

Selected Contents:

Short Subjects.....page 1

Dinner with the Devil.....page 3

Openness in the Cryonics Arena.....page 5

Protecting Cryonics History: Longterm Color Slide Care.page 8

Science Reports.....page 10

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(1)

EDITORIAL MATTERS

This month we welcome members of the Bay Area Cryonics Society, who are now receiving this publication. BACS members and other subscribers are also welcome to order back issues #8, 9, and 10 for \$1.00 each or any three for \$2.00. Cheaper rates are available on orders of 50 copies or more of one issue. Issues 1-7 are no longer available, since there were published several years ago and have little current interest. Some of the ideas in those issues were incorporated in our booklet, "Cryonics: Threshold to the Future," which is still available for \$1.00

Any subscriber who has not yet received the May issue (#10) of CRYONICS should let us know immediately, so that we may send you another. Our change in size last month apparently confused the U.S. Postal Service. The mailing was accepted at Indianapolis; but many copies have been returned from various Post Offices which refused delivery due to "non-standard size." Apparently some copies have neither been returned nor delivered, in spite of the 1st-class postage. We think we have the problem taken care of for future issues.

It appears that last months research paper on the Total Body Washout may have previously appeared in one of Long Life Magazine's last issues, although no one in Indianapolis seems to have received that issue. We apologize for any redundancy; but we suspect that most of our subscribers had not seen the report before.

CLARIFICATION

Evidently some of our readers have mistakenly interpreted Mike Darwin's editorial "A Matter of Time" in the March (#8) CRYONICS as a discussion of the well-publicized failure of Cryonics Interment in California. In our

desire to protect the names of the relatives, we did not make it clear that this incident took place in the Eastern United States -- meaning there were two such failures last year. As far as we know, this has been the only report on this suspension failure that has been published anywhere. It is our strong feeling that we must continue to report on failures of this nature; for only by understanding what has gone wrong in the past can we avoid a re-occurrence of the same problems. We will be delighted to report also on any successes which we hear about.

THE LAST MVE

Until a few year ago Minnesota Valley Engineering of New Prague, Minnesota, was willing to manufacture a dual-patient cryogenic storage container. Before MVE began making their dewars for human storage, cryonicists were forced to rely on cranky, leaky, almost totally unworkable units made by the now defunct Cryo-Care Equipment Corp. The Cryo-Care dewars were impossibly bad. They required a vacuum pump running constantly in order to hold even a poor vacuum, and the boil-off rates were astronomically high. In contrast, the MVE dewars required no electrical power, functioned flawlessly, consumed a tiny fraction of the floorspace occupied by the other containers, and most importantly had boil-off rates in the 8 litter per day range.

Unfortunately, MVE decided to stop making what cryonicists now lovingly refer to as "MVE's." Sad to say, MVE had only made 4 such

(2)

units in the history of cryonics. Since they made their first one in 1968, only one MVE dewar has failed, and that exception involved compromise of vacuum integrity with a ballpeen hammer! Three of those dewars are now owned by Trans Time. The fourth one, only four or five years old, was held privately by a New York man who was storing his father's remains in it. It appears that the dewar was not being serviced regularly and that the Suffolk County Health department was notified of this. The container, along with the remains, was seized and impounded pending a judicial decision regarding ultimate disposition. We understand that the decision was reached a short while ago and that the remains, ALONG WITH THE \$10,000 UNIT, were interred on Long Island. When the Suffolk County Health department was questioned on this matter, they informed us that it was the relative's wish that his father be interred in the dewar, and that the "Suffolk County Health Department does what the Suffolk County Health Department has to do." Thus, one of only four reliable containers ever made for whole body suspension was lost. No one, despite a variety of approaches and the expenditure of many thousands of dollars, has yet approached the reliability of the MVE units. With this tragic loss of storage space, the need to find a reliable manufacturer or a new storage system is now more critical than ever.

CRYONICS INSTITUTE COMMENTS ON STORAGE RESEARCH

The May 1981 issue of "The Immortalist" contains an article by Bob Ettinger outline the frustrations and difficulties encountered by CI in developing a non-vacuum or low vacuum multiple storage unit. CI has for now given up on the no-vacuum research; but it is continuing to work on a possible soft-vacuum structure, with slow, but encouraging results. The article is a good look at the problems of doing basic engineering research. We hope for the eventual publication of technical details which document what has actually been done, what the nature of the difficulties was, and exact figures on performance. While the possibility of patenting

is mentioned in the paper, it is not likely that a more detailed discussion of the failures encountered will compromise future developments. In any case, we wish CI good fortune in its continued research in this critical area.

ETTINGER ON WEALTH

Also in the May issue of "The Immortalist" is an insightful editorial by Bob Ettinger commenting on a recent Mike Darwin editorial entitled "Water and Oil" (CRYONICS, April, 1981). Ettinger makes some excellent points about people with money which were not mentioned in the original piece. He points out that "Struggle is less comfortable than surrender" and that many of the rich identify death with the status quo. He also writes that "Cryonics threatens those who have learned to trust, revere, and place ultimate psychological reliance on institutions -- organizations, churches, states, ideologies, ways of life. They cannot accept the fact that they have given allegiance to something ephemeral, and that only they themselves -- as individuals -- have potential immortality and fundamental worth....Accepting cryonics means accepting a new start and an uncertain future in which they may find themselves much smaller frogs in a much bigger pond."

(3)

CHATSWORTH LAWSUIT GOES TO TRIAL

The lawsuit stemming from the failure of Cryonic Interment and Cryonics Society of California to maintain several suspension patients in their facility at Chatsworth has opened in Los Angeles. We understand that Fred and Linda Chamberlain, who were defendants in that suit, have settled out of court. The settlement in this situation is in no way an admission of complicity or guilt. The costs of pursuing legal action of this nature are extreme, and it is our understanding that the Chamberlains have already incurred many thousands of dollars in legal bills just in preparing to defend themselves from the unjust charging of them in this scandal. We are pleased that they have been spared the time and expense of further legal actions.

From press accounts, we gather that the only defendants now remaining are Robert Nelson, former CSC and Cryonic Interment president, and Joseph Klockgether, a Buena Park mortuary owner and funeral director with whom Nelson reportedly contracted for services in perfusing and freezing CSC patients.

TRANS TIME FILES LAWSUIT

Trans Time recently filed a lawsuit against Los Angeles television station KNXT. According to TT president Art Quaife, KNXT made an unauthorized copy of a TT videotape entitled "How We Froze Two Humans," which was rented to KNXT for use on a one-time basis. KNXT is reported to have broadcast this film while reporting on the lawsuit in the above article. According to Quaife, the use of the Trans Time film in conjunction with such an unpleasant and decidedly negative story has resulted in damage to the image and good name of Trans Time.

DINNER WITH THE DEVIL by Michael Darwin

"When you sup with the Devil, use a long spoon."
--Medieval Proverb.

One of the charges leveled at cryonicists, sometimes even by other cryonicists, is that what we are doing is macabre or grotesque. It is a very difficult charge to counter because cryonics, by its very nature, is concerned with the end of life, with death. The handmaidens of death are dissolution and decay; certainly not very attractive subjects and definitely not successful after-dinner conversation. We can of course counter with the argument that despite the fact that we are dealing with death, we are really concerned with the preservation and continuation of life. Despite the logic of such an argument, most skeptics remain unimpressed. They know what we are doing is horrible and nothing we can do or say will change their minds.

The fact is that most modern inhabitants of the Western World think that any direct confrontation with death is grotesque. Technical civilization has made it possible for people to buy their way out of the

(4)

unpleasant things in life: manual labor, domestic chores, slaughtering our meat, taking care of aged relatives -- and confronting death. Few people today ever see another human being die. All of the unpleasant aspects of death are handled by people who are paid for their services and who disguise their precise duties in a language of euphemism and obfuscation. People do not die in hospitals, the "code" or "RHC" ("Respirations Have Ceased"). Mortuaries have "Slumber Rooms" in which to display the "dearly departed." Anyone who has worked in a hospital or nursing home will have more than a few stories to tell of relatives who deliberately do not arrive in time to see a loved one die. Many people cannot bear to see a dead relative for even one moment before the mortician carts away the unpleasant reality and replaces it with his cosmetized and plasticized version.

This situation represents luxury not yet available to cryonicists. Cryonics, despite the press hoopla, has remained a desperately small affair. Probably less than 200 persons worldwide have made arrangements to be frozen. In such a time, the businesses involved in delivering cryonics services are severely understaffed and overworked just in facing day to day realities of maintenance, readiness and staying in business. As long as cryonics is so small and poorly accepted, its adherents as well as its practitioners are going to find themselves facing realities that the average man has long ago bought his way out of. While the average man may say "My father died in August," and be done with it, cryonicists may find themselves much more intimately involved. They may, for safety's sake, be forced to care for a loved one at home during the final stages of an illness; or, as some of us have had to do, they may find themselves involved with the actual mechanics of perfusing and freezing a friend or relative. And it may not end there: Under present conditions, the concerned cryonicist will probably have to continue to acknowledge his relative's death by assisting, either directly or indirectly, the cryonics organization in continued maintenance.

When those of us who are involved with doing cryonics speak of our frustrations and experiences, we sometimes upset those who are involved in a less immediate way. Some of these people may be quite shaken by confronting the reality of perfusion. Yet current circumstances require that those realities be seen and discussed. It is the only way, I believe, for us to progress to the point where we eventually (at least most of us) can be spared the more unpleasant forms of involvement. Perhaps someday cryonics will be as neatly packaged as medicine, or life insurance, or funeral service: all of the negative images will be completely out of sight, if not completely out of mind. The established reputations of long-reliable firms will eliminate the difficult decisions and personal

involvement which must accompany making arrangements today. But that day is not yet here, and we are too few to be spared the reality of what we are doing. The price of not facing these unpleasant realities, as recent failures have sadly demonstrated, is much too high.

For now, we must continue to take our dinner with the Devil, and we don't even have the luxury of a long spoon.

(5)

OPENNESS IN THE CRYONICS ARENA
A commentary by Al Lopp

The cryonics community -- if indeed there is such a thing -- has experienced a strange mix of unfavorable events and significant setbacks in the past two years:

- * The California Attorney General decides that arrangements for

cryonic suspension do not qualify as an anatomical donation under the Uniform Anatomical Gift Act. While the ruling directly affects only California, it is indicative of decisions that could occur in any other state. Additionally, most paperwork currently executed or available for execution relies in some way on the UAGA.

- * "Long Life Magazine" stops publication. For many years Pat

Dewey produced a widely read journal which strove for a truly professional and uncensored presentation of cryonics issues. It is unfortunate that its production could not continue when Pat had to reduce the effort he could invest in it.

- * Indianapolis scraps its pursuit of suspension capability. Due

to financial strains and a need for qualified and dedicated perfusion personnel, the members of IABS and controllers of Soma Incorporated decided their efforts could be more useful if directed elsewhere. While research efforts were productive, it was decided that suspension responsibilities could not be assumed under such conditions.

- * The son of two suspension patients is killed in an accident,

leaving no funds for continued suspension of his parents. The patients remain in storage at the time of this writing, but their fate is uncertain.

- * Due to negligence and mishandling, a cryogenic dewar containing

two patients who are being stored privately in the Eastern United States experiences a vacuum failure. The patients are so decomposed that further suspension is decided to be pointless. The patients' remains are buried.

* The remains of several former suspension patients are discovered in Chatsworth, California in an underground crypt. It is apparent that the dewars have not been maintained in months, even though it is known that relatives of some of the patients are still paying Cryonic Interment, Inc. for suspension maintenance. The event received the attention of local and national news media.

* The above occurrence precipitates a major lawsuit initiated by

(6)

patients' relatives. The plaintiffs' attorney is alleged to have stated that he intends to wipe out cryonics for good.

I have not compiled the above list with the intent of discouraging anyone. But I did make it with the knowledge that it will make some readers furious. There is a very mistaken and very dangerous notion that the cryonics "community" would do best to pretend that failures such as those above did not happen; that they must not be discussed among ourselves nor with the public at large; that we must defend the actions of others who are interested in cryonics, regardless of how irresponsible, negligent, dishonest, or disgusting those actions might be. Sorry, the game for those tactics.

* * *

Public relations have always been a problem for cryonics, and the reasons are many. Since the inception of the cryonics thesis by Bob Ettinger in the early 60's, many have reacted that the idea cannot work for scientific reasons. Based on this belief, they branded the individuals and organizations which sought to provide perfusion and suspension storage as frauds and fakers for requiring such "exorbitant" sums of money and exploiting the family of the deceased in the time of their bereavement. Others simply don't understand how anyone can invest such efforts and resources toward a chance of undetermined probability that the goal might work. Still others cannot break themselves away mainstream thinking -- after all, when you're dead you're dead and there's nothing that can change that. There are those who are too busy enjoying the here-and-now to be bothered with the distant future (or what they assume to be the distant future). Others have still different reasons for dismissing cryonics.

To the above image of cryonics can now be added the recent failures in suspension maintenance. Both the incidents and the lawsuits have been reported in the public press, and to act as though they never occurred or

as though no one know about them is self-defeating. It prevent us from learning from our own or someone else's past errors, and to paraphrase George Santayana, that dooms us to repeat them.

No cryonicist can be pleased that we now have examples of failure to study. But to not study them and not develop strategies to prevent their recurrence and not publicize those strategies would be a tragedy in itself. We must consider cryonics to be a fledgling industry, which needs to develop its own professional practices and mores, and which cannot

burden itself with public relations policies that prevent needed communication and discussion and questioning from occurring. An industry with lives at stake cannot afford to be that superficial.

(7)

The public knows about some of our failures, and we have a right and a responsibility to defend ourselves. Internally, we must ask why such failures occurred. Externally, our efforts at nurturing interest in cryonics must mature to include explanations of why such failures will not occur again. We must have answers to these questions exactly because of the type of individuals we need to attract. Far from being omniscient shepherds looking for a flock to lead, we need to attract those who are insightful and curious enough to ask the intelligent and crucial questions. It is only these newcomers who will make true contributions to the immortalist movement. It serves no purpose to dismiss these people with evasive responses, or to insult their intelligence by acting as though all is beautiful, or conditioning them into a "there are certain things we simply don't discuss" attitude. Our audience is too sophisticated to be treated that way.

* * *

Some aspects of cryonics are unpleasant, though there is no reason for us to be ashamed of this. It is intrinsic to cryonics that we must deal with clinical death in order to prevent the true, biological death. This is not unlike the doctor who must deal with disease and injury to promote health. Recent "informed consent" laws require a doctor to tell a patient completely about certain conditions. For example, a woman with breast cancer is informed of the alternative treatments available, and the advantages and risks of each.. When formerly it was essentially the doctor's decision, he would usually choose to perform a mastectomy as soon as possible. Now the woman is informed, and it is her decision and responsibility. When many women find out about the frequency of psychological trauma, partial paralysis, decreased libido, and other potential aftermaths of such surgery, they have chosen less radical (and less well-tested) alternatives. The result is that many women now survive breast cancer without the removal because of developments in chemotherapy and radiation therapy brought about by its increased use. While it is unpleasant for the doctor to go into great detail about the nature of disease with a patient who often does not want to know, it is determined that it is best that the patient does know -- better for the patient, the doctor, and the world of medicine.

In this regard, cryonics is not at all unlike medicine. In fact, it is better to have someone lose interest in cryonics after having been dealt with honestly and openly, than to get them involved with false or incomplete information. Deal with people frankly, and even if they are not won to our views they will respect us and tolerate our stance. On the other hand, censoring facts -- even with newcomers -- is dishonest, insulting, and condescending.

(8)

Anyone treated this way who remains involved must learn of this deception, and can conclude we are frauds just like everyone says. Resentment and

contempt follow. It is pretentious and dangerous for anyone to proclaim himself or herself the Insider with a monopoly on what is or is not "in the interest of cryonics." In this arena as in science and politics, it is essential to let "Truth and Falsehood grapple in the marketplace of ideas."

Finally, there is the subject of memorial. Several recent events have affected the fate of present or former suspension patients. Some of them are gone, and our frantic shuffle for cover has eclipsed the reverence and reflection that friends and colleagues would share even in the event of a usual death and burial. Even though many of us did not ever meet Ann DeBlasio or Stephen Mandell or Genevieve de la Poterie, many of us identified with them, and rightly so. For like us, they hoped for a Rebirth. As each of us will probably be, they were rendered helpless by Time and totally dependent on the efforts of the quick. They should be remembered instead of forgotten, and their stories should be told instead of silenced. After all, that is the only immortality they will ever know.

PROTECTING CRYONICS HISTORY

While the cryonics movement is less than 20 years old, it has generated a large amount of information of historical interest; and some of that information is already starting to disappear. Slides which are in storage here at IABS were in some cases noted to be deteriorating despite careful storage in a dustfree environment. Realizing that this may be a universal problem and that much of the photographic information about cryonics is on color 35mm film, we pass along Eastman Kodak's recommendations on proper techniques for long term storage of color transparencies. This information is from "Planning and Producing Slide Programs" (Publication S-30) which may be ordered for \$4.00 from Eastman Kodak Company, Dept. 412L, Rochester, NY 14650. You should also ask for a free copy of their "Publications Index" (S-4) which lists a large number of other useful publications.

NOTE: The following information is presented in summary form.

Over a period of time all dyes undergo hue and saturation changes. To delay dye changes, store properly processed films where it is dark, dry, and cool. Due to the negative effects of light and heat, avoid projection times longer than 1 minute. If longer projection times are unavoidable, make duplicate slides of the original and use them

(9)

instead. Never store processed films in basements or attics, to prevent extremes of heat and humidity. High relative humidities are harmful because they increase the possibility of fungus growth. A relative humidity (RH) between 15 and 40 percent and a temperature of 21 degrees C (70 degrees F) are recommended. Color negatives stored under these conditions should remain in stable condition for at least 2 to 4 years. In localities of high RH, it may be advisable to build a moisture-proof box in which to store a film collection with silica gel. RH under 15% should be avoided because excessive brittleness may result.

Color transparencies and negatives should be kept as clean and dustfree as possible. They should never be touched with the finger except at the edges. Keep the films away from damage by insects or chemicals. (Specific instructions are provided for cleaning slides.)

LONG-TERM KEEPING. Any color transparency or color negative that is intended for posterity should be separated into its three color-component parts. There color separation negatives (or positives) should be made no

black and white film. So-treated negatives have an estimated stable life of hundreds of years when stored under optimum conditions.

The best method at the present time for delaying changes in color images for very long periods of time is storage of the transparencies or negatives in a freezer at -18 degrees to -23 degrees C (0 to -10 degrees F). Even careful storage in a refrigerator will provide intermediate periods of satisfactory reprinting. When stored at these temperatures, the film must be protected to maintain the proper moisture content. Suitable moistureproof packaging consists of "dead-soft" aluminum foil (such as three wraps of household heavy-duty aluminum foil) with folds and seams sealed with moistureproof tape, or heat-seal foil envelopes, made by a number of manufacturers including Kodak, which has a product called Storage Envelopes for Processed Film (available at photographic suppliers). Before being sealed, films should be preconditioned to 21 degrees C or lower and to 15 to 30% RH. A relatively inexpensive way of achieving 15 to 30% RH in a small room is to use a refrigeration-type dehumidifier controlled by a humidistat. When there is no other means of lowering the RH, silica gel can be used and the films placed in a hermetically sealed container which in turn is placed in cold storage.

WARM-UP TIME. To prevent moisture condensation on material taken from a freezer, the package must be allowed to reach equilibrium with room temperature before being opened. The warm-up time depends on the temperature differential between the film and the air, the dew point of the air, the quantity of film, and the size and insulation of the package.

Since warm-up time recommendations cannot be given for all the different conditions that might be encountered, a partial test should be made for the particular conditions. Moisture condensation is not only harmful in itself but also might lead to subsequent return of the film to storage in a high-moisture condition. Bear in mind that film should be resealed in equilibrium with low RH before being replaced in cold storage.

(10)

SCIENCE REPORTS

MEGADOSE OF VITAMIN C AND IMMUNE RESPONSE

One persistent problem to the knowledgeable about claims that Vitamin C in megadoses will have beneficial effects is the problem of tissue saturation: as it turns out, quite modest doses of Vitamin C (about 200 mg per day) will saturate our body tissue so that we will (it seems) simply excrete any excess Vitamin C above that level. Many people knowledgeable in metabolism and nutrition have therefore felt skeptical of any claims that megadoses of Vitamin C will have special effects, since the mechanism by which such megadoses might work has seemed obscure at best and absent at worst.

A recent article by Robin Fraser et al (AMERICAN JOURNAL OF CLINICAL NUTRITION 33 (1980) 839-847) puts some new data into this debate. Fraser et al studied the immune response during starvation of male guinea pigs whose Vitamin C levels were supplemented by injection with megadoses; they subjected all their test animals, including the control animals, to starvation diets. Control animals receiving no Vitamin C at all, and other controls receiving 25mg/day of Vitamin C, all lose weight and their immune system loses its ability to respond to foreign challenges. Fraser et al report, however, that high doses of Vitamin C will significantly slow both the loss of weight and the deterioration of the immune system. They report also that the megadoses of Vitamin C will accumulate in the adrenals and the pituitary, both of which are involved in hormonal response to stress; starvation of course is such a stress.

A positive influence of Vitamin C on lifespan remains to be shown. A protective effect of Vitamin C on the immune system and against stress generally has also been known for some time; the most interesting observation of this paper, however, is the fact that megadoses of Vitamin C accumulated in the adrenals and the pituitary. A process by which megadoses could act therefore exists in guinea pigs and may exist in humans.

DNA REPAIR DOES NOT CORRELATE WITH LONGEVITY

One of the major theories of aging, the error catastrophe theory, due in its original form to Orgel, suggest that the ability of an animal species to repair its DNA may correlate with its longevity. A similar conclusion may follow from theories such as those of Harman, which suggest that free radical damage may play a critical role in the development of aging pathology.

(11)

A recent paper (AD Woodhead, RB Setlow, E Grist, EXPERIMENTAL GERONTOLOGY 15(1980) 301-304) has just presented some awkward evidence against both of these two theories. Woodhead et al report studies of the efficiency of DNA repair in three nonmammalian vertebrates: two species of fish, the Amazon molly and the rainbow trout, and one turtle, the Carolina box turtle. The fish live respectively for up to 3 and up to 8 years, while the turtle will live as long as a human being, up to 120 years.

What is interesting though awkward are the results of their studies: they could find no relation between the ability of cultured cells of these three animals to repair DNA damage and the lifespan of the animals. In fact, the most awkward result concerns the turtle, which had a repair capability about equal to that of the molly, which only lives for three years.

These results might conceivably be explained away by special arguments. Occam's razor would suggest that they are real. Their implications may be much more extensive, too, than the fact that these were cold blooded animals may suggest. For instance, measures of efficiency of DNA repair in cells of experimental animals has been suggested as one test of the effectiveness of any anti-aging drug and the existence of animal species in which DNA repair does not correlate with longevity suggests that ability to carry out DNA repair may be a poor test of future longevity even in humans undergoing drug treatment for aging.

GENESIS OF NEURONS IN BRAINS OF ADULT MONKEYS

Up until quite recently nearly all scientists believed that neurons presented the primary example of a type of cell which would not regenerate after injury. However, not long ago some scientists found evidence that neurons would divide in the brains of adult rats (SCIENCE 197 (1977) 1092). An even more recent paper has found further evidence that similar (though not identical) regeneration will occur in squirrel monkeys, which are animals much closer to humans than rats.

PC Graziadei et al (BRAIN RESEARCH 186 (1980) 289-300) report that after sectioning of the axons of olfactory neurons in adult squirrel monkeys, the neurons belonging to these axons will degenerate and die. In itself this was known for a long time and is a standard technique in brain anatomy. However they found also that if the animals are kept for 90 days new

neurons will grow in to replace those which have been lost.

The process by which this regeneration happens resembles that in regeneration of brain tissue in amphibians, which will regenerate neurons quite freely. Brains contain many cell types other than neurons; what

happens in regeneration is that some of other cells transform first into neuroblasts (cells acting as precursors to neurons) and then finally into new neurons. The neurons do not themselves divide, rather instead other cells divide and turn into neurons.

(12)

Some question existed about the applicability of the earlier work on rats to human beings, because the nervous system of rats remains immature for some time after birth. These new results in monkeys are therefore particularly interesting. Control of such processes may make possible considerable regeneration and growth of the central nervous system much sooner than previously thought.

WORK FROM LENINGRAD SHOWS IMPORTANT NEW DRUGS AGAINST AGING

Vladimir L. Dilman, at the Petrov Research Institute of Oncology in Leningrad, is one of the leading researchers in the USSR on the subject of the endocrinology of aging, and has published many papers both in the USSR and in the West. He has undertaken a detailed study of the specific kinds of diseases which tend to develop with aging, of which heart disease and cancer are two, and in previous papers suggested (LANCET i(1971)1211; EXPERIMENTAL GERONTOLOGY 14 (1979) in press) several drugs among which are the anti-diabetic drug phenformin, the anti-epileptic drug dilantin, and the drug L-dopa, which might increase lifespan by affecting the way in which the hypothalamus responded to feedback from the other body organs it controlled.

In a recent issue of GERONTOLOGY (26 (1980) 24-246) Dilman and Anisimov have now reported success with both phenformin and dilantin. They treated female C3H mice with 2 mg/day of phenformin or 2 mg/day of dilantin and report that each drug prolongs mean lifespan of the treated mice by 23% and 25% respectively. Both, moreover, decreased the incidence of cancer in treated mice by up to four times (with phenformin). They also treated one group of experimental animals with L-Dopa, though at a much lower dose than that of previous experiments by Cotzias which have shown a positive effect; they report that their low doses had no effect on lifespan.

Phenformin affects the metabolism of fats and carbohydrates and may have an effect on the production of dopamine in the brain. Dilman and Anisimov suggest that the effect of phenformin may be similar to that of low-calorie diets in its influence on aging. Dilantin, the anti-epileptic drug, will also lower production of insulin and the adrenal hormones and may also work on the hypothalamus. Dilman and Anisimov feel that fat metabolism may play a crucial role in the production of most diseases which accompany aging, and the proximate effect of deeper aging processes consists exactly of derangements in fat metabolism. Both of these drugs may therefore act through that effect.

Drugs which act against aging obviously merit close attention by all serious immortalists. Both drugs will need a doctor's prescription in the US; it is unlikely of course that really effective anti-aging drugs will not need the attention of an MD for their administration. A close study of

the toxicology of both drugs would be needed, of course, before beginning to take them.

(13)

DRUG TREATMENT IN MILD HYPERTENSION

Means to prevent illness rather than cure it receive a lot of attention both from the public at large and from medical researchers. One way suggested to slow down the progression of heart disease and arterial disease which happens with aging is to prevent one of the underlying causes, which is high blood pressure (hypertension). When hypertension is severe doctors have known for some time that drugs treating it will help slow down the development of both heart and artery disease which inevitably accompanies hypertension. There has been some question, however, whether or not drugs against hypertension would benefit other patients who may have hypertension to only a mild degree (defined as a diastolic blood pressure less than 114 mg Hg. When a doctor tells you that your blood pressure is 120/80, the diastolic blood pressure is the lower figure). For instance, it could be that the side effects of the drugs used to treat mild hypertension would cause more damage than the hypertension itself.

A recent study reported in LANCET (14 June 1980, 1262) by the Management Committee of the Australian Therapeutic Trial in Mild Hypertension present some quite resounding evidence that treating mild hypertension will have significant benefits in terms of health and lifespan.

The Australian Therapeutic Trial was a large study of 3427 men and women diagnosed as having diastolic blood pressures more than 95 mg Hg and less than 110 mg Hg; many physicians throughout Australia cooperated in it, so that the work cannot be attributed to any single individual. Subjects were divided into two groups, one of which received a placebo and another of which received an anti-hypertensive drug. The study began in 1973 and lasted about 4 years for each patient. Its results were quite clear; cardiovascular disease fell uniformly for all subjects treated with the anti-hypertensive drugs. Over two thirds of all cardiovascular disease which developed in the study population was ischemic heart disease. The number of cases of fatal heart disease was less than half that of the controls; the number of fatal strokes was also less than half. The major effect of treatment for hypertension was on strokes rather than heart disease; in the case of strokes, treatment not only decreased the number of fatal strokes but also decreased the number of strokes overall by HALF.

For immortalists these results are of interest for several reasons. First, the anti-hypertensive drugs must be taken continually for years; they will therefore provide a precedent for any putative anti-aging drug. Second, strokes are a significant cause of deaths in poor condition and of people becoming unable to care for themselves. Means to reduce their incidence, even in the "worst case" in which no significant advances against aging occur in the next 50 years, will significantly increase the likelihood that we will be suspended in good conditions. And third, of course, this work suggests some small increase in our expected lifespans, though nowhere near the amounts we might expect from known anti-aging drugs.

(14)

Life Extension through Cryonic Suspension

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We offer the complete range of cryonic suspension services, currently maintaining ten patients in long term storage. We also offer cryonics videotapes, slides, and photos.

SUSPENSION VAN FOR SALE

TRANS TIME, INC. is offering for sale a van that was outfitted by MANRISE CORP. personnel (Fred and Linda Chamberlain, Mike Darwin) to be fully prepared to place a Donor into cryonic suspension. Indeed the van was used for that purpose, in a suspension MANRISE conducted in 1976.

This 1967 GMC 6-cylinder van has only 67,000 miles on it. This is the largest size walk-in van manufactured, with overall length 25'. The front cab and engine take up about 8'7", leaving an enclosed rear space 16'5" long by 7'1" wide by 6'3" high. This rear area has a linoleum floor, woodgrain wall panelling, and a suspended ceiling with eight fluorescent lights shining through flush translucent plastic panels. The van has an electrical wiring system installed, supplied with power by an external source connecting to a plug on the outside of the van. This power supports a built-in air conditioner, refrigerator, exhaust fan, two electronics racks, including control panels, and numerous electrical outlets. Installed equipment includes three sets of eye-level cabinets and two sets of ground-level cabinets for storage of supplies, a double sink with connections for exterior water supplies and drains, mounting clamps for "H" oxygen cylinders, an eye-wash station, and a fire extinguisher.

Price of the van is \$6,000.

TRANS TIME also has a variety of suspension equipment and supplies for sale that can be used to fully outfit the van to conduct cryonic suspensions in the field.