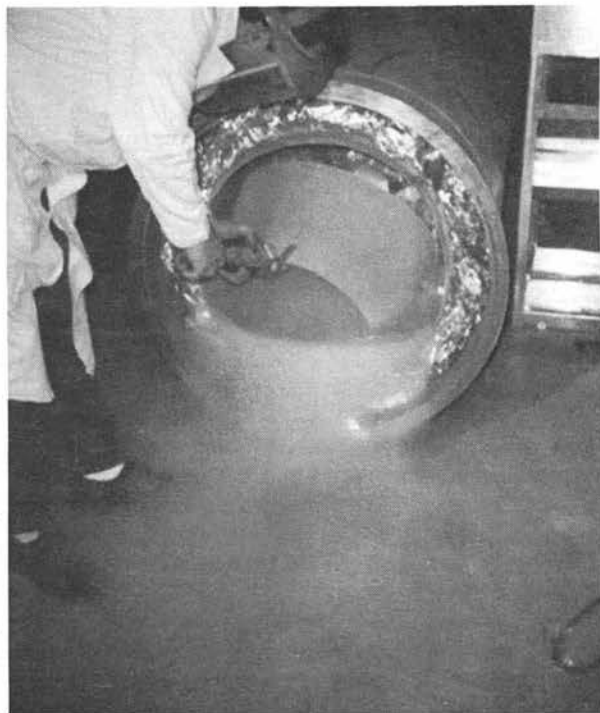
Over the next few days you were shuttled from place to place as a wild series of

events began to unfold. Most of this story is chronicled (reportedly (and surprisingly) with some degree of accuracy) in Nelson's book about your suspension, *We Froze the First Man*, a copy of which accompanies this letter in your Alcor file.

It may shock you, but it is something of an understatement to describe Nelson as a pathological liar and an outright fraud. It is a testimony to the good judgment and determination of your wife and son that you were removed from his clutches only six days after your suspension and shipped to Cryo-Care Equipment Corporation in Phoenix, Arizona. Had this not happened, you would certainly have perished at Chatsworth with the nine patients whom Nelson allowed to thaw out and decompose. Two days after your suspension, the following press release (written by Robert Ettinger and read by Nelson) was given to the media:

"The first reported freezing of a human at death, under controlled conditions, occurred Thursday, January 12, 1967, in Los Angeles. A patient was frozen immediately after his death from cancer in the hope of eventual revival and rejuvenation by future techniques. The next of kin concurred in the patient's wishes.

Special freezing procedures were applied by Dr. B. Renault Able, a local physician, Dr. Dante Brunol, Scientific



A galvanized metal heat shield used to protect Dr. Bedford's feet during the welding closure of the Cryo-Care dewar being removed.

Advisor to the Cryonics Society of California, Robert Prehoda, author and scientist, and Robert Nelson, president of the Cryonics Society of California, 1019 Gayley Avenue, West Los Angeles. In consultation were Robert C.W. Ettinger,



Dr. Bedford immediately after his removal from the Cryo-Care unit. Note the bedsheet he was originally wrapped in by Nelson has been almost completely removed (but still covers his feet) but is still visible in the lower left corner of the picture.

author of *The Prospect of Immortality*, the book which proposed the current L.T.A. (Low Temperature Anabiosis) program, Curtis Henderson, attorney and President of the Cryonics Society of New York, 306 Washington Avenue, Brooklyn, and other members of the Cryonics Societies, coordinated by Mr. Nelson.

When clinical death occurred, Dr. Able was present and at once began artificial respiration and external heart massage, to keep the brain alive while cooling the patient with ice. Heparin was injected to prevent coagulation of the blood.

Later, the team of Dr. Brunol, Robert Prehoda and Robert Nelson, perfused the body with a protective solution of DMSO (Dimethylsulfoxide) using a Westinghouse Iron Heart sent by the Cryonics Society of Michigan.

The patient is now frozen with dry ice, -79°C ., and will soon be stored in liquid nitrogen, -196°C ., when a cryocapsule is supplied by Cryo-Care Equipment Corporation of Phoenix, Arizona. He will be kept frozen indefinitely until such time as medical science may be able to cure cancer, any freezing damage that may have occurred, and perhaps old age as well.

The patient's family has requested complete privacy; consequently no personal questions will be answered. All of

those involved in the effort hope that this will lead to a massive biomedical effort on research into the prolongation of life."

A year later, Nelson, in conjunction with writer Sandra Stanley, published a book detailing your suspension and the events surrounding it (the aforementioned *We Froze The First Man*). This book, along with Ettinger's *The Prospect of Immortality*, had a very powerful effect on me. I became convinced not only that cryonics was a workable idea, but that it should be my life's work as well. Your suspension, as recounted in Nelson's and Stanley's book, was a mixture of revolutionary ideals and high drama, and I wanted to be a part of it.

By 1973 my perception had changed a great deal. I had discovered that the situation with cryonics was anything but how Nelson had depicted it. By this time I had heard rumors that your suspension was not the elaborate procedure employing blood washout and cryoprotective perfusion which Nelson described in his book and in subsequent media interviews. And by this time as well our paths had crossed for the first time.

While at Cryo-Care, the first "cryocapsule" you were in, a prototype unit with a bolt-on inner head, was performing badly (see your Alcor file for additional details on this unit). A decision was made to transfer you to a new unit, a Cryo-Care CC-101 with a welded inner head. This transfer was done sometime early in 1967.

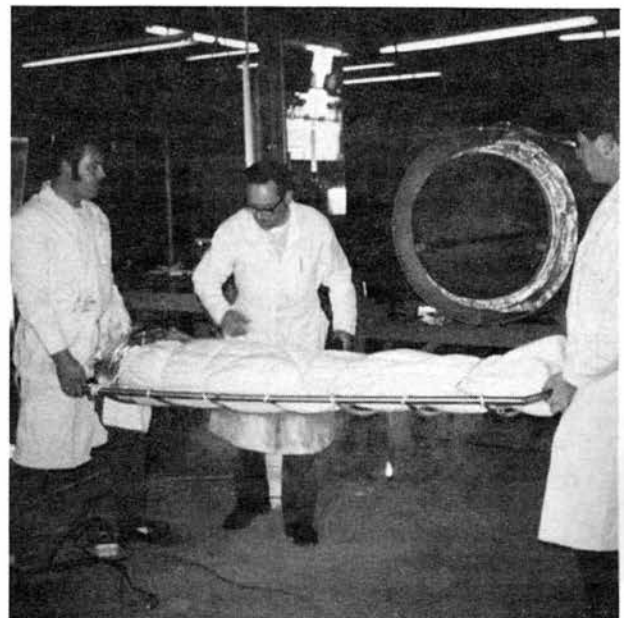
Your stay at Cryo-Care was brief, and within approximately two years of your arrival there you were moved again, this time back to Southern California to the facilities of a small cryogenics and test equipment manufacturing and repair company by the name of Galiso, Inc. The Cryo-Care unit you were in was performing very badly. It had in fact developed a leak in the inner vessel and it was determined by all involved that it was time to transfer you to a newer, more reliable unit. The Cryo-Care unit was in such poor

shape that the only way to tell if there was liquid nitrogen in it was to check the vent tube for frost (the thermocouples had all stopped working)! Galiso undertook to build such a unit, completing it late in March or early in April of 1970. During April of 1970 you were transferred from the Cryo-Care dewar to the Galiso unit.

During the interval in which you were cut-out of and removed from the Cryo-Care unit and welded into the new Galiso unit, you were not refrigerated by submersion in liquid nitrogen; you were wrapped in a Dacron polyester sleeping bag and sprayed with liquid nitrogen. A temperature probe placed on your chest during the transfer recorded the maximum temperature reached as 130°K (-143°C).

In the summer of 1973 I set out to California from Indianapolis by train (the Superchief) in the company of a young graduate student in cryobiology named Greg Fahy. A major purpose of that trip was to investigate Nelson and determine if he really was the fraud that I, and others in the cryonics community at that time, were rapidly becoming convinced he was. Another purpose of that trip was to verify that you were still safely in cryogenic storage at Galiso.

Greg Fahy, my guide in this, could not have been better chosen, since it was he who located you at Galiso after your



Wrapped in a new Dacron polyester sleeping bag and affixed to the stainless steel stretcher of the Galiso unit with nylon rope, Dr. Bedford is prepared for placement in the new dewar.

"disappearance" from Cryo-Care circa 1969 and put to rest the rumors circulating that you had been quietly thawed and buried. Greg was president of the Cryonics Youth Association (CYA) and had stumbled across your location quite by accident sometime in 1971. This happened when he took the CYA newsletter, *Cryonics Vistas*, in for printing and one of the counter girls at the shop on Jamboree Boulevard in Irvine remarked that she knew about a frozen body being kept at a company called Galiso. Apparently a friend of hers who worked there had told her about your presence there. A call to Directory Assistance resulted in Greg locating Galiso and ultimately going out to visit you. The story of your continued care appeared initially in *Cryonics Vistas* and then in the newsletter of the Cryonics Society of New York, *Immortality*. I can well remember reading those articles and feeling very reassured that "the first man was still frozen!"

Sometime in the June of 1973 I walked into the cavernous industrial bay of Galiso, Inc., in Anaheim, California. The unit containing you sat out on the shop floor amid the clutter of uncompleted dewars and test equipment in various stages of manufacture, covered with a heavy layer of ubiquitous Southern California dust. This was our first "meeting." It made a great impression on me. Above all, I was impressed that you were still apparently frozen after all this time and despite the vigorous legal challenges from your relatives. The archives of the Los Angeles County Courthouse contain the complete (and sordid) story of the greed that was unleashed by your suspension and your \$100,000 bequest for cryobiological research; a bequest which was used up nearly two and half times over just to defend and maintain your suspension up to that time!

Whatever else may be said of your son Norman and your wife, one thing that is clear and incontestable is their fierce loyalty to you and your wish at a second chance at life. I never met your

wife, but I have been told via Norman that while neither she nor he really "believed" in the workability of cryonics (Norman had apparently held a more optimistic position early on) they were totally committed to carrying out your wishes "come hell or high water." This they did, and they did so in the face of vituperative and hateful opposition from almost all around

them. And they did it even without the support or encouragement of cryonicists.

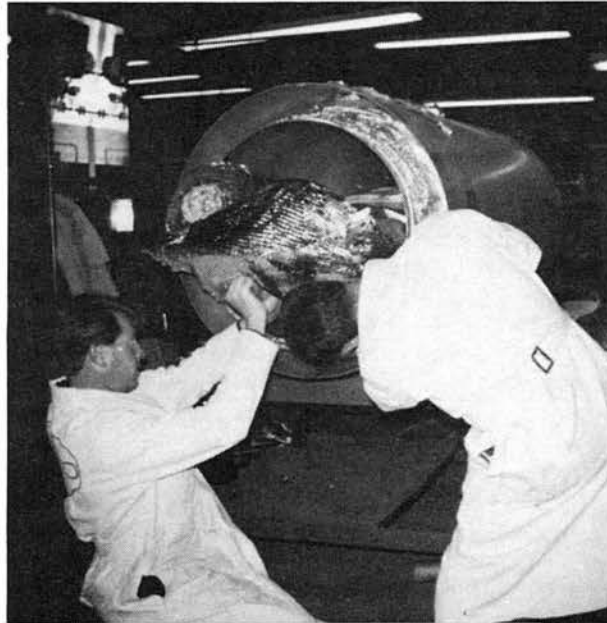
Sometime early in 1976, Galiso notified Norman and your wife Ruby that they could no longer continue caring for you. Their liability insurer had gotten wind of your presence in the facility and was threatening to withdraw coverage if you were not moved. On 31 July, 1976 you were transferred to the facilities of Trans Time, Inc., a commercial cryonics service provider in Emeryville, California (Emeryville is a suburb of Berkeley). Norman drove you up himself on a rented U-Haul trailer. You remained at Trans Time until 1 June, 1977 and were then picked up by Norman and again transported by U-Haul trailer to Southern California. The reason for this transfer was reportedly unhappiness at the "escalating billing and high cost of storage with Trans Time."

I don't know where you were cared for after 1 June of '77; my questions about this to Norman and Cecelia were politely but firmly deflected.

Late in 1981 or early in 1982 my curiosity and my worry about what had happened to you began to get the better of me. By that time it had become clear that no one placed into cryonic suspension before 1973 had survived. Every patient had either been lost at Chatsworth or been conventionally disposed of by the relatives who placed them into suspension. With one possible exception.

With greater ease than I anticipated, I located your son and daughter-in-law. I inquired about your status and explained that we might be able to help them pursue continued care for you in a more secure environment, and perhaps even at lower cost, since we were getting some economies of scale in storing several patients.

It was also my bet that if they were caring for you themselves they were faced with major logistic problems which they must be very weary of. I was correct in this surmise. Cryogenic liquid suppliers don't "set appointments" to deliver liquid. The best they can usually do is tell you if they will be coming by in the morning or in the afternoon.



Having been inserted in the Galiso dewar, technicians cover his feet with heat shielding and bolt the stretcher into place on the side rails.



Mogens Friedlow (L) looks on as Galiso founder and the dewar's designer, Carl Grenche, (center) supports the inner head of the dewar with a piece of lumber as an unidentified technician welds the unit closed.

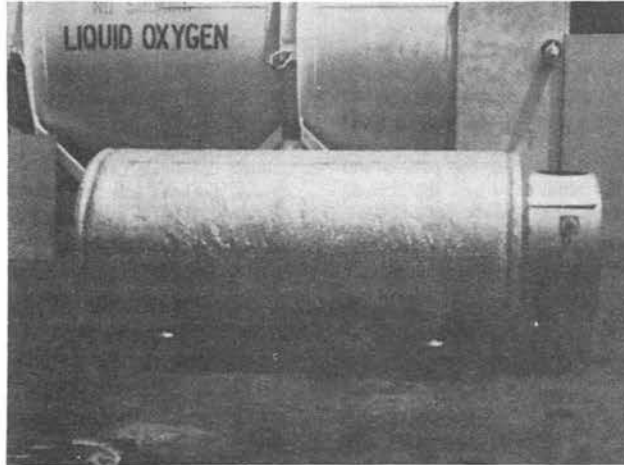
They will virtually never deliver to a residence since the LS-160 liquid containers are heavy and must be carted or rolled; liability is another major concern. I realized that your family must be doing what we had to do, namely spend two or possibly three days a month waiting all day long for a delivery, and occasionally sitting all of the next day as well if you ended up at the end of the driver's day and he had one too many deliveries to make....

As it turned out, the situation was worse than I imagined. Not only was your family having the problems I imagined, they were being gouged by the cryogenics company as well. The company had figured out what was in the tank they were pulling up to service twice a month, and they tacked on a \$60.00 delivery charge for every fill — in addition to the fifty cents or so a liter they were charging for the liquid nitrogen. While it is true that a 1967 dollar went a lot further than a 1982 dollar (a 1967 dollar was worth 2.5 times what a 1982 dollar was worth) those amounts of money were non-trivial. In short they were starting to feel real economic as well as personal pressure.

However, they were very wary of us. Their past experiences with everyone from family members to cryonics organizations had apparently been uniformly bad where your suspension was concerned. Nevertheless, they decided to take the chance and pursue storage with us. An agreement was worked out, and at 1:30 P.M. on 14 February you and the Galiso dewar were loaded onto the Cryovita van from a "self storage miniwarehouse" in Burbank. What's a miniwarehouse, you may be wondering? I won't attempt to try to explain the cultural and economic changes which created such a thing; there should be other sources of information available to you there. Suffice it to say that by the 1980s large complexes of rental storage space in garage-sized slots were widely available and widely used by average people who had too much chattel to store in their own garages or apartments. It was in one such 10' by 10' or so slot that you were being kept when we picked you up.

It is my impression that you had been cared for at that location for some time.

So, on a sunny, smoggy day in 1982, our paths crossed for a second time. Our care for you was provided through Cryovita Laboratories, a "for-profit" cryonics service provider similar to Trans Time. The difference was that Jerry Leaf, who



Dr. Bedford's dewar at Galiso as photographed by Greg Fahy, circa 1971.

headed Cryovita, was deeply concerned that your suspension continue and he, like me, just wanted to see the liquid nitrogen bills paid and you remain in storage.

In 1982 Alcor was very small, with almost no assets and only four patients in suspension. We were operating out of the rented facilities housing Cryovita. Our whole operation was crammed, and I do mean *crammed*, into a 1600-square-foot industrial bay located at 4030 North Palm, Unit #304, in Fullerton, California. There you remained in the back of the building, just inside the roll-up, steel curtain door. Your dewar was serviced by myself and Hugh Hixon.

Cryonics began to grow again, after a long hiatus resulting in no small part from the actions of Nelson at Chatsworth. More importantly, we began to lay down what we hoped was a more solid base than had ever been present before.

So much happened between 1982 and now. The first years you were at Cryovita were very calm. I look back on that time as a quiet, yet highly productive period. Alcor and Cryovita were definitely out of the limelight, and the few of us then working on cryonics were able to focus our energy and attention on laying down basic policies and procedures that would serve us well in the coming years. It was also a time when we were doing research. On the

other side of the flimsy "wood" panelled wall (there were open studs on the side where you rested) from where your dewar sat, we were washing out the blood of dogs and cooling them down to a few degrees above freezing using a completely "defined," artificial perfusate. This was path-breaking research, being done on a shoestring; the very kind of work you and Norman envisioned the Bedford Foundation undertaking.

During this period we were also did a suspension, although certainly not the way you would have envisioned. A new method of cryonic suspension, neuro-suspension (brain or head only) had been introduced in 1976. Alcor also completed a series of demanding studies on the effects of then-in-use cryonic suspension procedures. It was a happy, productive period in my life.

By 1986 we had grown to the point that we were able to afford our own facility. Indeed, we had little choice. Cryovita and Alcor soon lost liability insurance as a result of being a cryonics business, and we were told by our landlord that we would be evicted unless we moved out immediately. We raised almost all of the money needed to buy a facility in cash and moved. On 17 February, 1987 you were moved to our brand new facility at Riverside, California. The events which have occurred in



First encounter: The author, Mike Darwin, and Linda Chamberlain stand next to Dr. Bedford's dewar during the summer of 1973.



Cryovita Laboratories, 4030 N. Palm, Suite #304, Fullerton, Calif. Dr. Bedford's home from 14 February, 1982 to 17 February, 1987.

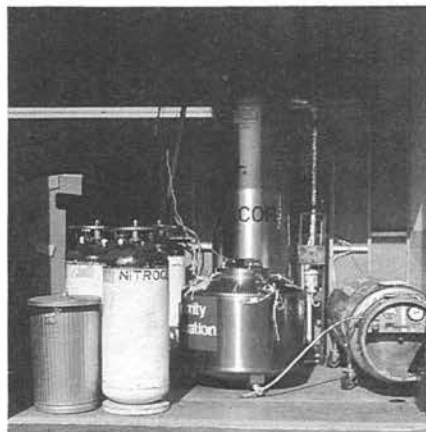
the years intervening between 1987 and the time this letter is being written would take hundreds of pages to document. We will soon have back issues of *Cryonics* magazine on microfilm, and we will add a copy of those issues to the patient record files. Hopefully you'll be able to read that history for yourself.

Your wife Ruby died in 1987, and in September Norman, acting on instructions from Ruby, transferred your care directly and irrevocably to Alcor. It was Ruby's wish that your care be taken over by an organization that had a real chance of seeing you through the distance. The five years of care that we provided, and provided both lovingly and fairly, was the evidence that she needed. Ruby was cremated a few days after her death. As of now, it appears that where immediate family is concerned, you will be making the journey into tomorrow alone.

In a little over six months you will have been in uninterrupted cryonic suspension for 25 years. You were the first man ever frozen and you are still frozen. That is an incredible accomplishment, and one which we (Alcor and Cryovita) take no small measure of pride in having contributed to. The two-decade-long legal battle over your suspension long ago exhausted the money you had set aside for your care. You are now Alcor's responsibility, financially as well as morally. Alcor Director Jerry Leaf has

personally absorbed most of the cost of providing your care and has provided additional insurance on his own life to cover your continued suspension. This is an incredibly generous act on his part.

On Saturday, 25 May 1991, we removed you from the Galiso unit which, like all "sealed-in-the-field" units, was failing. We wrapped you in an additional sleeping bag, secured you in an aluminum "pod" and transferred you to one of our new, state-of-the-art dewars, which boils off about what the Galiso unit did, but holds four patients, including yourself.



Dr. Bedford in the patient care area of the Fullerton facility (lower right). We've come a long way, baby...

Other advantages are no more careening around the freeway every year or so to Galiso or elsewhere for a re-vac. And we now have two vertical units, each capable of storing four patients, sitting where your single patient, horizontal unit once rested.

I was very anxious about what we would find when we opened the Galiso unit. You had been enclosed and shielded from view in that dewar for just over 21 years; indeed you were welded into it. What were the odds that you had never been allowed to warm up during the years of storage in the badly malfunctioning Cryo-Care unit? What were the odds that your dewar had been faithfully serviced during the years you were at Galiso and subsequently when you were being cared for by your son and daughter-in-law? Never letting a dewar run dry is not an easy thing to accomplish. Deliveries must be carefully scheduled around holidays and so on.... I must confess, pessimist that I am, I felt the odds that your condition was "good" were pretty slim (if good is ever an adjective to use to describe a straight-frozen patient!).

I cannot describe the feeling of elation I had when I peeled back the sleeping bag that enclosed you and saw that you appeared intact and well cared for. What's more, that the water ice that Nelson had said was left on you when you were transferred to dry ice was still there and unmelted. Whatever else has happened, you have remained frozen all these years. Few things in my life have satisfied and elated me more completely than has that knowledge.

I would like to think that my actions have been important in getting you to the tomorrow that you (and we) so hope for. History will be the judge of that.

Above all, I want to thank you for starting me on an incredible adventure. You really did change my life, and both directly and indirectly your actions may have vastly lengthened my life as well! I hope I have returned the favor with the actions I have taken.

I am well aware as I write this that the struggle is far from over. Now our opponents are the State of California, which seems bent on ending your suspension — as well that of the other cryonics patients in this State. The battle is far from over and far from won.

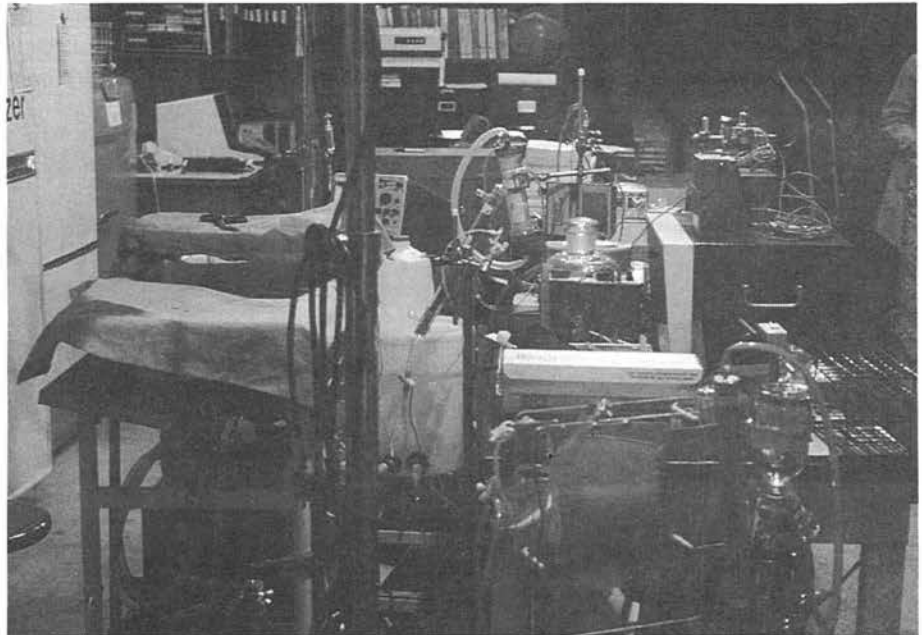
Dr. Bedford, I hope we really meet someday. I am not sure we will have much in common, save perhaps for the heritage of the culture and era which we both

shared. We will both have lost friends and family who chose not to accompany us; that sadness we will also have in common. But far more importantly, we will have the joy, the sheer, unbounded joy of being alive in a universe where we can move freely, unchained from the bonds of gravity, earth, and time. And your dream, the dream of reaching a tomorrow where you can resume living, will have been realized.

So too, the passionate dream of that 12 year-old boy from Indianapolis, Indiana will also have come true. At long last, via a path at least as strange and convoluted as the one you have followed, he will be able to live and work in space, and walk on other worlds.

Until then, au revoir.

Mike Darwin (Federowicz)
30 May, 1991



And you think we're crowded now? The central work area in the Fullerton facility. You actually had to turn sideways to navigate around the place.

Alcor News

Financial Note

by Carlos Mondragón

Our 1990 Financial statements (printed as a special supplement in the April issue of *Cryonics*), make reference to a doubtful receivable of over \$96K. A few readers have asked us to explain the situation.

The problem originated a few months after the Dora Kent suspension when Alcor was under heavy attack. At that time, we had no idea of how long or how bloody our battle with the state would be. The board decided that it would be prudent to put some of our cash in an account overseas as a hedge against the possibility that our domestic assets might be frozen or seized. (Even given the benefit of hindsight, we still don't think this was an overly paranoid reaction under the circumstances.) Since none of us at the time had any experience with such transactions, we sought the assistance of a Certified

Public Accountant with whom a few of our members had had previous successful dealings. This gentleman, in turn, referred us to an associate who ran a private bank in Nauru (Fiji Islands). The money was deposited in that bank.

When we attempted to withdraw a portion of those funds, it became evident that we had chosen the wrong person to deal with. Because this man is a U.S. citizen, with personal assets in this county, we were able to sue him for the loss. A judgement has been entered in Alcor's favor, along with a court order for the sale of the man's house in order to satisfy Alcor's judgement. We have since found some of his other assets which our attorneys are pursuing.

The amount which we eventually recover and the date when that happens unfortunately depend on the vagaries of the real estate market. The Orange County Marshal auctioned off the property (minimum bid \$216K) at 2:00 pm, May 16th. The house was appraised at \$240K and there are claims ahead of ours totalling

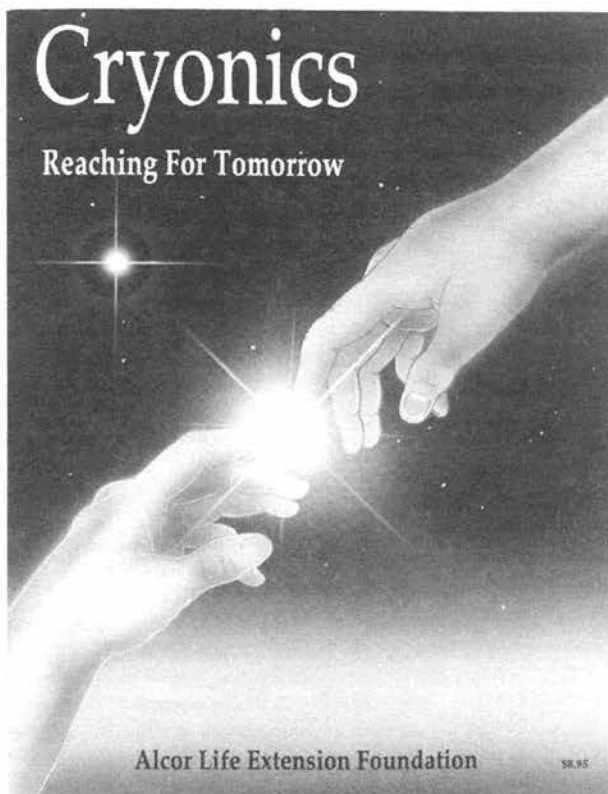
\$160K, so if it sells near the appraised value Alcor will get about \$80K less our attorney fees. As of this writing, the plan was for our lawyers to bid on the property themselves and then go to the open market. This arrangement will provide for their fees in this case, leaving any balance for us. Whatever that final outcome, I can only predict with certainty that we will have a substantial loss.

On the advice of our legal counsel we have delayed publication of the details of this situation until now. We will promptly report on the final result.

Cryonics Is. . .

The application of low-temperature preservation technology to terminal patients today is called *cryonic suspension*. The goal of cryonic suspension and the technology of cryonics is the transport of today's terminal patients to a time in the future when cell/tissue repair technology is available, and restoration to full function and health is possible — a time when freezing damage is a fully reversible injury and cures exist for virtually all of today's diseases, including aging.

As human knowledge and medical technology continue to expand in scope, people who would incorrectly be considered dead by today's medicine will commonly be restored to life and health. This coming control over living systems should allow us to fabricate new organisms and sub-cell-sized devices for repair and resuscitation of patients who will have been waiting in cryonic suspension.



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

Alcor Is. . .

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

The Alcor facility, located in Southern California, includes a full-time staff with employees present 24 hours a day. The facility also has a fully equipped and operational research laboratory, an ambulance for local response, an operating room and a patient storage facility consisting of several stainless steel, state-of-the-art storage vessels.

All Alcor board members, officials, and suspension team personnel are required to be full suspension members.

Table of Charges and Dues

Sign-Up Package: \$300 first member of household, \$150 each additional member.

Whole Body Suspension Minimum: \$120,000

Neurosuspension Minimum: \$41,000

Outside U.S. Surcharge: \$10,000

Annual Adult Dues: \$252.00

Additional Adult Family Member Annual Dues: \$126.00

Additional Family Member Child's Dues (under 15 years of age): \$63.00

Adult Student Annual Dues (must be full time student): \$126.00



You can tour the Alcor facility in Riverside, California under the expert guidance of the Alcor staff. The facility is open to small groups (15 people or less) who wish to learn how terminal patients are placed into suspension and how they are cared for at -320°F.

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

The Alcor tour is free of charge. If you'd like to make arrangements, call (800) 367-2228.

Yes, I want to make cryonic suspension arrangements with Alcor. Please send me ___ Sign-Up Package(s).

Name _____ Age _____

Address _____

City _____ State _____ Zip _____ Phone _____

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

First household member: \$300.
Additional members: \$150 each.

Payment enclosed (check or money order). Bill me.

Order Form

NOTE: All prices include postage and handling and are in U.S. dollars. Minimum order \$5.00. Overseas orders must be paid for with U.S. dollars by Traveler's Cheques or International Money Order. All orders are subject to availability and all prices are subject to change.

Cryonics Magazine

Subscriptions:

- United States: \$25.00/year
 Canada and Mexico: \$35.00/year
 Outside North America: \$40.00/year

Cryonics back issues:

U.S., Canada and Mexico: \$2.50 each. Issues: _____
 Outside North America: \$3.50 each. Issues: _____

Membership

- Alcor Suspension Membership Packet \$300.00

Books

Cryonics - Reaching For Tomorrow	\$5.00	___
Engines of Creation	\$10.95	___
The Prospect of Immortality	\$11.00	___
Man Into Superman	\$14.00	___
Great Mambo Chicken & the Transhuman Condition	\$18.95	___
The 120-Year Diet	\$5.95	___
The Tomorrow Makers	\$18.95	___
Immortality, Scientifically, Now	\$11.95	___

Brochures

Alcor Life Extension Foundation	\$0.75	___
Why Cryonics Can Work	\$0.25	___

Articles and Reprints

Why We Are Cryonicists	Free	___
Alcor: The Origin of Our Name	Free	___
Technical Case Report: Neurosuspension of Alcor Patient	\$3.00	___
The Journey Begins: Alcor Member Enters Biostasis	\$2.00	___
The Scientific Validity of Cryonic Suspension: A Bibliography	\$3.00	___
Long-Time Alcor Member Enters Biostasis	\$2.00	___
The Cryobiological Case For Cryonics	\$2.00	___
Mathematical Analysis of Recirculating Perfusion Systems, With Application to Cryonic Suspension	\$2.50	___
Declarations by Scientists in Support of Kent vs. Carrillo	\$20.00	___
Case Report: Two Consecutive Suspensions	\$3.00	___
Mathematical Models of Perfusion Processes	\$5.00	___
Postmortem Examination of Three Cryonic Suspension Patients	\$3.00	___
Heat Flow in The Cryonic Suspension of Humans	\$2.50	___
Histological Study of a Temporarily Cryopreserved Human	\$3.00	___
Calcium Blockers Given After CPR May Save Brains Denied Blood up to 1 Hour	\$0.50	___
Viability of Long-Term Frozen Cat Brain	\$0.50	___
Cell Repair Technology	\$2.00	___
How Cold is Cold Enough?	\$1.25	___
Misadventure as a Cause of Death in an Immortal Population	\$1.25	___

Histological Cryoprotection of Rabbit Brain With 3M Glycerol	\$0.50	___
But What Will The Neighbors Think: The History And Rationale of Neurosuspension	\$2.00	___
Histological Cryoprotection of Rat And Rabbit Brains	\$1.50	___
The Cephalarium Vault: A New System of Protection For Alcor Neuropatients	\$1.25	___
Molecular Engineering: An Approach To The Development of General Capabilities For Molecular Manipulation	\$1.00	___
Cryonics and Orthodoxy	\$0.50	___
Molecular Technology And Cell Repair Machines	\$2.00	___
Vitrification as an Approach to Cryopreservation	\$3.00	___
Nanotechnology	\$2.50	___
24th Century Medicine	\$2.00	___
A Dream in His Pocket	\$2.00	___
The Cost of Cryonics	\$3.00	___
Freezing of Living Cells: Mechanisms and Implications	\$3.00	___
Will Cryonics Work?	\$4.00	___
Her Blue Eyes Will Sparkle	\$1.00	___
Cryonics and Space	\$0.50	___
The Death of Death in Cryonics	\$1.00	___
Many Are Cold But Few Are Frozen: A Humanist Looks at Cryonics	\$2.00	___
A Stunning Legal Victory	\$2.00	___
What You Can Do	\$9.00	___
Reviving Cryonics Patients	\$7.00	___
Life Insurers at Risk?	\$2.00	___
Slide Presentation:		
Suspension Members	\$200.	___
All Others	\$350.	___

Gift Items

Alcor T-Shirt, Size: _____	\$12.00	___
Alcor Sweatshirt, Size: _____	\$17.00	___
Alcor Mug	\$6.00	___
Alcor Patch	\$5.00	___
Alcor Bumper Sticker	\$2.00	___
Lapel Pin	\$5.00	___
Tie Clasp	\$5.00	___
Hat Pin/Broach/Stick Pin	\$5.00	___

Total _____

The literature above can be ordered by using this form, or by telephone with Mastercard or Visa by calling Alcor: 1-800-367-2228 (toll free).

Name _____

Address _____

City _____ State _____ Zip _____

Telephone: _____

Visa/Mastercard#: _____

Expiration Date: _____

Signature: _____

Please pay by check, money order, or credit card.

ALCOR, 12327 Doherty Street, Riverside, CA 92503

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.

WANTED: Panelists for a discussion of cryonics and life extension at the Chicon World SF Convention, Labor Day weekend (31 Aug - 2 Sept). Technical qualifications would be a plus. Contact Brett Bellmore; 8750 Burt Rd.; Capac, MI 48014; Tel: (313) 724-1293.

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.

Wanted: Person to live in and work at mountain resort. Fair pay, free room and board. Call Dave Pizer at 619-249-4848.

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, JULY 7 meeting will be at the home of:
Dave and Trudy Pizer
Mountain View Motel
State Highway 2
Wrightwood, CA
Tel: (619) 249-3553

Directions: Take US 15 (Barlow Freeway) up into Cajon Pass. Get off at State 138 and go west (left, toward Palmdale) to County Road 2. Turn left onto County Road 2 and go through Wrightwood. The Mountain View Motel is on the far side of town, on the right.

The SUN, AUGUST 4 meeting will be at the home of:
Bill and Maggie Seidel
10627 Youngworth Rd.
Culver City, CA

Directions: Take the San Diego (405) Freeway to Culver City. Get off at the Jefferson Blvd. offramp, heading east (toward Culver City). Go straight across the intersection of Jefferson Blvd. and Sepulveda Blvd. onto Playa St. Go up Playa to Overland. Go left on Overland up to Flaxton St. Go right on Flaxton, which will cross Drakewood and turn into Youngworth Rd. 10627 is on the right (downhill) side of the street.

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, JULY 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.

The SUN, AUGUST 11 meeting will be held at the home of:
Keith Henson and Arel Lucas
1794 Cardel Way
San Jose, CA

Directions: Take the 17 South (880) and get off going east on Camden. Stay on Camden as it turns south and go to Michon Dr. Turn right onto Michon and go to Harwood Rd. Turn left on Harwood and go south to Almaden Rd. (1st street on right). Turn right on Almaden and right again onto Elrose, then left onto Cardel. 1794 is near the end of the street, on the left.

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 2:30 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: July 21, August 18, September 15, October 20.

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: July 6, August 3, September 7, October 5.

There is a cryonics discussion group in the Boston area meeting every second Sunday at 3:00 PM. Information may be obtained by contacting Eric Klien at (508) 663-5480 (work) or (508) 250-0820 (home). Meetings will be June 9, July 14, and August 11 at 3 PM at the home of Eric Klien; 1 Sinai Circle B10; Chelmsford, MA 01824. Take 128 to 3 north, then take the Route 110 exit right toward Chelmsford. Go 1.5 miles and turn left on Wilson Street, in front of the CVS. Make a right into the apartment complex.

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

The Venturist Festival will be held July 5-7, in Wrightwood, CA. Call 1-619-249-3553 for information.

There will be an Alcor fund-raising dinner on Saturday, September 28 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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1-800-367-2228 (toll-free, non-members only) or 1-714-736-1703 (members).**

