

# CRYONICS

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EDITORIAL MATTERS

The article in in the September CRYONICS entitled "POSTMORTEM EXAMINATION OF THREE CRYONIC SUSPENSION PATIENTS" contains the following errors.

Page 19, line 20. ...as the colloid and glycerol....

Page 21, Figure should be: Figure 4. Rewarming of P3.

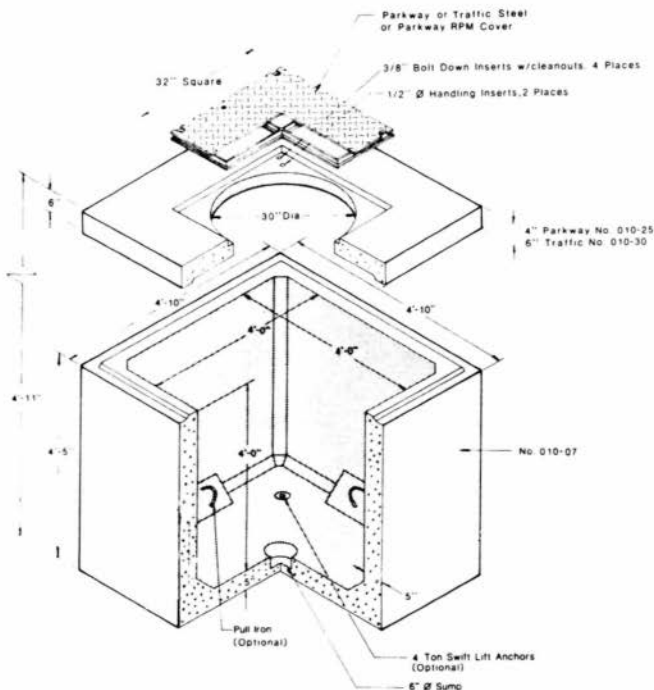
Page 25, delete last line, which is the same as the first line of Page 26.

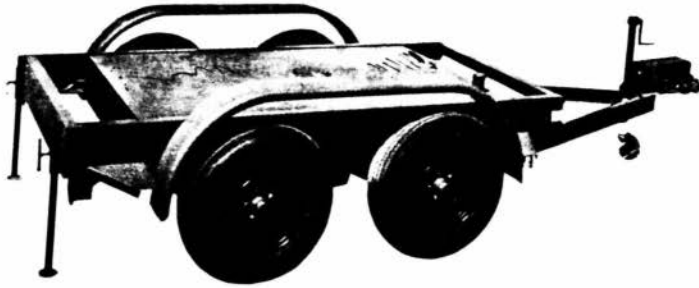
Page 26, the word "gradient" is misused several times. The proper term should be "temperature difference."

CEPHALARIUM VAULT

We have moved from the realm of the theoretical to the practical and have ordered both the trailer and the vault for the cephalarium vault project. The vault, diagrammed below, is a box of concrete 58 inches square and 60 inches high. The interior is a cube of 48 inches (64 cubic feet). The vault is a standard "utility vault" designed to be buried under streets and withstand heavy traffic burdens—including tractors with semitrailers. The vault is rated to withstand a wet soil pressure of 80 psi at a depth of 15 feet. The 30 inch in diameter opening in the top slab is covered by a 1/2-inch steel plate. Perhaps the best thing about this vault is its price: \$674.16! This is about \$1,000 cheaper than the lowest estimate we had previously received for custom construction. Due to Mike Darwin's persistent shopping around we managed to find a company that makes as a standard item exactly what we were trying to order as a custom item.

The trailer, of necessity, is a custom item and comes at a slightly higher price. The vault is estimated to weigh around 8,000 pounds,



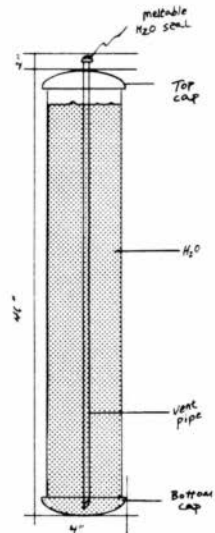


with dewar, trailer and liquid nitrogen adding roughly another 2,000 lbs. The trailer has a rated gross weight of 10,500 lbs. It will come fully equipped with surge hydraulic brakes and will be completely road ready—right down to paint, lights and license plate.

At this time Mike Darwin and Hugh Hixon are working on a prototype for the water storage vessels that will be placed inside the vault adjacent to the dewar to act as heat sinks in the event of a fire. The design of these vessels is a little more complicated than might first be expected. What is needed is a container which is reasonably rugged and which can hold water with virtually no danger of leakage. The water containers must also be small enough to be both manageable in terms of weight and able to be stacked into the irregular spaces remaining in the corners of the vault once the dewar is in place. A number of ideas have been tried out, but the one we have tentatively settled on involves using 46-inch sections of 4-inch diameter Acrylonitrile Butadiene Styrene (ABS) plastic sewer pipe with caps on both ends. The top cap is penetrated by a section of much smaller pipe which extends to the bottom of the container and acts as a riser for water to be vented from. As the water inside the container reaches the boiling point the steam will drive the water through the small diameter center pipe, forcing water out into the vault. By the use of 20 or so of these "water logs" we should be able to store about 40 gallons of water in the vault—a substantial heat sink in the event of a fire. As long as some water remains inside the vault the temperature should not exceed by very much the boiling point of water.

An advantage of using ABS is that it burns only very slowly and is largely self extinguishing. Of course, the primary reason for using it is that it happens to be what's available in the shape we need for our rather "unique" application. A major drawback to the use of ABS is the cost: each four foot section with caps and plumbing will probably cost around \$20. Multiplied by 20 or so this works out to \$400! A hefty tab to contain 40 gallons of water. Anyone with any cheaper and equally reliable ideas should feel free to drop us a line.

It should be pointed out that the cephalarium vault conforms to the observation in government procurement that states that the more an item costs, the less it is tested. Buying two of these things in order to drop a concrete building on one and then burn it for several hours with appropriate



instrumentation is somewhat beyond our means. However, we have tried as best as possible to put together a system that will protect its contents in a worst-case situation, but how well it will perform in contact with reality is now in Murphy's hands.

#### A BIT MORE ON THE FRENCH AND CRYONICS

Cryonics, much like communism, will probably be practiced in almost as many different ways as there are cryonics groups. In the United States differences in opinion, philosophies and approach already separate BACS/TT, ALCOR, and CA/CI. Even basic services offered differ considerably from group to group (i.e., whole-body versus neuro, automatic conversion to neuro and so on) and there is no sign of this divergence diminishing. Such will probably be the case, only more so as far as international cryonics is concerned.

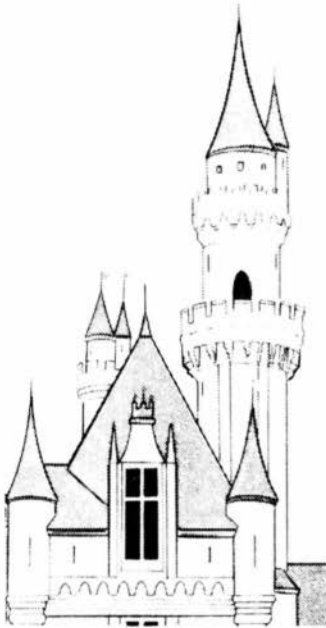
Last month we reported that a French gynecologist, Dr. Raymond Martinot, had perfused and frozen his wife. At that time reports were extremely sketchy and we had little to report. We are now in a slightly better position to discuss the case since we have spoken both with Dr. Martinot and Anatole Dolinoff, president of the Cryonics Society of France (which has apparently been quickly resurrected as a result of the Martinot case). The story we have is still a tapestry of many holes since Dr. Martinot speaks very little English and M. Dolinoff is over 200 miles away from Dr. Martinot and also speaks little English. We speak no French at all. Thus, the information we have is based on difficult

overseas communication and the news reports which have appeared in French periodicals we have seen. We have a promise of more detailed coverage from M. Dolinoff in the future.

Apparently Madame Martinot died not in an auto accident as was first reported by the wire services, but rather of a cerebral hemorrhage related to an iliac tumor. Following her death, Dr. Martinot arranged for the hospital to inject her with about half a liter of Plasmidol (the European version of Dextran 40) and 250 mg. of heparin. Dr. Martinot seemed to be under the impression that Dextran was an effective cellular cryoprotective agent and he had not even heard of glycerol when I asked him about it. Following this treatment, Madame Martinot was apparently placed in a conventional mechanical freezer and cooled to -20 degrees centigrade or thereabouts and transported from the Paris area to the town of Nueil-sur-Layon, which is about 200 miles SSE of Paris. There, Madame Martinot was transferred to a custom-built low temperature freezer which is reportedly holding her remains at -65 degrees centigrade.

Martinot ran afoul of the law when there was a power failure and he purchased dry ice. Apparently one of the vendors or their employees notified the authorities.

The story has created a great deal of controversy not only in France, but throughout all of Europe and even Japan. Paris Match carried a major story on the case along with numerous photos of Martinot and Trans Time's Northern California operation. We understand that the German magazine Stern carried a



similar story. Several Japanese and British publications also carried stories as did most European daily papers.

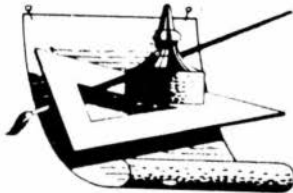
Generally, the reporting was negative and even the Paris Match article, which was supposedly the most positive, was full of wry humor and sharp sarcasm. According to M. Dolinoff, most of the French coverage was quite negative as well.

We understand from conversations with both M. Dolinoff and Dr. Martinot that Dr. Martinot had purchased the low temperature freezer in anticipation of his own death from an intestinal malignancy. Published photos of Dr. Martinot reveal him to be a tall, elderly-looking man who appears extremely thin, bordering on emaciation. Again from published photos, the freezer appears to be maintained in the basement of Martinot's rural chateau amid a fair amount of debris and clutter.

Dr. Martinot has stated both in print and to us over the telephone that he feels that storage of patients at  $-196$  degrees centigrade in liquid nitrogen is "an unnecessary extravagance" and that  $-65$  is more than a low enough temperature to provide safe storage. M. Dolinoff has told us that he does not agree with this approach but that Dr. Martinot is quite adamant that this temperature is low enough.

While barriers of distance and language make communication difficult, it seems likely that Dr. Martinot, contrary to first reports in the media, knows little about basic cryobiology and has acted more on the basis of personal opinion or emotion than on any knowledge of cryobiology. Perhaps a fuller explanation of Dr. Martinot's use of such relatively high subzero temperatures will be forthcoming from M. Dolinoff.

On the basis of our conversation with Dr. Martinot and judging from articles appearing in the French media, it is apparent that European cryonics is off to a radically different start than its American counterpart. Considering the gulfs of language and distance which separate us, the diversity may be even more interesting and dramatic than that which we are experiencing right here in the USA.



#### LETTERS

In the September issue of CRYONICS, I reluctantly ran an article (in the "Science Updates" column) by Thomas Donaldson, entitled "Barney Clark." The article was ostensibly a review of the criticisms being leveled against DeVries and Jarvik as well as the total artificial heart (TAH) program as a whole. While there is some merit to both the criticism of the TAH program which has recently appeared in the literature and to Donaldson's more specific commentary, I feel quite strongly that in the main they are wrong.

I think the thing which bothered me most about the Donaldson piece was its smugness. In fact, Donaldson went beyond smugness to nasty smugness. I have noticed this more and more in his writing lately, and have run such pieces with greater and greater reluctance. Because CRYONICS is supposed to be an open forum for the exchange of ideas I have not quashed such commentary in the past, and within reason, will not do so in the future. I don't have to agree with everything I print. The Barney Clark piece is a case in point.

First of all, the facts. Donaldson alleges that the Clark experiment is one which is proper to do on dogs, but not on humans. He is presuming here that what can be done in dogs can be done in humans as well. This is, simply put, a false presumption. The history of the TAH research program points that up

rather nicely. An aside which should be mentioned is that work with the TAH has gone on for over a decade with animals already. In particular, calves were used by the Salt Lake City group because their size is close to that of humans.

One of the reasons that calves that have artificial hearts do not survive long is that they outgrow the devices. But there is another reason, a much more worrisome reason: Within a few months of implantation of the device in virtually 100% of the animals a tough, fibrous panus (membrane) of connective tissue begins to form at the connection point of the device to the aorta (the artery which supplies the entire body with blood). By the end of a year or so this panus of tissue has grown to the point that it seriously restricts the flow of blood out of the heart. The animals die. This same fibrous panus is not seen in sheep that have artificial hearts. Will it occur in man? As a result of the Clark experiment the answer appears to be "no."

There is another problem, very similar to the one experienced by calves which does occur in man. It is the problem of intimal hyperplasia at the venous end of blood access devices used for dialysis treatments. This kind of hyperplasia apparently occurs only in man. It has subjected tens of thousands of dialysis patients to hundreds of thousands of hours of suffering and pain from repeated surgeries, and cost many thousands of patients their lives as a result of surgical complications and interruption of treatment due to loss of access to the blood. This problem was discovered by doing dialysis treatments on people! It has been partially, although not completely, solved.

Dogs are not people. Dog red cells are much larger than man's, and it is quite possible that the Jarvik heart would not even work on a dog due to the fragility of dog red cells. As Donaldson, sitting in his armchair thousands of miles away, would not appreciate, there is a long, hard road between success with animals and success with people. Just the little details which are of necessity dealt with in any new project teach a great deal. Preparation for success is a slow thing.

Finally, there is the whole issue of the worth of the TAH program. I feel especially able to comment here, having worked in dialysis for over seven years. Most of Donaldson's and Galletti's criticisms look exactly the same as the criticisms leveled against dialysis in its early days. We were told the patients would have no quality of life, the treatment would be too expensive, everyone would be better off dead (or per Donaldson, frozen). Time has shown these arguments to be shortsighted misanthropy. Dialysis patients are now living an average of 10 years. For patients whose only problem was kidney disease the quality of life is moderately good to poor. The acid test of the worth of the treatment is that few of the patients on dialysis today would choose to discontinue treatment and die (or be frozen, for that matter). Most report that even though their lives are not as enjoyable as before they got sick, they are definitely worth living. While there can be no argument that many people are started on hemodialysis who will not benefit from it, many more are treated who will. In the final analysis, it is up to the individual to decide what quality of life is or is not "worth it."

The logistics of heart transplants decree that many more people will need hearts than get them. Even with long-term organ preservation techniques, many people will develop heart failure too suddenly or have a tissue type too uncommon to get an immediate heart transplant. With our imperfect understanding of immunology and rejection, many of those transplanted will reject their new hearts and require another transplant. What about these people? Why shouldn't there be artificial hearts available, even if they are bulky and inconvenient, in order to allow these people to wait? Only an uninformed fool would argue that there is not a large and important place in contemporary medicine for a TAH program.

It is all very well to talk about funneling more money into basic research to solve the fundamental problem if you don't happen to have one of the related problems yourself. It is all very well to smugly pontificate about cryonics being the right answer, but quite another to be dying and face the reality that cryonics is, for whatever reason, unavailable.

Then there is Donaldson's implied assertion that he would presumably just hop into liquid nitrogen if faced with a choice like Clark was. Well, I for one do not feel that way. Given the choice Dr. Clark was given, I would choose as he chose. If the heart failed, or I couldn't stand the quality of life I had with it, then there is always cryonics at the end of the tunnel. At this point, with cryopreservation techniques being so poor, every day I stay alive may well work to improve my chances.

A large measure of the problems that were encountered with Dr. Clark occurred precisely because of people like Donaldson. The FDA and the ethical review committees set standards so tightly that no one but a medically very poor candidate could be used for the first TAH implant. Most, if not all, of the complications Dr. Clark experienced were a result of the advanced state of his heart failure, his advanced age and the presence of other, unrelated medical conditions. The work with animals which has been conducted so far already establishes the TAH as fully capable of providing at least 1 year and probably 2-3 years of reasonable quality life. Loss of mobility due to being coupled to a drive unit is not the end of the world. Lives have been well lived and great things have been accomplished by men and women more "confined" than TAH patients are likely to be.

Finally, widespread use of the TAH would serve to drive technological innovation. Certainly this has been the case with dialysis. The development of a good, workable TAH may allow for other, seemingly unrelated developments to occur, such as long-term hypothermia for nonhibernators such as man (fibrillation of the heart below 25 degrees centigrade is a major barrier to prolonged deep cooling of nonhibernators).

Donaldson's smugness and his self assurance that cryonics alone represents the only viable path to life extension are attitudes we should all strive to avoid. The world is a very complicated place and many, many approaches will be needed to solve the problems that confront us. While I would be the first to admit that the TAH is probably not a long-term solution to any of the problems that we face today, it may well be an important stepping stone along the way. Certainly if I was faced with heart failure tomorrow and had to make the choice, I'd say "Go for it!" After all, even just a year or two, or even 90 days is more time. As some of us already know, time, even a little more time, can be a wonderful thing. I feel Dr. Clark should have our gratitude and not our contempt. While his choice was not a long-term solution, either for himself, or the rest of us, it was a step in the right direction, a choice to try living even if only a little while longer, and there is much to be said for that. Often wars are won by such little battles.

#### ABOUT SELF REDESIGN by Thomas Donaldson

This is partly an answer to Mike Darwin's piece on identity in the September issue of CRYONICS and partly contains some further thoughts. Among other things Mike's capsule summary of my views suggests to me that I must not have explained them well enough, because I didn't feel it to be accurate at all.

Mike says that I claim that we are already well adapted to "being human beings now" and therefore can't expect "much" change. I did in fact speak of quite a lot of changes, such as loss of the need for sleep, and changes in brain



function which would make us much less able to follow directions and far more able to attend to many simultaneous events. I even mentioned that we would likely metamorphose ourselves into new forms whenever that became necessary.

However, I would like to begin by focusing on two different but related issues: the role of selection in producing our adaptations, and the extent to which we will redesign ourselves.

Although it often seems to be (wrongly) used as a means to justify the established order, observations of what human beings are like NOW, combined with the realization that natural selection must necessarily tend to an optimum whenever possible, is a heuristic principle useful for understanding why we have the design we do. I say heuristic because I would NOT claim that everything about our present design is "optimal," whatever that means. What this principle is telling us is to look for the reasons why our forms may be adaptive, not to blithely assume that some human trait is simply a mistake of nature, but to try and see why it is there.

In fact, in every single case I proposed, I could give a clear reason why the force of selection which formerly operated DOES NOT OPERATE NOW. I was not just assuming that we were well adapted, I could give reasons. That was the basis on which I suggested changes. Lifespan itself is an excellent example; I don't feel I can state too often that the situation which we all take for granted, and which we think of as NATURAL, is in fact the result of our living under conditions for which we are not optimally adapted. That is, our present lifespans are an adaptation to a PAST lifestyle of high death rates. If death rates had remained high, any desire toward doing away with aging would have been pointless: why try to deal with aging if almost everyone is dead of infection or violence before age 50?

Just because this situation has lasted all our lifespans and for many generations does not make it any more optimal. We accept it because we grew up under this regime, not because it is the one "human beings" were selected to live under. In fact, if lifespans had remained under 50, we could never even have formulated the desire for immortality, much less sought to attain it. People living under medieval conditions would have lifespans appropriate to medieval conditions.

Nor is it the case that selection must produce happy animals; animals who would not choose some other lifestyle if given that choice. In fact, the whole of human history up to this point is a story of how human beings have actively sought another lifestyle which would better suit their desires. In doing so, they became less and less well adapted to the new lifestyle which they had created for themselves. NATURAL SELECTION IS NOT A MORAL FORCE. But is certainly a force. Given that we lived under such conditions whether we wanted to or not, we would take up certain forms.

This really gets to the point of why natural selection is not really useable for any conservative arguments. There is no reason why we should live as we used to live, under the same conditions of nastiness, brutality, and transience. It is just that IF we do find ourselves living that way, THEN we will be shaped by it, even if we grow to detest that shape. The fault is not in our biology, the fault lies in lack of mastery of our circumstances, that we should be imprisoned by them and take on a form suitable to the bottle in which we are stuffed.

I personally believe that the "biological revolution" will give us immense possibilities for creating new tools and implements. However, its ability to alone make possible new changes in humanity are likely to be very limited. The



reason is that unless we change our lifestyles, then there aren't many opportunities for changing anything else. What is going to happen is that new discoveries in PHYSICS and other fields which create the preconditions for a new lifestyle, will then allow us to use biological technology to adapt ourselves to the new conditions. That is, biological redesign in the absence of other technological advance is unlikely to create many changes in the human form or character.

Furthermore, there is a very important sense in which we will never redesign ourselves in the same way as we redesign our machines. We are not just collections of matter, we have WANTS, DESIRES AND ASPIRATIONS. These wants, desires and aspirations are essential to our being. They aren't just excrescences or implements. We design our machines to help us achieve our wants. We cannot redesign our wants themselves. It is logically (and not merely biologically) impossible for us to redesign our own desires. "A little bit less aggression and selfishness here! Tone down the sex drive! Let us design ourselves so that we do not want to go to the stars or become immortal..." The wants are THE major part of being human much more than any trivial question of physical form. If we say that human beings are well adapted to being human beings, that is what we mean.

One major point I made in my essay was precisely that these wants imply certain biological forms rather than others. Even assessing the COST of an adaptation we come back to discussing what our desires are. Indeed, more than anything else, what technology does to us is to force us to work out what we really want. This can be very uncomfortable, especially since WE DO NOT KNOW WHAT IT IS WE WANT. All of the wants and desires we have are made on the assumption that some things are impossible: a man may sincerely want to leave money to his children when the question of whether or not he SHOULD die is left completely open. On the other hand, when something isn't actually possible right now, it's also possible to think of it as desirable when if we had the ACTUAL choice we would become troubled and ultimately reject it. There is a process of self-discovery involved.

I feel that this self-discovery is one of the most interesting things which happens as a result of technological advances. If people DO want to do the things that Mike suggests, that's interesting rather than something to be regretted. But I have thought about these possibilities and feel that almost all the suggested changes, particularly in science fiction, simply don't strike any answering chord in human souls.

A large part of my argument was an argument on the basis of what people WANT. Mike compared it to claiming that this invention or that will be impossible. It's ironic here that every single case he presents is the case of a tool, an implement created to SERVE human desires. These things become possible because they did serve human wants; I was arguing that some things were not going to happen because they would NOT serve human wants.

Of course we could redesign ourselves into rhinoceri. That's certainly biologically possible. But who on earth wants to be a rhinoceros? Would Mike claim that our failure to turn ourselves into rhinoceri constitutes a frustration of the human spirit? Or that to argue that we will not turn ourselves into rhinoceri is "pontification about how flight or some other invention will forever be impossible?" Certainly there are people who I would like to TURN into rhinoceri, and probably the same for Mike; but that isn't the same thing at all.

I think that these principles have a lot to say about copies, protection and identity, which are the questions raised by Mike. These are also questions raised in science fiction.

I'll begin by saying that although he doesn't say so explicitly, Mike has

come up with the only substantial application of telepathy I've yet found. I've had a problem with the idea of telepathy for a long time, in that I haven't felt that the advantage gained is really all that worthwhile. We already have lots of means to communicate with the external world, and these means are good enough not to admit of significant improvement. Of course, it would be dandy to be able to read other people's minds, but if the price I must pay is that they can read my mind too, I become very wary. Now really, wouldn't you too?

Telepathy is just far too intimate for communication, even with our lovers. WE WANT most communication to be at arms length, at a distance. However, I think that there is a very good case that we will create copies of ourselves in storable form, not just one, but many copies, as soon as we can do so, and a telepathic link which lets us continuously read out our minds would have a lot of advantages.

Multiple copies in storage is one thing, creating copies which would themselves be live human beings is another thing entirely. This is an argument from WANTS, DESIRES, and ASPIRATIONS, not from biological possibility, because I can agree with Mike that such things will certainly become possible.

Mike talks for instance of sending copies of ourselves to the stars. Let's examine that. He must want to send a copy because he doesn't want to go himself. But this copy will BE a copy, which means it will not want to go EITHER. While Mike lives a comfortable existence in the solar system, his copy must endure pioneering conditions around some God-forsaken star. Let's turn this around, Mike. How would you feel about your former self if you discovered that your COPY got to spend a comfortable existence in the solar system while you must wander about in interstellar space. Wouldn't you feel a trifle resentful? In fact, given all the troubles which you would meet, I wouldn't be surprized if you would formulate a deep desire for revenge, you would come back to the solar system with murder in your heart. You and your copy may have been identical at the moment of creation, but now they become mortal enemies.

We can step back a bit from this story of revenge and discuss some general principles. First, just because someone is a copy, even an identical copy, that doesn't make him part of you or even your friend. How would you feel if your identical twin took possession of your house and estate and kicked you out of the solar system? There are costs involved which can't be dealt with by ANY kind of technology at all. They involve the questions: now that there are two of you, how should the property be divided? Who goes and who stays? If both of you want to go, then you would go anyway; but you created the copy because you wanted someone like you who would take your place on a difficult and arduous task which you yourself didn't want to undertake. The copy doesn't want that either, precisely because he IS a copy, so you have created a mortal enemy.

In fact, there is a lifestyle involved here. NONoperative copies, that's a very good idea, but when you envision identical reproduction in this form you are talking about living the lifestyle of unicellular creatures. It is true that such creatures may retain a lot of genetic fidelity, so that is one way of continuing one's own existence. HOWEVER, every time they divide, they create two competitors where formerly there was only one creature.

A high rate of reproduction necessarily means also a high deathrate. The two are logically linked. We might expand to the stars, but then with immortality our time perspective will shift, so that periods of 2000 years will seem small. On a timescale of 2000 years, the nearby galaxy will essentially be filled. If you create these copies now, then 2,000 years later you will have to deal with a horde of mortal enemies coming from the stars to do away with you. Some of your forms will survive and others will perish. Whether you are the victor or you are the defeated, they'll still be your enemies even though they are also your twins.

I don't seriously believe that you want that, Mike. Sure it's great to have lots of copies of oneself floating about, but the risk of death from competition isn't just an accident, it goes with the territory. One of the major advantages of tools here is exactly that they have no desires of their own, they exist to do our will, unlike identical copies, children or other people.

Now in fact animals and plants have many different strategies for survival. Creating a multiplicity of copies is only one; the other obvious one, followed by Sequoias (for instance), is that of a low birthrate, great longevity, and strategies for insurance by superprotecting the small number of living copies. Animals and plants which naturally live in a milieu with a high death rate tend to adopt the strategy of many copies; their lifespans are very short. Animals or plants which either create or find themselves a niche with a low deathrate tend to adopt the alternative strategy. I personally believe that the latter strategy is the one human beings will adopt universally or almost universally. Do you really want to spend the next 10,000 years killing yourself and giving birth to yourself endlessly? Seriously.

Among other things this means that (one way or another) you will create approximately enough copies of yourself to make up for eternal destruction, and no more.

I know that science fiction writers such as Fred Pohl have adopted copies as a theme. Where my imagination fails is in the concept that any real person would really want to send a copy of themselves halfway across the galaxy to die in only a few months, or that the copy would happily cooperate in this plan, or finally that if it were changed so that it WOULD cooperate it would merit being called a copy rather than a simple disposable tool. How can we take a science fiction author seriously who has actually rejected the idea of living in a world when such things will be possible? By his acts he says he doesn't want these things, even if he claims to want them in words. Not only that, but it is science fiction authors in general who show a woeful inability to come to grips with one real possibility which is really wanted by real people: immortality and cryonic suspension, and instead wander off into thinking about clones and copies, when no one can be found who shows any signs of wanting that.

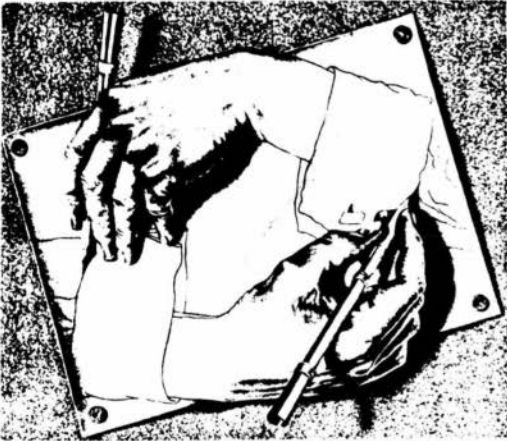
What is an open question is the means of reproduction we will adopt. As you probably know, the question of "why sex?" is a quite open one. There are genetic advantages to sex if the milieu in which the animal lives changes rapidly enough that identical copies might not be as well adapted as a combination. There can also be an inertia, in that creatures adapted to reproducing sexually return with difficulty to asexual reproduction. (Although this might be overestimated, there are parthenogenetic lizards, for instance.) Who says that it is difficult to return to asexual reproduction for vertebrates under natural conditions? With biological control, whatever else happens, we could dispense with PART of this inertia IF IT EXISTS. The part we could not dispense with, of course, is whether or not human beings WANT to reproduce asexually. This is a question which frankly will have to be settled by natural selection itself: I don't know the answer to how this would work out. there are very powerful desires for sexual reproduction; what is interesting is that (UNLIKE immortality) there is nowhere in sight a movement to find ways by which we could clone ourselves. Not only that, but the biological problems we would need to solve for cloning are far less than those needed for immortality, so that we can't claim difficulty as an excuse for lack of interest.

This question of sex is an excellent example of how we can't redesign our own wants. What do you really want, what does anyone want?

Sex of course would have to be taken in the broad sense. In the lesbian community there is the thought of fusing two eggs to form one person. This is

reinvention of sex; over the geologically long time periods involved in evolution for the long-lived animals we hope to become, it is quite possible that after reinventing sex these people will then reinvent male and female (division of labor). Of course, virtually all of the present relations between men and women are adaptations to a need for high reproduction rates, which will cease; division of labor in production of children (or clones?) might continue, but it would certainly play a far less important part in human relations as the birthrate falls.

In one fundamental sense this question doesn't matter. Since death rates would be very low, birth rates would be so low that the exact means of reproduction would not have any visible effects during the continuous lifespan of anyone living. That's what I meant by saying that it would not be a very important question: Reproduction would be a rare event no matter what means was used. If there is in fact a displacement of ordinary reproduction by the creation of clones with identical memories, that will be a very interesting fact and will tell us something about ourselves that we didn't know before. I look forward to finding out the answer to this question.



MIKE DARWIN'S RESPONSE TO THOMAS DONALDSON'S RESPONSE

Since most of Thomas' piece is about the problems caused by creating simultaneously operating copies I will start out by saying I largely agree with his analysis. But then, nowhere in "Evolution and Identity" did I propose the creation of simultaneously functional copies. When I spoke of sending EISCHER copies into interstellar space what I said was (and I quote):

"Some copies of ourselves may be sent outside the solar system as packets of information, safeguarding against sudden explosion of the sun."

This hardly constitutes sending interstellar space. Such packages might be equipped with activation timers which will start them looking for a suitable place to set up shop and start producing an active copy if they receive no instructions to the contrary in X amount of time. Such packets might even be updated from time to time via transmissions from our solar system. The only conditions under which they would be "brought up" or activated would be as a result of some cataclysm or intervention by an outside agency. This hardly constitutes the creation of many simultaneous copies—although this might not be the catastrophe Donaldson imagines, especially if they shared a consciousness or received frequent updates of each others' experiences.

My problem with The Genetic Evolution is Thomas' presumptuousness in telling everyone (including me) what I want and what I will choose to be. When Thomas speaks of people looking much like they look today he is speaking on the basis of HIS desires and needs. Even sex, which he seems to take for granted as a universal desire, is something HE wants. Not everyone feels the way Thomas obviously does about sex. Some people have conflicting desires and would choose

to eliminate one if they could do so. Indeed, I know of a number of people who deeply resent sexual feelings and are using drugs (right now, TODAY) such as cyproterone acetate to GET RID of those feelings. Some people find sex an undesirable nuisance imposed on them by nature just as we find death an undesirable nuisance. Indeed, few of us would not admit to finding sex, at least occasionally, an nonproductive drain on our time. The world is a big place, and while we would all agree that the overwhelming majority of people would choose not to give up sex, a significant number might.

As Donaldson points out, the optimum survival strategy does not necessarily make for happy creatures. The first aquatic animals that flopped up on the shore and slowly adapted to terrestrial life were probably not thrilled about it. The same may be true with us as individuals or as a species in control of our biological destiny. While we CAN reshape our environment, there are limits on this and probably will be for a long time to come. We may have to give up things which we WANT, such as being in the water or having sex in order to SURVIVE. I don't know that this will be the case, but I do suspect that we're in for some big changes if what we WANT MOST IS TO LIVE. When Thomas talks about human NEEDS, WANTS, and DESIRES he is (apparently) talking about a lot of petty things. What I mean by petty is things which don't bear on the question: how can I live forever, absolutely forever. All other wants, needs and desires are SECONDARY to that one in this human being.

Already, right now, today, I can see lots of changes I would make in myself. I can see other people making huge changes in their wants, desires and needs as their priorities shift. After all, people give up sex, material possessions, pleasurable eating and other common desires right now in monasteries and convents in order to procure salvation and serve an ideal they believe in. These may be unpalatable examples, but they do show the range of human desires and they indicate that people MAY be far more flexible than Thomas has given them credit for.

All I am saying is that human needs, desires, forms, modes of communication and so on will shift based on what SURVIVAL dictates is necessary. The more sophisticated we get, the more choices we get to make in these departments because we can begin to control the parameters which limit our survival. In the long run, the only answer to the problem is to control all the parameters or to approach this degree of control asymptotically.

Thomas should be flexible and more sensitive to diversity. I may very well not want continuous telepathy, but I might go for the kind I can switch off and on on a limited scale. I think most of us (perhaps even Donaldson) have felt many moments when we wish we could share of our emotions, our thoughts, even our very state of mind with someone we love (or perhaps someone we hate). I know I have said to myself a thousand times "If only you could feel what I feel right now, or if only you could share my thoughts or 'stream of consciousness' at this time." Thomas is being too extreme in ruling LIMITED telepathy out because it is too personal. That's like ruling out telephones because you can't even tell who's calling you up. Sharing experiences via telepathy is something I want VERY MUCH right now, providing I can control it and set limits on it. This is no different from wanting a telephone providing that you can hang-up and not answer it when you choose. There is a long distance between wanting a telephone and wanting an open microphone in every room of your home so that neighbors and friends can hear your every word!

I agree with Thomas that the world tomorrow is going to be an interesting and exciting place. I think we disagree only in that I, unlike Thomas, cannot even begin to guess at what the outlines of such a world will be or what or whether I shall stay "human" in any sense I'd recognize today if I am lucky enough to live to see that world.

DEAR MIKE AND THOMAS:

Since I'm editing this drivel for you, and am the one currently sitting in front of the computer screen, I'm going to comment a bit on what I've just read.

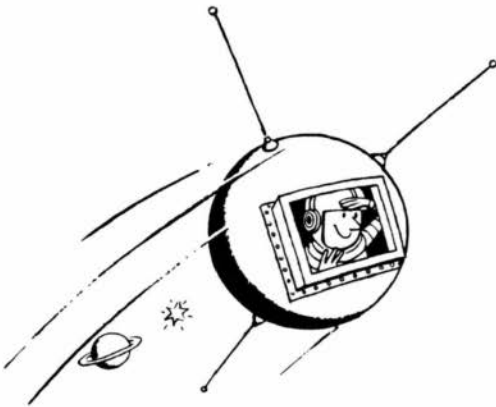
First, both of you sound like only children, and in terms of selfishness, still are. One of the neat things that living systems have developed over the course of evolution is co-operation. If you are so constituted that you and your doppelganger (clone being a term that excludes transmission of personality) cannot co-operate on a common goal, in spite of being identical in all respects, I predict short lifetimes for you in an environment that contains critters that do co-operate (like most of the human race).

Second, if you create your exact duplicate with the intention of sending him toward the second star on the right, "I'm sending him" is not the correct statement. The correct statement is "I'm going." If there is still some question over the desirability of going, I recommend the method by which children share a cake. One cuts, the other chooses.

Third, speaking for myself, I plan on having my identity duplicated (or shared) among a large number of curious people and other constructs, a versatile manufacturing complex, a couple of armored divisions, and a space fleet, to be used as necessary to create a co-operative environment, all units to have shared goals and considerable autonomy to implement them. You make enemies. I'm going to make friends.

Best wishes for an interesting future,

Hugh Hixon

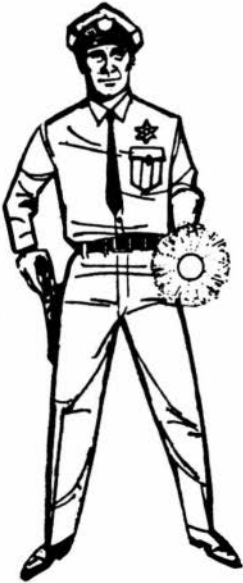


ESCAPING FROM PRISON CAMP  
by Hugh Hixon

In several recent letters to CRYONICS, Thomas Donaldson and Jerry Leaf attempted to define the possible in cryonics. I would like to stick my oar in.

When the first cryonics societies were formed and it became obvious that cryonics was very definitely to be a do-it-yourself proposition, by people without any form of related experience, they not unreasonably picked the simplest and least expensive route to their goal. For perfusions, this was the practice and equipment for embalming, and however ineffective it might be, there appears to have been an implicit understanding that they couldn't do very much better. As a result, over a considerable period, most people's preconceptions hardened around a very simple, cheap, and totally inadequate technology.

In 1977, Jerry Leaf made a rather dramatic appearance on the scene. Jerry is a medico-surgical professional, and the technology that he brought with him into cryonics was orders of magnitude more sophisticated and effective than



anything previously seen. Unfortunately for those who had gotten comfortable with mortuary technology, Jerry's improvements required much more demanding skills, knowledge, and equipment. And in spite of Jerry's ability to acquire valuable equipment at scrap-metal prices, it cost more. A lot more.

This has made a good number of people uncomfortable, and has tended to polarize the cryonics community somewhat. In almost any cryonics group of any size, it is possible to get an argument going between the "golden scalpels" and the "rusty razorblades". Unfortunately, like a good many other concerns in cryonics, a great deal more has been said than done, especially by the low-tech faction.

I would like to address Thomas Donaldson's "prison camp" plea first. In my moderately extensive reading of personal accounts of prison camp and small-ship-at-sea situations where surgery on any scale is required, help is not available from the outside and no competent medical personnel are available, the results are depressingly uniform. No one feels competent to act, and the patient dies. In shipboard cases where limited, but adequate, equipment is present and the corpsman has some surgical experience and a great deal of confidence, and the operation is relatively simple, the patient has sometimes lived. He

has usually been conceded to be a lucky bastard. In the only case I have heard of of the type Donaldson has proposed, a German surgeon in a Russian prison camp was in fact able to carry out major surgery without any regular medical equipment at all. The only reason that he was successful was that he was a man of consummate skill in his craft, had considerable knowledge of the history of surgery, and was more inventive than one should expect even of a German. The moral of this paragraph is this: Successful surgery under the most primitive conditions has been done only by people who know what they are about to start with. Not even patients on their deathbeds are sufficiently daring to submit themselves to butchery by the totally ignorant. This has been a major obstacle on which the low-tech pleas have floundered: The people making the pleas don't know any surgical skills, and have been unwilling to learn.

I recently was involved in a piece of surgery under primitive conditions. The circumstances under which I got into this crack are too complicated and embarrassing to enumerate here, but it was a very straightforward problem: reclosing an opened surgical wound. After several hours of scurrying around in stores, we were able to muster an Xacto knife, sewing needles, polyester thread, sterile wipes and Betadine antiseptic. I sharpened the needles on my whetstone, using the Xacto knife handle as a pin vise to hold the needle, feeling very lucky that I wasn't holding the needle in my fingers and rubbing it on a concrete floor. We then semisterilized our tools in the Betadine and set to work. It took two or three hours to accomplish what could have been done in ten minutes at Cryovita with a simple surgical stapler. I have a demonstrated record of manual dexterity and ingenuity, and my partner in this knew much more than I did. In no way do we wish to recommend or repeat this experience with surgery under "prison camp" conditions. I close this account with an aphorism: Nothing is impossible to the man who doesn't have to do it.

I now wish to take exception with Donaldson's plea for a re-introduction of primitive technology in cryonics. I think he has a definition problem. I have recounted my encounter with primitive technology, and I know what I desperately wanted: a surgical stapler. A sophisticated device that was simple to use. A

device designed by the medical profession for itself, to be used quickly and simply. A device designed by geniuses to be successfully used by idiots!

There is a point of view that says that medical technology is deliberately made too complicated as a conspiracy against the layman. On the evidence, I am inclined to deny this: there are better ways to shaft the public. Complication in medical technology is generally directed toward two purposes: To make the impossible merely very difficult; and to make the slow and difficult quick and simple. Any other goals tend to interfere with delivery of medical care. Further, whatever monopoly may be imposed by the medical profession, they do enjoy competition among their suppliers, so that the cost of medical technology is fairly competitive.

A much more substantial obstacle to a simple, inexpensive, and effective cryonics technology is a considerable reluctance on the part of those who make the most noise about this to get their hands wet. I do not know of anyone of this persuasion who has set about acquiring his minimum equipment list and done animal work.

I believe there are several reasons for this. The most obvious is that there are people who do things, and then, there are people who talk about doing things. An equally serious but more subtle problem is that, in the process of being socialized to assume our places in our complex civilization, we have been trained to aversion in working on living things. Beyond killing bugs and petting small furry creatures, we shy away from contact with life. Meat is something we buy in the market; its relationship to the living creatures that it was recently a part of is something that polite people don't mention. What would be your reaction to a nice-seeming person if he were to announce that he were a butcher. Necessary to your continued comfort, but would you want your daughter to marry one? In my opinion, these shibboleths can be severely debilitating as soon as we step off the path of conventionality; e.g.—You're bleeding to death and everybody is fainting away at the sight of blood. Fortunately, like most other social conditioning, these aversions can be broken. It is, however, easier when you have the help of someone who has already done it.

Finally, I would like to address the problem of perfusions at remote locations. In some abstract textbook sense it should be possible to perform a competent total body washout (TBW) with no more than perfusate, a medium-sized toolbox worth of simple (but sophisticated!) equipment and supplies, and about twenty hours of intensive training. Add a medical pump, heat exchanger, and the associated plumbing and the required cryoprotective agents, and cryoprotective perfusion and cooldown could probably be done. IF! A lot of things don't go wrong. Clotting and cold agglutination head the list, and cardiovascular disease is a close third, and all of them are altogether too likely to occur. This is the major reason why Jerry Leaf prefers the rather complex and dramatic operation of opening the chest down the breastbone: once he's there he's in the best possible place to deal with any problems that do occur. The perfusions that have been done at Cryovita have had complications enough to completely vindicate his approach. On the other hand, some of these problems might not have occurred if field TBW had been done. Unfortunately, I have yet to see someone step in and assume this responsibility.

I look forward to more action in these matters—but I don't expect it.



A Message for Terminal Patients by Saul Kent

"We are all terminal and we are all going to die sometime. So why should a terminal illness be different from a terminal life? There is no difference, and I would suggest that the most positive thought for any patient is to concentrate on perpetuating life. First and foremost, whether the patient is a mechanic or a United States Senator, he or she must have motivation for living—if the life force is to prevail over illness or infirmity."



For many years, the author of the above quote was indeed a United States Senator. He was also an Army officer, lawyer, and State Attorney General. He attained wealth, fame, and a place in history. His name: Jacob K. Javits.

A few years ago, Javits was stricken with Amyotrophic Lateral Sclerosis (ALS) — a disease that disables the victim by reducing the ability of motor neurons to deliver chemical messages to muscles.

ALS is known as Lou Gehrig's disease because it killed the great baseball player while he was still in his 30's. There is no known cure.

The Javits quote was taken from an article entitled "When Should Doctors Let A Patient Die?" in the August, 1984 issue of *Discover* magazine. It is symptomatic of the confused, irrational thinking that prevails among virtually everyone on this planet.

## Advice For Terminal Patients

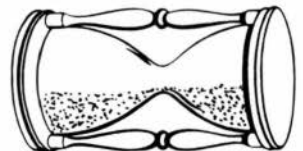
Javits tells patients suffering from terminal diseases to "cheer up" because in the end we are all going to die—no just those of us who are suffering from "incurable" diseases. The bitter truth is that life has been designed to be of short duration. That the seed of our destruction are contained within us and that we are condemned to "count the days" until our "inevitable" demise.

In light of this tragic situation, it's a good idea to tell patients suffering from terminal diseases to have a positive attitude toward life. Incessant brooding about death is depressing and counterproductive—even for a terminal patient. To be tormented by the anticipation of a future event is to be paralyzed in the present.

## A Positive Attitude

There's solid evidence that a positive attitude can not only bring pleasure to individuals on the brink of death, but can actually extend their lives. Feeling good about yourself and about your life can help you to recover from life-threatening diseases and injuries—even from diseases considered "incurable."

So its good to have a positive attitude toward life. But such an attitude must be rooted in the value of one's own life, not in the knowledge that other people are going to die. It's absurd to be told to cheer up simply because everyone around you is also going to die. Anyone with feeling and compassion for others is likely to be profoundly distressed by such thoughts.



## A Matter Of Degree

Moreover, it's ever more absurd to equate the prognosis of a patient suffering from a terminal disease from that of a young person in perfect health. While it's true that we're all in a terminal condition, there's a tremendous difference in the extent to which we're terminal.

Like it or not, we're not all in the same boat...some of us—such as Jacob Javits—are in small, battered lifeboats that are about to sink, while others are in large, well-fortified ships with heavy artillery. Terminal patients like Javits are faced with almost certain death in the near future, while others can look forward to many decades—perhaps even centuries—of healthy, productive life.

Although everyone is terminal, some of us are clearly more terminal than others.

### "Forgetting" About Death

Javits' advice to terminal patients is to "forget" about the fact that they're dying. As he puts it:

"The greatest therapy is to forget about terminal illness. Everyone is terminal. That is the great message that can perpetuate the useful life of the patient and be of solace and comfort to the patient's family and friends. What is really worthwhile in life is the excitement and the expectation of living, and the giving and the receiving which is, after all, life's essence."

Unfortunately, this bit of advice is not only absurd, it's also criminal.

### An Impossible Task

It's absurd to tell a terminal patient to forget about the fact that they're dying, because it's simply impossible for them to do so. The terminal patient—by necessity—lives and breathes death because he or she is utterly consumed by the dying process.

Terminal patients are reminded of their condition during every waking moment of their lives—either by pain and suffering or by their inability to perform the simplest of tasks.

This point is illustrated by Javits when he describes his current condition: "I am now confined to a wheelchair because my leg muscles are inadequate, and I need a ventilator to help me breathe, though it uses only room air. The critical thing in keeping alive, in my estimation, is to keep my mind in order and functioning. Fortunately, ALS does not seem to compromise the brain or the intellectual ability of the stricken individual."

The fact that Javits is able to think clearly while in the grips of a fatal disease is fortunate, but it also makes it impossible for him to forget that he's in a wheelchair with a ventilator and that he's moving closer and closer to death.

### Why Forgetting Is Criminal

The reason that Javits' advice to patients to "forget" that their condition is terminal is criminal is that forgetting precludes the possibility of taking positive action. If it's true that a positive attitude is essential for survival, it's even more important for you to take positive action when you're faced with death.

Right now, the only possible action against death is Cryonic Suspension. Jacob Javits and other terminal patients have the option of making preparations

to be frozen after clinical death. They can preserve their bodies under the best available conditions for reanimation in the future.

To do so, however, they'll have to face the fact that they are about to die.

### An Unperfected Technology

One reason that people like Jacob Javits aren't rushing to sign up for Cryonic Suspension is that it is a unperfected technology. Most scientists dismiss its use for today's patients as "unwarranted," "premature," or "certain to fail."

Another problem is that most people don't understand the concept of death—which they probably believe to be an absolute condition—rather than the end point of a long, gradual process. As a result, they are unable to understand that it's possible to be brought back to life after "death."

The final problem is that Cryonics is not accepted in Society at large. To prepare to be suspended is thus to stand out in the crowd...to flaunt the established order by choosing a highly unorthodox procedure. No doubt some people decide not to be frozen simply because they're afraid to what other people will say about them. They fear embarrassment more than they do death.

### We're All Going To Die

Which brings us back to Jacob Javits. If Cryonic Suspension was an established part of today's medicine, there's little doubt that Javits would go for it. He obviously wants very much to live and he has a great deal to live for.

His message that all of us are in a terminal condition is an important one, but it's misdirected. Patients suffering from terminal diseases are well aware that all of us are going to die because they've already begun to experience the last stages of the dying process. What they need is help, not consciousness raising.

Those of us who are still in "good" health, however, need to be reminded of the fact that we're all going to die. It's so easy to imagine that your never going to die when you're strong and productive.

What we need to learn from terminal patients like Jacob Javits is that our days are numbered—no matter how young or healthy we may be. That we are moving perilously closer to death with every tick of the clock and that death can come at any moment.

### The Prospect Of Immortality

Once we fully understand the crisis we're in, those of us who truly want to live will begin to appreciate the remarkable opportunity that stands before us.

In 1964, Robert Ettinger put forth the revolutionary idea that all of us living today have a chance at physical immortality. Since then, millions of people—who failed to comprehend the urgency of this message—have died. Even today, only a handful of pioneers have seen the light...the overwhelming majority of people continue to believe that they must grow old and die—despite compelling evidence to the contrary.

My book The Life Extension Revolution was written to present the scientific evidence that aging and death are not inevitable consequences of life. Since then, scientific breakthroughs have continued at an unprecedented rate. Today, the prospect of immortality is brighter than ever before in history.

## A Time For Action

The only pertinent questions that remain are: Will you and I become immortal? Or will we die...as part of the last generation of mortals.

Cryonic Suspension offers a chance for immortality to everyone on the planet—even those who are old and dying.

The support of research in the Life Extension Sciences offers us the opportunity to increase our chances for immortality dramatically...the opportunity to achieve immortality within our lifetime!

The time for action is now! Tomorrow may be too late!



### THE QUESTION COLUMN

What is your latest advice on wills? Are there any states in which a holographic (handwritten) will is invalid? Do you have any forms or guidelines to help in drafting the section of the will which deals with disposition of human remains?

Steve Bridge  
Indianapolis, Indiana

These are excellent questions and to provide excellent answers would require a book, and even then it's unlikely we could even come close to covering all the bases. However, there is a fair amount of general information (as opposed to advice) that we can give, and we can certainly point you towards some good sources for more specific information.

Perhaps the most important "advice" we can give is to become informed about wills and the probate process. The more you know, the less likely you are to fall into the many traps that are out there. Few people are aware that Probate almost always consumes 20% to 25% of an estate as a minimum. Whether you are rich or poor, a substantial portion of your estate will be gobbled up by probate lawyers, appraisers, and probate courts and this is in addition to inheritance taxes. EVERYONE who is old enough to have an estate and draft a will should become educated about the scandalous process whereby lawyers enrich themselves at the expense of the deceased and the next of kin. This kind of education is a particular necessity for cryonicists where every penny counts and where emasculation of an estate by greedy lawyers can mean the difference between life and death. An excellent book on the subject which we highly recommend is Norman F. Dacey's How to Avoid Probate. At the very least every cryonicist should get Dacey's book and read the first few introductory chapters which simply, lucidly and gruesomely describe the probate process. The majority of the book consists of ready to use, perfectly valid tear-out forms for the creation of trusts which allow the user to largely sidestep probate. For property conveyed to next of kin or other noncryonics individuals or organizations this book is a must.

For those who wish to convey property to a cryonics organization via a testamentary trust similar, though far less readily useable, forms are available from both ALCOR and Trans Time. If you are an ALCOR member, help is available free of charge in handling the basics of preparing for a cryonics trust arrangement and we can refer you to legal counsel who will at least not take you to the cleaners in executing the instruments.

The basic advice about conveying property via a will is: don't! Use a

trust instrument of some kind to sidestep probate, reduce the contestability of the bequest and speed its transmission to the beneficiary. There are many trust arrangements which can be used to do this, and it is quite beyond the scope of this article to enumerate and discuss them. Suffice it to say that any property conveyed via a will probably will take a minimum of two to three years to get where its going and will arrive considerably diminished by the rapacious greed of lawyers and the probate system.

General information about wills is available from any of a number of excellent, highly readable books. We like You and Your Will by Paul P. Ashley. It is available from the New American Library for under \$3.00 in paperback. You and Your Will contains much useful information including an appendix which briefly lists the requirements of each state for the general format and method of execution of a will. In Indiana, for instance, holographic wills are NOT valid. In California they are. Getting such a book is an important first step in drafting a will, because many states have very specific laws not only about how a will must be drawn up and executed, but about how your estate must be distributed. In Louisiana for instance, it is impossible to disinherit your children and the minimum amount of the estate they can be given is fixed by law! Clearly, inter vivos or other trusts would be of special importance for a cryonicist living in such a state!

Generally, like it or not, it is necessary for a cryonicist to consult an attorney for execution of a will. The cost of this will vary widely depending upon the circumstances and the degree to which the individual shops around for a good rate. One piece of advice we give here is to BE CAREFUL.

Recently, a Southern California cryonicist in his late 60's who had never consulted a lawyer before, decided to get a will in order to comply with the California Attorney General's recent opinion on cryonics not qualifying under the Uniform Anatomical Gift Act (UAGA). He contacted his former employer for a low cost referral. We provided him with a copy of BACS/TT Bianchi forms manual which he took to his attorney.

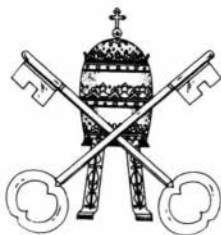
The attorney quickly drafted a will for the member which provided for the \$35,000 ALCOR minimum by joint account certificate of deposit (which is NOT an acceptable means of providing funding) and then had his client leave the balance of his estate (which amounted to many tens of thousands of dollars) to a Jewish Torah Academy. This last provision is an interesting one for several reasons. First, the member had specifically stated he wanted all of his money to go to ALCOR for his long-term care. Second, he is not Jewish, nor does he have any interest in the Jewish religion its propagation or continuance. Third, the member has no living relatives. The attorney assured the member that the Jewish school would pay over interest from the trust to ALCOR, less some administrative fees, but, because of the law against perpetuities the school could put nothing writing about this. The attorney assured his client that he had known the people involved with the school for years and that they were highly reliable.

When we got a copy of the member's will we expressed some surprize that he was leaving almost his entire estate to a Jewish school and we said we were unaware that he was Jewish. In short order it became apparent that the member, while somewhat confused about the relationship of the Jewish school to cryonics, had no idea that for all intents and purposes he had just been relieved of almost all the assets it had taken him a lifetime to accumulate! Not surprisingly, the attorney who had engineered this scheme is on the board of directors of the Jewish school in question!

Because the member had had no previous dealings with the legal profession he was simply unaware of what constituted common accepted practice. For all he knew, such off-the-record dealings were routine in the legal profession (in fact, in our experience this probably isn't a bad assumption and this should

tell you something right there). When we showed this member's will and trust to Northern California attorney James Bianchi, whose form book for cryonic suspension was ostensibly used as a "model", he was shocked and outraged. (Bianchi, by the way is one attorney who we can at least say has been both honest and ethical in his dealings with us). The message here is: get educated. Available books are simple to read and understand and are full of commonsense advice which can save you time, grief and even the shirt on your back.

For those wishing some model language to work from in drafting instructions for the disposition of human remains in a will, ALCOR now has will forms available free of charge to members. Non-members may obtain them by sending \$3.00 for handling and postage (photocopying, envelopes and postage aren't cheap these days!). For members, we are there every step of the way to help you by answering your questions where we are qualified and able to do so.



THE CATHOLIC CHURCH MEETS FRANKENSTEIN  
by Thomas Donaldson

The story I'm about to report here isn't critically important to cryonics in a direct sense. Taking a long view, it may not be very important at all. Nevertheless, it's a story most cryonicists will have heard something about, and for its amusement value alone it's worth hearing. My own interest in this tale is because it points up interesting things about people's attitudes.



By now, every reader will have heard of the Rios case. It seems that a husband and wife, Mario and Elsa Rios, deeply wanted a child, so deeply that the wife flew to Melbourne, Australia (the Rioses normally lived in Los Angeles) where there was a test-tube baby clinic at the Royal Victoria Hospital in association with Monash University. The good doctors at the clinic removed several eggs from the wife, fertilized them with donor sperm, and attempted to implant some of the resulting embryos in Mrs. Rios. The implanted embryos aborted. The Rios's then flew away, leaving two embryos in frozen storage in Melbourne. They intended to return later for another attempt at implantation; however while flying their private plane in the Andes they crashed and died.

This event produced many fantastic spectacles. First, the Roman Catholic Church, Jewish rabbis, and the local Right to Life organizations all publicly announced that they were in favor of implanting these embryos in a surrogate mother. In fact, Right to Life Australia felt that ALL the frozen embryos should be implanted in their mothers or surrogate mothers as soon as possible. "We are simply concerned that these embryos have the right to continue living. It is vital for the future and for the world." That was Mrs. Mary Pretty, acting president of Right to Life Australia, as quoted in the Melbourne AGE newspaper just after the story broke.

The Uniting Church (Methodists and whatnot in Australia) issued its own statement. The Uniting Church, in the persons of its Bishops, felt that the embryos should be flushed down the nearest drain. For Americans who might not know where the Uniting Church comes from, it is affiliated with the World Council of Churches. The Anglican church also believed that the embryos should be destroyed. "The Anglican Church," in the person of Reverend Alan Nichols, declared that it "does not approve of surrogacy as a way out of this question of

frozen embryos. It only raises another set of problems."

Right to Life Australia urged the Victorian Attorney General, Mr. Kennan, to appoint a guardian for the embryos. A Mr. Tonti-Fillippini, distinguished only by the title "ethicist" (does that mean he knows more about right and wrong than the rest of us?), rose up to denounce the hospital ethics committee for allowing embryo freezing in the first place (If these techniques are not allowed we can all go back to sleep).

The Senior Rabbi of the Temple Beth Israel in Melbourne, Rabbi John Levi, announced (I suppose because he felt there had to be some relation), that "it would be a terrible thing to bring a child into the world without parents."

There is a committee formed to discuss these issues in Victoria, with a view to proposing legislation, and headed by a suitable Publicly Distinguished Head, Professor Louis Waller. According to the AGE, June 20, the Waller Committee which was due to issue a report in two months, "has become bogged down in debate."

Almost every reader of CRYONICS will understand all of these people vigorously tying themselves into knots all over the pavement are exactly the people who would have vehemently refused to consider the issues raised by these advances prior to their arrival. They would have rejected it as Science Fiction and something for the far future.

It is now several weeks later, and in Britain the exercise has begun again with the release of a report of a British committee on these questions. This committee was headed by a British Distinguished Head, Dame Mary Warnock. Among its proposals is that surrogate motherhood be a crime and transfer of a human embryo to an animal for pregnancy also be a crime. Hybrids between humans and other animals shouldn't be allowed to survive beyond the two cell stage. If donors of frozen human eggs or sperm should die, the right to determine what happens to them should belong to the STORAGE AUTHORITIES. Embryos should be kept for a maximum of 10 years (we desperately don't want the FUTURE to intrude upon the Present, do we?), and rights to frozen embryos should pass to the Storage Authorities. Use by a widow of her husband's frozen semen after his death should be discouraged.

Almost immediately after publication of the Warnock Committee's report, Robert Winston, a test-tube baby specialist, announced that he would publicly defy the ban on surrogate mothers. "There are undoubtedly perfectly deserving cases for surrogacy and I am dealing with one such patient for whom there is no other hope." Patrick Steptoe and Dr. Robert Edwards, who started the whole thing off, also announced that they did not feel that surrogate motherhood should be banned.

So far no one has spoken in favor of pigs giving birth to human children. Perhaps such a possibility would satisfy Rabbi Levi, who felt that bringing a child into the world without parents would be so horrible.

The controversy has continued with stories such as "Surrogate Mother Tells of Emotional Regrets", in the Canberra TIMES, July 22. In that article, a surrogate mother-to-be tells of her emotional turmoil over giving up "her" baby to another woman. Perhaps pigs might not be so sensitive.

Although not publicly visible, cryonicists have been involved too. ALCOR has quietly offered to take over storage of the two orphan embryos. That was fun to watch.

In pursuit of the offer, I telephoned Margaret Tighe, President of Right to Life Australia. After hearing ALCOR's offer, conveyed through me, Margaret Tighe announced very firmly that she WOULD NOT want to be frozen. I did not attempt to explain to her that we had no intention of freezing her. I did explain the risks to survival of the embryos presented by attempts to implant

them immediately. Less than 10% of embryos (according to figures from Queen Victoria Hospital) would implant and survive. If they could continue storage of these embryos it is likely their chances would significantly improve. Margaret Tighe responded that the embryos should be implanted NOW, because "even though it is a small chance, they deserved it. We've got to give it to them." She thought it would be a terrifying thing to be born into the future (like 1990 for instance?). Negotiations did not appear to progress with Right to Life Australia on this issue.

The Roman Catholic Church, in the person of Father Norm Ford, theologian at large, was a tiny bit more forthcoming. After thinking the matter over for a weekend, Father Ford assured me that keeping the embryos frozen would be morally licit according to Catholic teachings. "Are you actually willing to DO anything to assist us to this end?" I asked. "Why no," he replied, "but it WOULD BE licit." I felt morally cleansed by Father Ford's assurance that the Church Fathers would not have forbidden what we are proposing.

As of now, the issue of storage by a cryonics organization, like the embryos themselves, remains in suspended animation. Unfortunately, there don't seem to be any agencies willing to thaw it out and revive it.

Of course, in all these questions some legislation is needed, to do such things as establish who shall have the right to decide what happens to frozen embryos, for instance. After all, the situation is new and existing laws, even common law, establish no clear rights in the matter. All the participants seem shocked by many quite ordinary possibilities. "Safeguards" (so says my news report) "will be imposed by a prohibition against storing frozen embryos for more than ten years." My imagination fails me in knowing what it is they are attempting to safeguard us against. We might even be doing the embryos a favor by arranging their birth 200 years from now.

In one sense, perhaps we shouldn't laugh at these people. Not being cryonicists, the overwhelming fact about the future to THEM (which they will never mention) is that it is the time at which they will grow old, sicken and die. They don't want to think about that time and would desperately want some way to prevent that future from coming. Not only is it a time in which they shall disappear, it is also the time when all the things and values which they hold dear (Motherhood and the Flag, but in this case most certainly Motherhood) will also age, sicken and die. Immortality would also cause the end of these values.

Ixtlipotli the Aztec also had a life founded upon firm moral values, such as cannibalism and periodic scarification. His high ethical principles gave structure and meaning to his life, and his achievements gave him a sense of deep satisfaction. To be chosen to cut out the heart of a captive was a great personal honor, signalling the respect which he merited throughout all of Tenochtitlan. It was the year 1492, though not in his calendar.

#### Antiaging Drugs: A Few Words of Caution by Mike Darwin

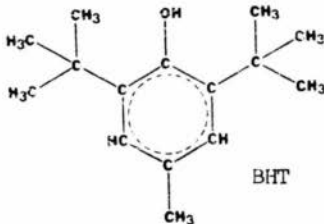
Cryonicists are no strangers to the fact that a fairly large number of people out there are using vitamins and other supplements or drugs to try to slow down the aging process. These actions are being taken on the basis of animal studies, and occasionally small clinical studies, conducted with these agents. It goes without saying that everyone should be mindful that such action carries with it special risks. Because many of these agents have not been in wide clinical use and/or have not been applied to large numbers of otherwise healthy people for extended periods of time it is difficult or impossible to know what kind of side effects are likely to be encountered. Deciding whether



to take such a risk or not is a highly individual decision.

We have offered numerous words of caution in this respect in the past. It is with extreme hesitation that we have decided to offer some strictly anecdotal reports of serious-to-worrisome side effects that some ALCOR members (and a few non-ALCOR members) have experienced with anti-aging drugs. The ONLY reason we even consider offering such anecdotal information is that there is not, as yet any way to systematically gather reliable information suitable for a proper report. We have considered questionnaires, but we do not have the expertise or the ability to take on such a project. Recently, several ALCOR directors and members were sitting around discussing this issue of side effects we and others had experienced, and we decided that even an anecdotal report, if properly qualified, would be better than staying silent on something that was of such concern to us.

So, keep in mind that what we have to report here is only a few experiences. They are NOT controlled scientific observations. They may not even be valid observations in any other meaningful way, but they DO concern us and it is possible that others may be having the same bad experiences. If other people using the agents we are about to discuss HAVE had similar experiences we urge them to write us.

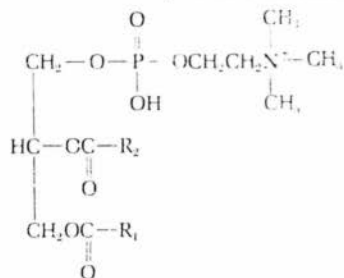


First, some highly personal background. In 1974, long before the public hoopla over life extension, I read Denham Harman's paper on the effects of butylated hydroxytoluene (BHT) on life extension and decided to begin taking it. I was 18 at the time. I started BHT at a dose of 1 gram per day in the morning. I noticed no ill effects. After about 10 months I began to develop inflamed peripheral varicosities associated with enlarged lymph nodes. A little over a year later I was seriously ill with an unclassified autoimmune disease. I stopped taking BHT, slowly recovered and had no problems until I again began taking BHT in late March of this year, during which time I had a recurrence which has responded reasonably well to conventional therapy and discontinuance of BHT (which is a potent immune stimulator).

The second time I began taking BHT, I noticed that it had a profound effect on my energy level and well-being. Indeed, I eased on and off of it several times to try and avoid these effects. While I had heard other people who were taking or had taken BHT complain about lethargy, foggy headedness, diminished libido and a general reduction of energy level, I had experienced none of these things during my first experience with the drug in 1974. The second time around I was profoundly affected by all these things. Several acquaintances and friends had warned me about these side effects. As one fellow said, "Lethargy is the target word for me in describing the effects of BHT." Laurence Gale, former president of ALCOR, had also discontinued BHT use for this reason and in fact is perhaps the most outspoken anti-BHT advocate I know. For Laurence, the experience was particularly frustrating because it took him a while to figure out why he was feeling so miserable. As he put it, "I would wake up in the morning after hours and hours of sleep and feel totally drained of energy, like I hadn't rested at all."

Steve Bridge, co-editor of CRYONICS, had similar complaints but was unaware that BHT was probably responsible until I pointed it out as a possibility. Within a few weeks of discontinuing BHT, his lethargy and diminished libido had disappeared. These same subtle side effects have been reported by at least half a dozen other cryonicists and noncryonicists who have used the drug. Most of the people reporting side effects have been over thirty and none have been

under twenty-five. Several younger cryonicists and a few older ones who are still using BHT report no side effects and deny any lethargy, foggy headedness or diminished libido or impotence (there have been at least two reports of reversible impotence directly associated with antioxidant mix use).



Phosphatidylcholine

Other than BHT, several reports have come our way of episodes of paranoia and mild hallucinations associated with the use of 2-dimethyl aminoethanol (DMAE) and selenium and choline and selenium. In both cases the individuals had no previous history of mental disturbance and in both cases the episodes stopped as soon as the choline and/or selenium were discontinued. Both individuals have remained free of problems at one year and three years follow up, respectively.

The extent to which BHT has played a part in my own ill health is highly questionable. I report my experiences here only because people threatened by immune disorders should be alerted to the possibility that potent immune stimulators such as BHT may exacerbate their condition.

As to the other side effects, we can only point out that they are vague in nature and they are much like the kind of complaints we all have from time to time. We report them here because ALL of us who have experienced them are subjectively quite sure they are due to BHT. In my own case I started and stopped BHT no less than three times (each time reducing my dose when starting again) because of the persistent recurrence of these side effects. Others have had similar experiences. In all I have talked with 11 people who have had these kinds of side effects. My estimate (and it is only an estimate) is that I have spoken with between twenty and twenty-five people who have used or are using BHT. As can be seen, 11 people with side effects in a sample this small is not trivial.

It should be emphasized that virtually all of the side effects directly reported as due to BHT are not life threatening and readily reverse when the drug is discontinued. But they are SERIOUS. By this I mean that they do significantly impact quality of life, and if the person experiencing them does not know what they are from they could lead to even more serious problems including seeking therapy for illness which does not exist.

Finally, I should mention that three people I have come in contact with who are using BHT have been having lab work done to monitor their general health. All three of these individuals reported an elevation of their liver SGPT and SGOT enzyme levels. Elevation of these enzymes is normally associated with liver damage. The degree of elevation was comparable to that which would be expected in someone who was ingesting several ounces of alcohol a day. This should suggest some caution in mixing BHT and alcohol use. The other consistent lab finding was a profound reduction in serum cholesterol even in the presence of a high fat diet. Cholesterols for the three people I have spoken with were 80, 96, and 100 at BHT doses of 3 gm, 1 gm and 1 gm respectively. These are VERY low cholesterols—the American normals are 150 to 300 mg/dl. What does this mean? None of us here profess to have the first clue. For a physician who is seeing a significant number of patients on BHT and/or other so-called life extending drugs this would seem an area ripe for research. Until and if such studies are undertaken we urge everyone to use caution. After all, it hardly makes sense dying while trying to live forever.

## OCTOBER-DECEMBER 1984 MEETING CALENDAR

ALCOR meetings are usually held on the first Sunday of the month. Guests are welcome. Unless otherwise noted, meetings start at 1:00 PM.

# ALCOR

ALCOR LIFE EXTENSION FOUNDATION

4030 NORTH PALM #304  
FULLERTON, CALIFORNIA 92635  
(714) 738-5569

The OCTOBER meeting will be at the home of:

(SUN, 7 OCT 1984) Paul Genteman  
535 S. Alexandria, #325  
Los Angeles, CA 90020  
Tel: (213) 386-2265

DIRECTIONS: From Santa Monica Freeway (Interstate 10), exit at Vermont Ave. and go north to 6th St.  
From Hollywood Freeway (US 101), exit at Vermont Ave. and go south to 6th St.  
Go west on 6th 4 blocks to Alexandria and turn right. 535 is the first apartment building on the west side of the street.

The NOVEMBER meeting will be at the home of:

(SUN, 4 NOV 1984) Jerry and Kathy Leaf  
13152 S. Blodgett  
Downey, CA 90242  
Tel: (213) 531-2708

DIRECTIONS: From the Long Beach Freeway (Hwy 7), get off on Imperial Highway and go east to Lakewood Blvd.  
From the San Gabriel Freeway (605), get off on Imperial Highway and go west to Lakewood Blvd.  
Go south on Lakewood to Gardendale (1st light) and turn west (right) on Gardendale. Blodgett is the 2nd street on the left. Turn left on Blodgett. 13152 is on the left (east) side of the street about midway down the block.



The Annual Turkey Roast is being co-ordinated by Maureen Genteman. Her home telephone number is: (213) 392-2137.

The DECEMBER meeting (Annual Turkey Roast) will be at the home of:

(SUN, 2 DEC 1984) Marce Johnson  
8081 Yorktown Ave.  
Huntington Beach, CA  
Tel: (714) 962-7898

DIRECTIONS: Take Interstate 405 (San Diego Freeway) to Beach Blvd. (Hwy 39) in Huntington Beach. Go south on Beach Blvd. approximately 4-5 miles to Yorktown Ave. Turn left (east) on

Yorktown. 8081 is less than one block east, on the left (north) side of the street.

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FULLERTON, CALIFORNIA 92635  
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