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CRYONICS INSTITUTE

NEWSLETTER

Cryonics insights and
information for members
and friends of the
Cryonics Institute



CI BULLETIN



Hello All,

Welcome to a new year. With Spring finally here and the worst of winter behind us, I'm very optimistic 2021 will be better than 2020. In fact, I already have some great news to share!

We run CI with a small but sufficient team because not only do we have a critically important job to do, we also pride ourselves on being responsible stewards of our members' funding investments. Employees are a major investment for any organization, so we do our utmost to balance that cost against providing the superior service, care and oversight our members and patients deserve.

As you may or may not know, CI's Hillary Martenson recently moved on from a full time position at CI to a new "on call" position limited to assisting with emergency patient suspensions as needed. She has taken on greater responsibilities at her family's Funeral Home business and simply did not have the time for both positions. So although Hillary continues to be a great asset to CI in this new smaller role, and we're grateful we can still rely on her perfusion expertise as needed, we have certainly missed her day-to-day contributions at the facility. She was an integral part of helping with everything from record-keeping and member communications to facility upkeep and maintenance and was great with staff, management, the Board and most of all, our membership.

With that in mind, we decided to bring on another full time cryonics technician / secretary position for the main CI facility. As you can imagine, finding someone with the unique skill sets needed for cryonics work presented a challenge. But we

looked long and hard for the right person and we were lucky to find another solid candidate to fill Hillary's vacancy. I'm happy to welcome Kristen Orme to the CI team. Fortunately, Kristin is also from the Clinton Township area avoiding relocation issues and expenses involved with acquiring the specialized talent we need. We're very fortunate to have her on board and believe that she will be an asset to our Team and our Membership. Welcome to CI, Kristen!!

If you talk to her via phone or email, feel free to welcome her aboard and wish her well! To some that may sound like a "hokey" or "old-fashioned" suggestion, and we have been derided as being a "mom and pop" operation as though that implies we are less professional and experienced than other organizations. However, nothing could be further from the truth and we are proud of our approach and our results. CI's staff and membership are one big family and we all share a great love and passion for our combined dream of living to see a better and more technologically advanced future world. To our critics, I will simply say I think our family approach makes us no less professional, but does make us warmer, friendlier and more understanding and compassionate, which I feel is the appropriate attitude and approach for an organization with the unique responsibilities we have.

I'm also happy to note that we are serializing CI Founder Robert Ettinger's *"Youiverse: Toward a Self Centered Philosophy of Immortalism and Cryonics"* starting in this issue of CI Magazine. This is Ettinger's third major book, following up *"The Prospect of Immortality"* and *"Man into Superman: The Startling Potential of Human Evolution -- And How To Be Part of It,"* which we completed serializing in our last issue. *"The Prospect of Immortality"* can be found in earlier issues of the magazine.

In a review for Betterhumans, Giulio Prisco had this to say about the book:

Waking from cryonic suspension, you might find this a highly influential philosophy book of the early 21st century.

... though I do not fully agree with many of Ettinger's views, I can say that this is one of the great philosophy books of all time. If you are interested in the future, or the present, Youiverse deserves a place on your bookshelf. If you are interested in the meaning of self and identity, and the nature of reality as it is being slowly and painfully uncovered by modern science, you want to have Youiverse on your bookshelf. If you are looking for a practical philosophy to establish

bridges between the fundamental nature of things and how you ought to live your day-to-day life, this book is for you. And of course, anyone interested in cryonics will find here new insights, including ways to estimate the likelihood of revival for today's cryonicists.

I'm very pleased to offer this to our readers, and I hope you enjoy it and find it thought-provoking.

As always, I remind you to take stock of your cryonics planning and to review it carefully. Is there anything you can do to make your situation more airtight? Have you gone through the reminders and resources provided by the CI website, www.cryonics.org? Have you reviewed our [Member Information Form](#), which is shared with CI Headquarters and is a great way to see where you are with your paperwork and planning? You can also use this form to request help as needed with individual items, and your form can be saved online and worked on over time, so it is an invaluable resource for your planning. If you haven't taken any of these steps yet, the time to do so is now! Even if you only get around to one or two things, the important thing is you're making progress and forward momentum encourages more of the same.

Unfortunately, I think the detail-oriented nature of our required paperwork causes a lot of people to hesitate to get started, worrying they'll miss something or do something wrong. So I see a lot of procrastination among the membership and if you are one of those people, I stress again that now is the time to get moving. I would also remind you that worrying about perfection is the enemy of doing a good job. It is far more productive to simply get started and completing tasks than to endlessly fret about doing everything exactly right and end up doing nothing at all.

Another major obstacles to cryonics planning is the thought that "I have plenty of time," but I would stress fate can throw us a curve ball at any time and your suspension date could be closer than you think. Even if it is many years, or even decades away, get prepared now to avoid a failed suspension. We only

get one chance at suspension, so do everything you can before that happens to ensure its success. Please don't throw away the unique, literally once-in-a-lifetime chance to see the future that we are all signed up for.

If you are concerned with getting everything exactly right, don't know where to start, or simply feel intimidated by the paperwork, remember we are here to help any and all members who need advice or direction, and are always happy to discuss the best ways to plan and prepare for your suspension.

In addition to CI's experienced staff, we also have a very useful and informative members group along with many different social media forums where people share ideas and can help answer your questions. I do recommend if there are additional questions about how things are done, to please check out the resources section of the website. We have taken time to really spell out what it takes for cryonics to work vs what to avoid.

We do everything we can to help you, but the one thing we can't do is set up all your arrangements or fill out your paperwork for you - this is the step we need you to take to insure your suspension. We can send you all the required forms with detailed instructions, answer questions, provide direction and do everything in our power to make the process as easy as possible, but we need you to take the final step to complete your own unique preparations and paperwork.

If you need help, I urge you to call or email CI info@cryonics.org or email me at dennis@cryonics.org and I will do my best to personally address each and every one of your concerns. I know I speak for myself as well as our staff when I say all of us are committed and dedicated to helping you achieve an optimal suspension. Please help us help you and we can all look forward to seeing the future together!

Wishing everyone the very best. Stay healthy and safe - and if you haven't already done so, please start your suspension arrangements today! - **Dennis Kowalski, CI President**

CRYONICS INSTITUTE MAGAZINE

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24355 Sorrentino Ct.
Clinton Township, MI 48035-3239

Phone: 1 (586) 791-5961
Toll-free: 1 (866) 288-2796 (North America)
FAX: 1 (586) 792-7062
Email: info@cryonics.org

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ARTICLE SUBMISSIONS

Cryonics Institute or cryonics-related articles are welcome. Submissions: dg@cryonics.org

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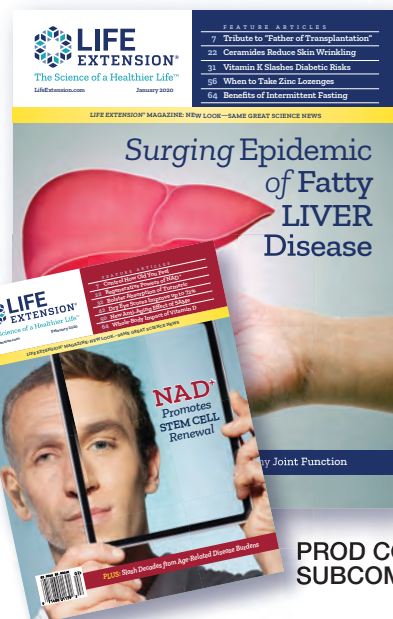
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Membership Benefits

Why join the Cryonics Institute?

The choice is clear: Irreversible physical death, dissolution and decay, or the possibility of a vibrant and joyful renewed life. Don't you want that chance for yourself, your spouse, parents and children?

1) **A Second Chance at Life**

Membership qualifies you to arrange and fund a vitrification (anti-crystallization) perfusion and cooling upon legal death, followed by long-term storage in liquid nitrogen. Instead of certain death, you and your loved ones could have a chance at rejuvenated, healthy physical revival through cryopreservation.

2) **Affordable Cryopreservation**

The Cryonics Institute (CI) offers full-body cryopreservation for as little as \$28,000.

3) **Affordable Membership**

Become a Lifetime Member for a one-time payment of only \$1,250, with no dues to pay. Or join as a Yearly Member with a \$75 initiation fee and dues of just \$120 per year, payable by check, credit card or PayPal.

4) **Lower Prices for Spouses and Children**

The cost of a Lifetime Membership for a spouse of a Lifetime Member is half-price and minor children of a Lifetime Member receive membership free of charge.

5) **Quality of Treatment**

CI employed a Ph.D level cryobiologist to develop CI-VM-1, CI's vitrification mixture which can help prevent crystalline formation at cryogenic temperatures.

6) **Standby Options and Assistance**

CI's use of Locally-Trained Funeral Directors means that our members can get knowledgeable, licensed care. Or members can arrange for professional cryonics standby and transport by subcontracting with [Suspended Animation, Inc](#) or [International Cryomedicine Experts](#) (I.C.E.) CI also offers Standby

Training Materials and Kits for members who choose to perform Local Standby.

7) **Affordable Funding Options**

Cryopreservation with CI can be funded through life insurance policies issued in the USA or other countries. Prepayment and other options for funding are also available to CI members.

8) **Cutting-Edge Cryonics Information**

Members receive a free e-subscription to the Cryonics Institute Newsletter, as well as access to our Facebook page, Twitter feed, YouTube channel and an official members-only forum.

9) **Helpful, Professional Support**

CI's professional staff is available to answer any questions and address any concerns you may have about CI, your membership or Cryopreservation.

10) **Additional Preservation Services**

CI offers a sampling kit, shipping and long-term liquid nitrogen storage of tissues and DNA from members, their families or pets for just \$98.

11) **Support Education and Research**

Membership fees help CI to fund important cryonics research and public outreach, education and information programs to advance the science of cryonics.

12) **Member Ownership and Control**

CI Members are the ultimate authority in the organization and own all CI assets. They elect the Board of Directors, from whom are chosen our officers. CI members also can change the Bylaws of the organization (except for corporate purposes).



To get started, contact us at:

(586) 791-5961 • email: info@cryonics.org

Visit us online at www.cryonics.org

Member Readiness Checklist

*You've signed up for cryonics -
what are the next steps?*

Welcome Aboard! You have taken the first critical step in preparing for the future and possibly ensuring your own survival. Now what should you do? People often ask "What can I do to make sure I have an optimal suspension?" Here's a checklist of important steps to consider.

- ☐ Become a fully funded member through [life insurance](#) or easy pre-payments
Some members use term life and invest or pay off the difference at regular intervals. Some use whole life or just prepay the costs outright. You have to decide what is best for you, but it is best to act sooner rather than later as insurance prices tend to rise as you get older and some people become uninsurable because of unforeseen health issues. You may even consider making CI the owner of your life insurance policy.
- ☐ Keep CI informed on a regular basis about your health status or address changes. Make sure your CI paperwork and funding are always up to date. CI cannot help you if we do not know you need help.
- ☐ Keep your family and friends up to date on your wishes to be cryopreserved. Being reclusive about cryonics can be costly and cause catastrophic results.
- ☐ Keep your doctor, lawyer, and funeral director up to date on your wishes to be cryopreserved. The right approach to the right professionals can be an asset.
- ☐ Prepare and execute a Living Will and Power of Attorney for Health Care that reflects your cryonics-related wishes. Make sure that CI is updated at regular intervals as well.
- ☐ Review the [CI Standby Manual](#) and other materials designed to help you with you Standby Planning. Also, consider joining or forming a local standby group to support your cryonics wishes. This may be one of the most important decisions you can make after you are fully funded. As they say-"Failing to plan is planning to fail".
- ☐ Always wear your cryonics bracelet or necklace identifying your wishes should you become incapacitated. Keep a wallet card as well. If you aren't around people who support your wishes and you can't speak for yourself a medical bracelet can help save you.
- ☐ Get involved! If you can, donate time and money. Cryonics is not a turnkey operation. Pay attention and look for further tips and advice to make both your personal arrangements and cryonics as a whole a success. The stronger our organization is, the stronger your chances of success.
- ☐ Keep your records, contact information and contracts up to date. It is recommended you review your relevant information annually at a minimum. One way is to schedule time to review all your materials at the same time you submit your required Annual Proof of Funding to CI. Also, Be especially aware of easy to forget things like a new email, phone number or address. Remember, you can also contact us at any time to ask if you have any outstanding paperwork or other info that needs to be updated.

The online [CI Members' Information Form](#) is a great resource for updating your current information on file.



Online Cryonics Meetup / Icebreaker April 10

<https://www.eventbrite.com/e/cryonics-z-tickets-147414616085>

Mati Roy, Eric Magro and Nikki Olson will be hosting a virtual cryonics meetup on Saturday, April 10. Registration is free, but you will need a Google / Gmail account to sign in to the event.

From the event posting:

Meet with other people curious about cryonics!

About this Event

Get to know other cryonics enthusiasts at the icebreaker event happening on Saturday April 10! Afterward, we will move to The Cryosphere, a Discord server for discussion about cryonics. The goals of this event are to connect cryonics enthusiasts and to promote The Cryosphere, where everyone is welcome to chat, ask questions, and collaborate on projects! If you are interested in this topic but not sure if you'd fit in at the event, then you are especially encouraged to attend! Anyone interested in cryonics is welcome.

The link to the event will be sent through the Eventbrite mailing list before the event. We will use the Icebreaker Video platform for the event (<https://icebreaker.video/>). You need a Google / Gmail account to login on the platform. No knowledge of the platform is needed, simply click the link to the event when it starts.

Link to The Cryosphere <https://discord.gg/FezPKfDuYn>

Schedule (Eastern time):

13:40 Arrival

14:00 Welcome/intro

14:10 1:1 icebreakers

14:25 Group activity

14:40 Q&A

14:50 Intro to Discord server; goals of the server, creating new collaborative projects and working on them there

15:00 Wrap up and move to Discord

Our thanks to the organizers for putting together this event.

It's great to see our members taking action to come together, network and help foster a sense of community and shared vision for the cryonics movement. We look forward to the event and to seeing more from this group in the future.

Cryonics Groups Update: Chile

The Worldwide Cryonics Groups list has been updated with new information for the Chilean Cryonics group founded and run by José Luis Galdames. The Group is still active, however, some of the details have been updated, so if you are interested in working with José or joining his group, please be sure to see this issue's Groups List for their current information.

Thanks to José and all of the organizers and participants in the Worldwide Cryonics Groups list. Please note, CI does not officially endorse or sponsor any cryonics group, but we do encourage members to check out groups in their areas for themselves. Many groups offer standby support, networking opportunities and more, so they are worth looking into.



Pet Cryosuspension Services Available

Did you know CI Members can take advantage of our cryonic suspension services for their pets? Instead of burial or cremation, you can give a loyal and beloved pet the same second chance at life that we have through cryopreservation.

Many members who have preserved their pets say it's a comforting thought that their longtime animal companions now have the same chance to live again in a better future. CI currently has nearly 200 pets in cryosuspension.

Cryopreservation of pets is only available to Lifetime and Yearly Members of the Cryonics Institute. Excluding the cost of Membership, the typical cost of cryopreserving a cat or dog is \$5,800 up to 15 pounds in weight plus \$150 per pound for every pound above 15 for dogs. This does not include shipping and veterinarian expenses. CI will also preserve other types of pets and pricing is similarly by the size and weight scale for dogs. Please contact us to inquire about specific pricing and procedures for pet patients, or visit <https://www.cryonics.org/resources/pet-cryopreservation> for more complete details.





Visiting Hours For Family Members of CI Patients

Monday	2:00pm - 4:00pm
Tuesday	2:00om - 4:00pm
Wednesday	2:00pm - 4:00pm
Thursday	2:00pm - 4:00pm

We ask that visitors kindly give us at least **one month advance notice** to ensure there are no scheduling conflicts. We cannot guarantee that the facility will be accessible to visitors who have not scheduled their visit in advance.

**** These visiting hours ar subject to change without notice due to patient or pet emergencies. ****

These requiirements have been established for multiple reasons, but most importantly for protecting our patients, members and facility.

Questions regarding visitation can be directed to Andy Zawacki, Facility Manager at info@cryonics.org or 1-586-791-5961.

Thank you!

10 Worst Mistakes in Cryonics



1) Not signing up ahead of time

Becoming a member, having contracts in place, and having paperwork in order should not be a last minute decision. Waiting until the last minute or after death results in an unnecessary delay of care or worse- No suspension at all! Don't wait. Sign up here and be prepared. <https://www.cryonics.org/membership/>

2) Not providing proof of funding

Some people believe that they can worry about funding later or if they have funding, they have put off providing proof of funding to CI. This should be done annually. Failing to provide this can result in a delay of care while the funding clears, which can take weeks. Send your proof of funding to CI now to be prepared.

3) Not telling anyone your plans

Being reclusive or not telling family or friends your wishes is not recommended. You should not be afraid to tell those around you what your wishes are, especially your next of kin. Wearing a bracelet, necklace or having identification or other items in view can speak to your wishes. This is all you have when you can't speak for yourself. Disasters have resulted in the past from not sharing. Talk with your family, close friends and your estate attorney, so you can be prepared.

4) Not planning

Many think cryonics is a turnkey service where you can just sign up and let fate take over. No matter how much you pay for cryonics, you are the only one who can make sure that you will have the best chance by planning. CI has provided a lot of information on our website and in our standby manuals. Those who plan succeed those who don't fail.

For more information visit: <https://www.cryonics.org/resources/ci-standby-kits-and-instructions>

10 Worst Mistakes in Cryonics

5) Not notifying CI of Emergencies

There is no way that your cryonics provider can help you if they do not know of your emergency. Your family, friends, standby group or next of kin must immediately contact CI when you are having health issues or worse. It is also important for CI to know if you have up and coming surgeries or procedures, including terminal illness. Patients with a diagnosed terminal illness could enter hospice care, which might help your cryonics situation vastly. Any delay in notifying us directly could result in a poor suspension. Those helping you must have simple and clear instructions.

Here are some tips... <https://www.cryonics.org/resources/category/C57/57>

6) Committing suicide

Anyone who commits suicide who is not terminally ill or breaks a local law in doing so is potentially putting both themselves and our organization at great risk. CI will not risk itself for people who engage in behavior that goes against our mission to preserve life. Such activity will likely lead to an autopsy and long delays, rendering the suspension process substandard or impossible to carry out.

Do not consider cryonics as a way out of your problems. You are likely to not get suspended under those circumstances. If you do not have a terminal illness and are considering suicide, you should seek mental health advice and treatment as soon as possible. <https://www.mentalhelp.net/articles/depression-hotline/>

7) Engaging in Risky or illegal activities

Risky behaviors or associations that lead to the patient dying around suspicious circumstances will also likely lead to mandated autopsies that will also stand in the way of your cryonics wishes. It is best to use common sense and not put yourself in harm's way. Not only could your life be ended, so too could your chances of cryonics suspension or future reanimation. Use common sense and stay safe.

8) Providing financial or legal incentives that encourage your not being suspended.

Leaving all of your insurance or cryonics money to family if you are not suspended is certainly an option at CI, but ironically it does provide financial incentive for hostile family members to block your suspension. As often is the case, people will make sure you are not suspended to get a hold of your money.

One suggestion is to leave family and next of kin some separate money from cryonics funding while suggesting that Cryonics funding go to cryonics as a donation no matter if you are buried or suspended. In addition, family or next of kin can be further compelled to cooperate if they will actually lose the money that is allocated to them for not cooperating. It is also suggested that your family be made fully aware of your wishes and stipulations, so they know what the results of their actions will be. You want to make sure you put incentives and disincentives in the correct place, so that

your wishes are honored. It is suggested that your will and cryonics documentation reflect this and get reviewed by an attorney. See <https://www.cryonics.org/resources/protect-yourself-from-legal-threats>

9) Not removing a hostile next of kin from rights to your remains and finances

In many states and areas you can legally remove a hostile family member or next of kin from your estate. You can reassign someone who is sympathetic to cryonics and who has the legal authority to disposition of your remains, as well as your assets. In some states and locations there are disposition of remains reassignment documents, as well as powers of attorney, both in regards to financial as well as medical decisions. The executor of your will or anyone involved with making decisions should be sympathetic to your cryonics wishes. It is your responsibility to make your wishes very clear and to remove any doubt or potential legal resistance from family or next of kin.

We suggest seeking legal advice to help you in this regard. Some members have even made a video statement of their wishes and given it to both their cryonics organization as well as their attorneys. Not being careful could mean that you don't get suspended, despite your wishes. Many are surprised to learn that they lose their rights upon legal death. See an attorney and prepare.

10) Dying under less than favorable conditions

This seems harder to control than the other situations, but there are some things you can do to make your situation more favorable. You can diet, exercise and follow the latest official medical advice to stay healthy longer. The longer you are alive, the better the technology will probably be for suspending you and the closer we will be to a future that may be able to reverse your condition.

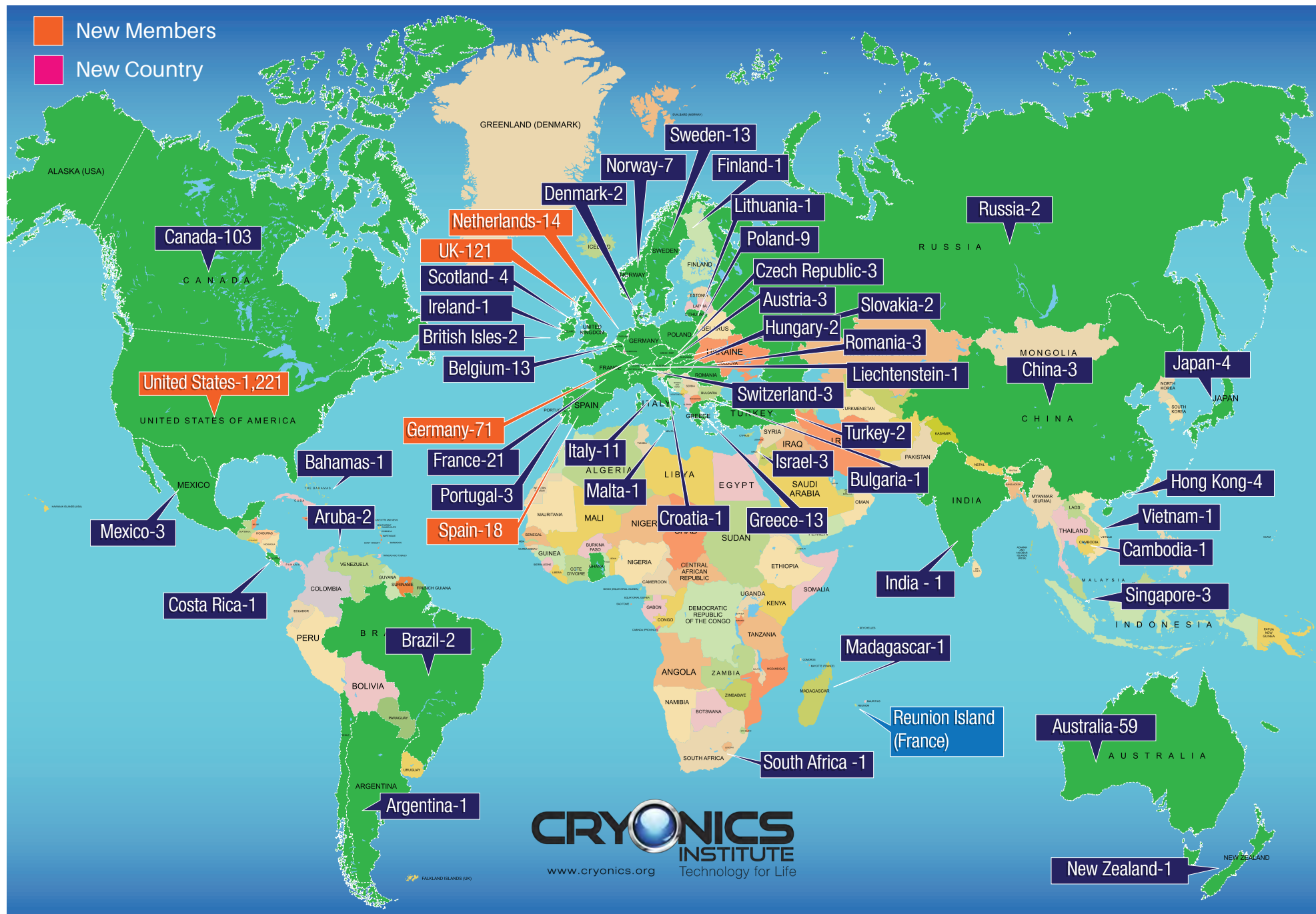
You can also avoid travel to remote or hostile places where such travel is risky. Some overseas travel can result in long delays both logistically and bureaucratically. In general, dying near your cryonics provider or cryonics standby group helps your chances. Living a healthy lifestyle and staying sociable, while surrounding yourself with people who will act on your behalf is paramount. Building solid, positive relationships with good people is probably one of the most important things you can do to have your wishes honored. Take care of yourself and maintain social connectivity.



APRIL 2021

Pets	198
DNA/Tissue	316
SA	289

TOTAL
1,971



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Kristen Orme Joins the CI Team

CI is pleased to welcome Kristen Orme to the Cryonics Institute Team. Kristen will be working with Facility Manager Andy Zawacki at our Clinton Township headquarters where she will be responsible for patient procedures, day-to-day facility maintenance tasks and various office and member outreach and customer service responsibilities.

Kristen has a mortuary science education, and having 13 years' experience in the funeral business in various roles including Funeral Director and Mortician makes her an ideal candidate to help with our mission. She brings both technical skills and the empathy and compassion we are looking for in our staff.

We asked Kristen to introduce herself to our membership and here's what she had to say:

* * * * *

My name is Kristen. I'm 43 years old and live in Trenton, MI with my two daughters Sicora and Sianna, our two dogs, Shredder and Diesel and two cats, Zelena and Nymphadora (a Harry Potter character). I grew up in Romulus, MI. and Graduated from Romulus High School in 1995. I became a manager at Spencer Gifts after graduation. In 1998, I had my first daughter Sicora and became a stay-at-home mom until they were both in school full time. I then decided to go back to school myself. I went to Wayne County Community College from 2008-2011 and graduated summa cum laude with my Associate Degree in Science. I went on from there to attend the mortuary science program at Wayne State University where I Graduated with a Bachelor of Science Degree in 2012. I also became a bartender while I was in college and still enjoy bartending, but more for fun than for work at this point in my life.

Before starting at CI, I was a Funeral Director for many years and still help out at a funeral home on the weekends. I have been a Licensed Mortician for nine years and have been in the funeral business for 13 years. I find both the technical



side of the business, as well as providing help and support for families at a difficult time and directing funerals to be very rewarding.

My funeral experience helped me obtain my new role as a Perfusion Technician at Cryonics Institute. I am experienced and licensed to be able to perform the required perfusion process on our patients before they go into the cooling units.

My responsibilities are quite vast. I have vascular surgical access for patient perfusions, I assist with putting patients and pets in the cooling units and then into the cryostats. I also do secretarial work, answer emails, draw up client contracts, fill liquid nitrogen tanks and check nitrogen levels and am on call 24/7 for emergencies.

I was unfamiliar with cryonics until quite recently. I applied



for the position online in December of 2020 and my first day was January 4, 2021. I thoroughly enjoy the job here and look forward to being here for many years to come. I was funeral directing and bartending before Covid and unfortunately the bar had to close down for precautions and the funeral home I was at implemented new restrictions that led to many families choosing cremation without services. Because of the drop in business the funeral home couldn't afford to pay a full time director anymore. So, if anything good came from Covid, it was what actually led me to the Cryonics Institute. I have been fortunate to have careers that I love and that makes work easier. I do miss bartending from time to time but I have found my permanent career now and couldn't be happier.

In my down time, I enjoy reading and

watching movies and sports. I'm a huge Harry Potter fan. I love football and baseball, mainly Detroit Tigers baseball and Green Bay Packer and Detroit Lions football. I root for my home team Lions 14 games a season except when they're playing the Packers. I also like to Travel. The girls and I usually go to Harry Potter World every few years in Florida and before Covid, I was enjoying some time in Punta Cana every year. Our last trip to Florida, we were able to fit in Harry Potter World, Disney World and managed to catch a Tigers spring training game in Lakeland.

As for my thoughts on cryonics, I'm curious and excited to learn more about it. I do love the concept. With burial and cremation, there are no chances to come back so knowing that there is an option that may in the future be

able to bring you back is comforting. Technology can do amazing things so I don't see why bringing people back that have been frozen wouldn't be possible. It is interesting to get to hear the views of our current members and future patients. Personally, I feel the technology for revival is still a ways off. However, I'm happy to be doing a job that could potentially live on and have a significant impact for hundreds of years. Even if I decide not to be cryopreserved myself and wouldn't be here to see revival happen, it's exciting to think that my contributions will have helped make people's dreams possible.

I'm looking forward to working with the staff here at CI and to meeting and assisting our members.

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'Walking' molecule superstructures could help create neurons for regenerative medicine

3D-printed novel biomaterial mimics properties of living tissues

Neurons concept illustration (stock image). Credit: © whitehouse / stock.adobe.com

February 23, 2021 - Northwestern University

Imagine if surgeons could transplant healthy neurons into patients living with neurodegenerative diseases or brain and spinal cord injuries. And imagine if they could "grow" these neurons in the laboratory from a patient's own cells using a synthetic, highly bioactive material that is suitable for 3D printing.

By discovering a new printable biomaterial that can mimic properties of brain tissue, Northwestern University researchers are now closer to developing a platform capable of treating these conditions using regenerative medicine.

A key ingredient to the discovery is the ability to control the self-assembly processes of molecules within the material, enabling the researchers to modify the structure and functions of the systems from the nanoscale to the scale of

visible features. The laboratory of Samuel I. Stupp published a 2018 paper in the journal *Science* which showed that materials can be designed with highly dynamic molecules programmed to migrate over long distances and self-organize to form larger, "superstructured" bundles of nanofibers.

Now, a research group led by Stupp has demonstrated that these superstructures can enhance neuron growth, an important finding that could have implications for cell transplantation strategies for neurodegenerative diseases such as Parkinson's and Alzheimer's disease, as well as spinal cord injury.

"This is the first example where we've been able to take the phenomenon of molecular reshuffling we reported in 2018 and harness it for an application in regenerative medicine," said Stupp, the lead author on the study and the director of Northwestern's Simpson Querrey Institute. ...

[ARTICLE CONTINUES AT SCIENCEDAILY.COM](https://www.sciencedaily.com)

ScienceDaily®

from SCIENCE DAILY.COM

Hormone helps prevent muscle loss in mice on high fat diets

Researchers also identify molecular pathway that can inform development of treatments for muscle-wasting conditions such as sarcopenia.

February 23, 2021 - University of Southern California

A new study suggests that a hormone known to prevent weight gain and normalize metabolism can also help maintain healthy muscles in mice. The findings present new possibilities for treating muscle-wasting conditions associated with age, obesity or cancer, according to scientists from the University of Southern California Leonard Davis School of Gerontology.

The research, published this month in the American Journal of Physiology-Endocrinology and Metabolism, addresses the related problems of age and obesity-induced muscle loss, conditions which can lead to increased risk of falls, diabetes and other negative health impacts. It also adds to a growing number of findings describing beneficial effects of MOTS-c, a mitochondrial-derived peptide that is known to mimic the effects of exercise.

In this study, treating mice on a high-fat diet with MOTS-c helped prevent obesity-associated muscle atrophy by decreasing levels of myostatin, a protein that inhibits muscle growth -- myostatin levels were 40% lower in MOTS-c treated mice compared to control mice. The researchers also found that higher MOTS-c levels in humans were correlated with lower levels of myostatin.

The mice findings show MOTS-c improves not only metabolic function but muscle mass as well.

Through molecular analysis, the researchers also specified the specific signaling pathway regulated by MOTS-c, demonstrating for the first time "that MOTS-c modulates the CK2-PTEN-AKT-FOXO1 pathway to inhibit myostatin expression and muscle wasting," and suggesting that the exercise mimetic effect of MOTS-c may be derived from its previously unknown role as a myostatin inhibitor, according

to the paper.

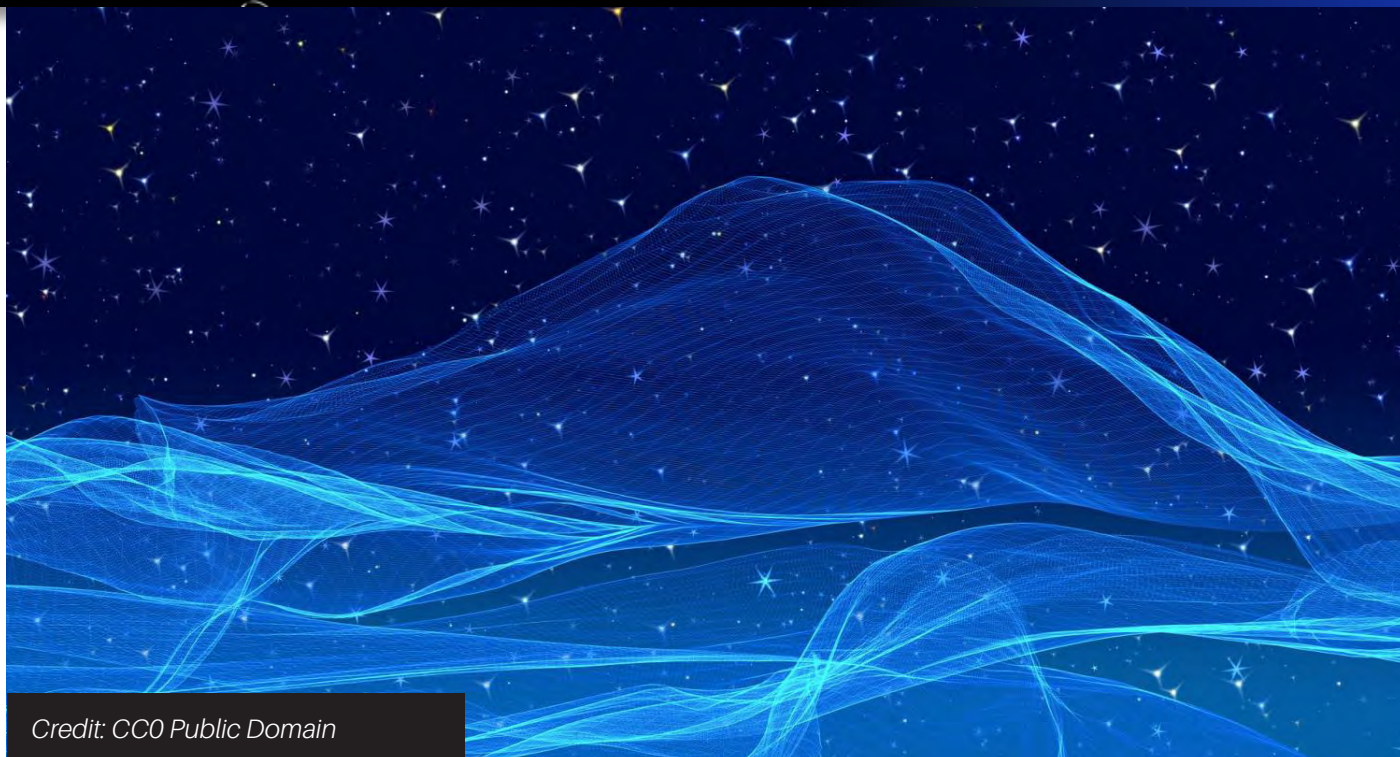
"Knowing the signaling pathway affected by MOTS-c is really important to the discovery of possible treatments," says corresponding author Su Jeong Kim, a research associate professor at the USC Leonard Davis School. "This insight provides a target for potential drug development efforts and can be rapidly translated into clinical trials of MOTS-c and related analogues."

Though several other myostatin inhibitors have been identified, they have yet to successfully reduce muscle wasting conditions in clinical trials. This may be because improving muscle mass alone is not enough, say the USC researchers. They believe boosting mitochondrial function is also key and say that MOTS-c-derived treatments could be especially promising in this regard.

Co-corresponding author Pinchas Cohen, professor of gerontology, medicine and biological sciences and dean of the USC Leonard Davis School, along with Changhan David Lee, assistant professor at the USC Leonard Davis School, first described MOTS-c and its effects on metabolism in 2015. Their mice studies have shown that MOTS-c administration improves both high-fat diet- and aging-induced insulin resistance as well as exercise capacity and median life span.

"Taken together, our work suggests that MOTS-c can address mitochondrial dysfunction," says Cohen. "This study can help improve healthy aging by opening up new avenues for research on how to treat conditions such as insulin resistance-induced skeletal muscle atrophy as well as other muscle-wasting conditions, including sarcopenia."

ARTICLE CONTINUES AT [SCIENCEDAILY.COM](https://www.sciencedaily.com)



Credit: CC0 Public Domain

World's first video of a space-time crystal

FEBRUARY 24, 2021 - by Max Planck Society

A German-Polish research team has succeeded in creating a micrometer-sized space-time crystal consisting of magnons at room temperature. With the help of the scanning transmission X-ray microscope Maxymus at Bessy II at Helmholtz Zentrum Berlin, they were able to film the recurring periodic magnetization structure in a crystal. Published in the *Physical Review Letters*, the research project was a collaboration between scientists from the Max Planck Institute for Intelligent Systems in Stuttgart, Germany, the Adam Mickiewicz University and the Polish Academy of Sciences in Poznań in Poland.

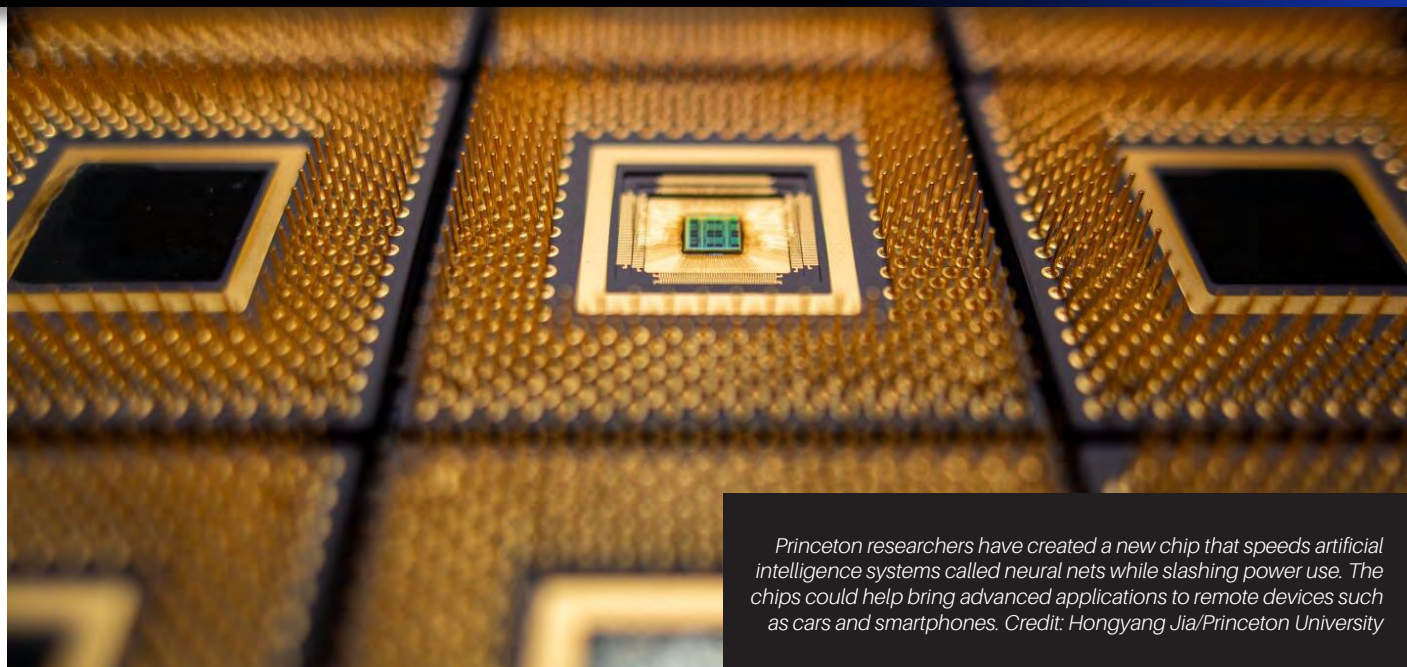
Order in space and a periodicity in time

A crystal is a solid whose atoms or molecules are regularly arranged in a particular structure. If one looks at the arrangement with a microscope, one discovers an atom or

a molecule always at the same intervals. It is similar with space-time crystals: however, the recurring structure exists not only in space, but also in time. The smallest components are constantly in motion until, after a certain period, they arrange again into the original pattern.

In 2012, the Nobel Prize winner in physics Frank Wilczek discovered the symmetry of matter in time. He is considered the discoverer of these so-called time crystals, although as a theorist he predicted them only hypothetically. Since then, several scientists have searched for materials in which the phenomenon is observed. The fact that space-time crystals actually exist was first confirmed in 2017. However, the structures were only a few nanometers in size and formed only at very cold temperatures below minus 250 degrees Celsius. The fact that the German-Polish scientists have ...

[ARTICLE CONTINUES AT PHYS.ORG](#)



Princeton researchers have created a new chip that speeds artificial intelligence systems called neural nets while slashing power use. The chips could help bring advanced applications to remote devices such as cars and smartphones. Credit: Hongyang Jia/Princeton University

Rethinking microchips' design pushes computing to the edge

by John Sullivan, Princeton University

Responding to artificial intelligence's exploding demands on computer networks, Princeton University researchers in recent years have radically increased the speed and slashed the energy use of specialized AI systems. Now, the researchers have moved their innovation closer to widespread use by creating co-designed hardware and software that will allow designers to blend these new types of systems into their applications.

"Software is a critical part of enabling new hardware," said Naveen Verma, a professor of electrical and computer engineering at Princeton and a leader of the research team. "The hope is that designers can keep using the same software system—and just have it work ten times faster or more efficiently."

By cutting both power demand and the need to exchange data from remote servers, systems made with the Princeton

technology will be able to bring artificial intelligence applications, such as piloting software for drones or advanced language translators, to the very edge of computing infrastructure.

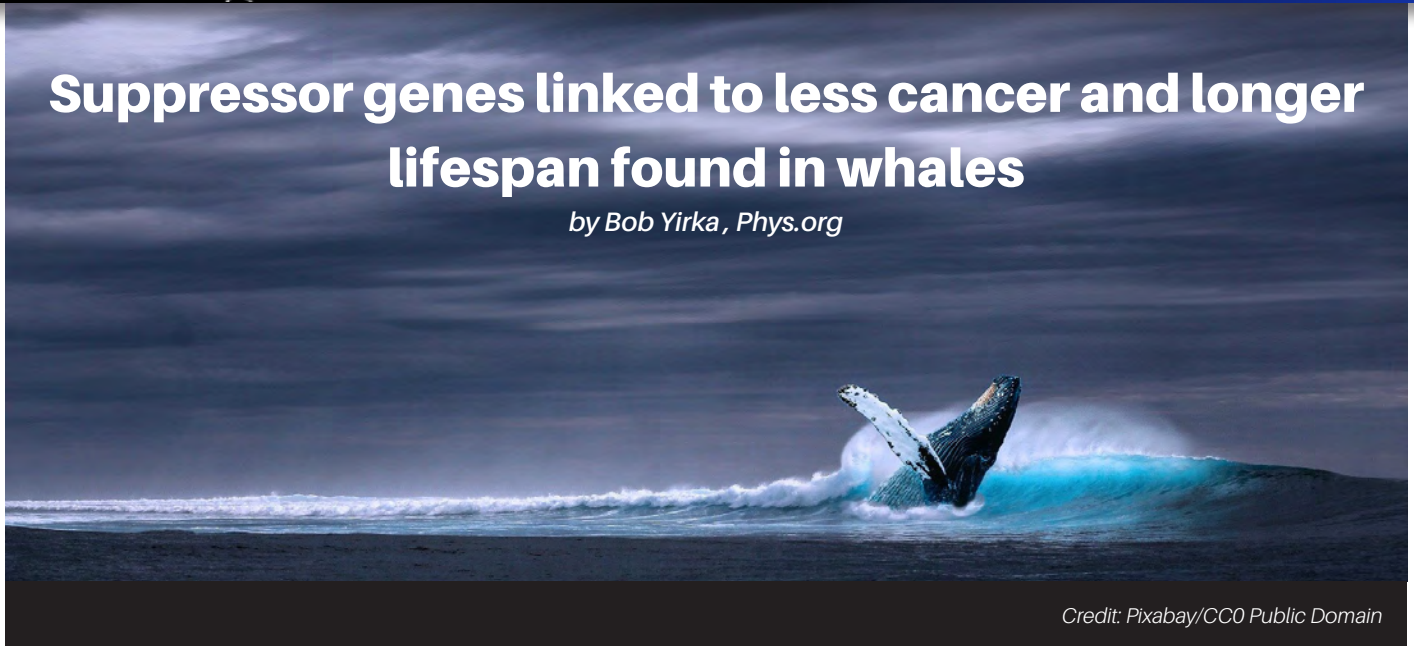
"To make AI accessible to the real-time and often personal process all around us, we need to address latency and privacy by moving the computation itself to the edge," said Verma, who is the director of the University's Keller Center for Innovation in Engineering Education. "And that requires both energy efficiency and performance."

Two years ago, the Princeton research team fabricated a new chip designed to improve the performance of neural networks, which are the essence behind today's artificial intelligence. The chip, which performed tens to hundreds of times better than other advanced microchips, marked a revolutionary approach in several measures. In fact, ...

ARTICLE CONTINUES AT [TECHXPLORE.COM](https://techxplore.com)

Suppressor genes linked to less cancer and longer lifespan found in whales

by Bob Yirka, Phys.org



Credit: Pixabay/CC0 Public Domain

A trio of researchers with ICAEV, Universidad Austral de Chile, and the University of Liverpool, respectively, have found suppressor genes linked to longevity and less cancer in two species of whales. In their paper published in the journal *Proceedings of the Royal Society B*, Daniela Tejada-Martinez, João Pedro de Magalhães and Juan C. Opazo, describe their genetic study of longevity in cetaceans and what they learned.

Cetaceans are marine mammals including whales, porpoises and dolphins. Prior research has shown that many of them defy a trend in the animal kingdom in which bigger animals tend to have a greater chance of developing cancerous tumors that limit their lifespan. One species of whale, for example, has been found to live as long as 200 years. In this new effort, the researchers tested the theory that genetics must play a role in such longevity and protection against cancer. To that end, they studied the genes of two types of long-lived whales, toothed and baleen. They created genetic maps of the parts of their genetic codes that contain tumor suppressor genes and then compared them with other mammals, both marine and land dwelling—including the human genome.

The differences between the maps showed 71 tumor suppressor genes that were in both of the whales studied. In The scientists found that the turnover rate of these genes was 2.4 times faster than any other known mammal. They also found that several of the genes were related to senescence, which prior research has found relates to suppression of tumors. The researchers noted that bottlenose dolphins (which are known to have much higher rates of cancer than the whales they were studying) had far fewer tumor suppressor genes.

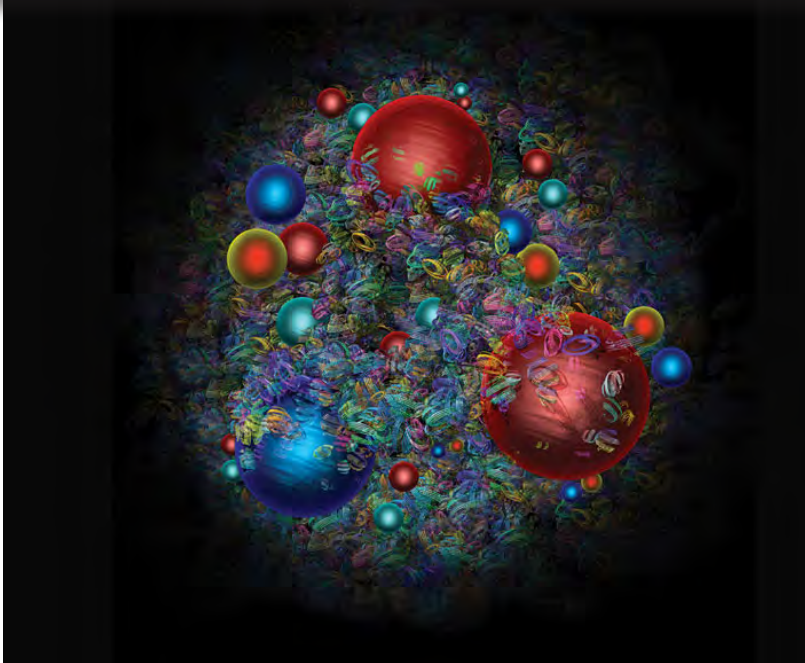
The researchers concluded by noting that they had also identified whale genes linked to human conditions such as leukemia, cancer and nervous system problems. They also suggest that the higher numbers of copies of aging genes in whales and other cetaceans likely prevents the development of some types of cancerous tumors. They acknowledge that more work is required to fully understand why cetaceans are less prone to cancer and why they live so long.

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ScienceNews

INDEPENDENT JOURNALISM SINCE 1921

from **SCIENCENEWS.ORG**



Protons are messy on the inside. Made of three main quarks (illustrated with large spheres), the particles also harbor a constantly shifting collection of transient quarks and antiquarks (smaller spheres) and gluons (squiggles) that bind the quarks together.

DANIEL DOMINGUEZ/CERN

Proton's anti-matter is even more lopsided than we thought

*In the sloshing sea of particles within a proton,
down antiquarks outnumber up antiquarks*

By Emily Conover

The proton's antimatter is out of whack. An imbalance between two types of antiparticles that seethe within the proton is even wonkier than previously thought, a new measurement indicates.

Protons are built from three quarks — two "up" quarks and one "down" quark. But they also contain a roiling sea of transient quarks and antiquarks that fluctuate into existence before swiftly annihilating one another. Within that sea, down antiquarks outnumber up antiquarks, measurements revealed in the 1990s. And that lopsidedness persists in a realm of quark momenta previously unexplored, researchers from the SeaQuest experiment at Fermilab in Batavia, Ill., report February 24 in *Nature*.

Typically, each antiquark carries only a tiny slice of a proton's total momentum. But sometimes a single antiquark

can make up a large fraction of the momentum. Earlier measurements suggested that up and down antiquarks with a sizable chunk of momentum might be found in similar numbers. But the new tests, made by slamming protons into targets made of hydrogen and deuterium (hydrogen with an extra neutron in its nucleus), contradict that idea. SeaQuest researchers found that down antiquarks were about 50 percent more prevalent than up antiquarks — even when a single antiquark carried nearly half the proton's total momentum.

The measurements are important for studies at the Large Hadron Collider at CERN in Geneva, which slams protons together to look for new phenomena. To fully understand the collisions, physicists need a thorough accounting of the proton's constituents. "They need to know what they're colliding," says study coauthor Paul Reimer of Argonne National Laboratory in Lemont, Ill.

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ScienceNews
INDEPENDENT JOURNALISM SINCE 1921from **SCIENCENEWS.ORG**

Doses of Pfizer's vaccine are ready for use at a vaccination clinic in Denver in January. Vaccinated people may be less likely to spread the coronavirus, two studies from Israel suggest. - MICHAEL CIAGLO/GETTY IMAGES

Pfizer's vaccine appears to reduce coronavirus transmission

Vaccinated people tend to carry less virus in their bodies than unvaccinated people, studies show

By Erin Garcia de Jesús

Researchers are getting the first real-world hints that a vaccine can curb the coronavirus's spread, not just prevent people from getting seriously ill.

People vaccinated with Pfizer's shots and who still get infected with the coronavirus carry less virus in their bodies than unvaccinated people who are infected, researchers from Israel report in two separate preliminary studies posted February 8 at medRxiv.org.

If the vaccines do reduce the spread of the virus, "it means that even people [who] aren't vaccinated will gain protection from the vaccinated people around them," says Marm Kilpatrick, an infectious diseases researcher at the University

of California, Santa Cruz. As more people get vaccinated, they won't go on to infect as many other people as they might have before the shot, he says.

Even as data on vaccines' ability to curb transmission is just starting to emerge, U.S. public health officials have updated quarantine guidelines for vaccinated people exposed to the virus. If exposure happens from two weeks to three months after getting both doses of Pfizer's or Moderna's vaccine, no quarantine is needed, the U.S. Centers for Disease Control and Prevention said February 10. That's because the vaccines are highly effective at preventing COVID-19 symptoms, and people who get sick are thought to be more likely to transmit the virus.

The new finding that vaccines may curb coronavirus spread

ARTICLE CONTINUES AT SCIENCENEWS.ORG

Kurzweil

Tracking the acceleration of intelligence.

from KURZWEILAI.NET



Researchers have successfully trained an AI software program to detect the presence of Alzheimer's disease in people — by looking at the way they talk. The tool relies on the fact that patients with Alzheimer's tend to use English language differently than healthy people.

AI tool detects Alzheimer's disease with 95% accuracy

Software finds tiny differences in the way people use language.

Researchers from Stevens Institute of Technology designed an artificial intelligence software tool that can diagnose Alzheimer's with 95% accuracy, reducing expensive diagnostic scans or in-person testing.

The software program is also able to document + explain its conclusions, so human experts can check the accuracy of its diagnosis.

The tell-tale signs

Some tell-tale language signs the AI software can detect:

Alzheimer's disease can affect a person's use of language

people with Alzheimer's disease tend to replace nouns with pronouns

for example — saying "he sat on it"

... instead of — "the boy sat on the chair"

they tend to speak with longer, awkward phrasing

for example — saying "my stomach feels bad because I

haven't eaten"

... instead of — "I'm hungry"

they often have trouble expressing themselves

The project was developed by K.P. Subbalakshmi PhD. She's the founding director of the Stevens Institute of Artificial Intelligence — and a professor of electrical + computer engineering. She said:

This is a real breakthrough. We're opening an exciting new field of research, and making it easier to explain to patients why the AI algorithm came to the conclusion that it did — while diagnosing patients. This is absolutely state-of-the-art. Our AI software is the most accurate diagnostic tool currently available. This increases our ability to trust an AI system with important medical diagnosis.

— K.P. Subbalakshmi PhD

Alzheimer's disease can affect a person's use of language. By using AI software that learns over time — called a "convolutional neural network" — Subbalakshmi and her students developed a tool that accurately identifies well-

known, tell-tale signs of Alzheimer's — by detecting subtle language patterns that could easily be overlooked.

Tracking human language

Subbalakshmi and her team trained their algorithm using text produced by both healthy subjects and known Alzheimer's patients — as they described a drawing of children stealing cookies from a jar. Using tools developed by Google, Subbalakshmi and her team converted each sentence into a unique number sequence — called a vector — representing a specific point in a 512-dimensional space.

With this approach, complex sentences can be assigned a concrete number value. This makes it easier to analyze structural + thematic relationships between sentences. By using those vectors along with hand-crafted features identified by subject matter experts — the AI software system gradually learned to spot similarities + differences between sentences spoken by healthy or unhealthy subjects. It can determine — with remarkable accuracy — the probability that a sample of speech belongs to an Alzheimer's patient.

Also, the software can also easily incorporate new Alzheimer's detection criteria that's identified by other research teams in the future. So it will become more accurate over time.

The algorithm itself is incredibly powerful, we're only constrained by the data available to us. We designed our system to be both modular and transparent. If other researchers identify new markers of Alzheimer's, we can simply plug those into our architecture to generate even better results.

This method can be used to detect other medical conditions. When we get more + better data, we'll be able to create streamlined, accurate AI software tools to diagnosis many other illnesses too.

— K.P. Subbalakshmi PhD

Robust diagnostic ability in the future

The next step is to train the AI software on a much bigger volume of sample text. In the near future, AI software could diagnose Alzheimer's based on any sample of text — from a personal e-mail, to a social-media post. To accomplish that goal, an algorithm needs to be trained on a large volume of sample texts — of different types — spoken or written by

diagnosed Alzheimer's patients. With a larger sample set containing the tell-tale language markers of Alzheimer's disease, the software can become better familiar with what to look for.

Subbalakshmi is programming her software to diagnose patients using other languages. Her team is also exploring ways that other neurological medical conditions — like aphasia, stroke, traumatic brain injury, and depression — can affect a patient's use of language.

— excerpt —

Explainable AI (artificial intelligence) means humans can understand the path a software system took to make a decision. Let's break-down this concept in plain English, and explore why it matters.

AI software — that uses computational techniques like machine learning / deep learning — takes inputs and then produces outputs (or makes decisions) with no decipherable explanation or context. The system makes a decision or takes some action, and we don't necessarily know why or how it decided. The system just does it, based on instructions the original programmer coded into the software program — that's invisible to the user.

That's called the "black box" model of AI, and it's mysterious. In some cases, that's just fine. In other contexts, it's plenty ominous. For small programs like AI chatbots or sentiment analysis of social feeds, it doesn't really matter if the AI system operates in a black box. But for software programs with a big human impact — autonomous vehicles, aerial navigation + drones, military applications — being able to understand the AI software's decision-making process is mission-critical.

Enter "explainable AI" — sometimes known as "interpretable AI" or by the acronym XAI. As the name suggests, it's AI that can be explained and understood by humans.

ARTICLE SOURCE: [KURZWEILAI.NET](https://www.kurzweilai.net)



Worldwide Cryonics Groups

AUSTRALIA: The Cryonics Association of Australasia offers support and information for Australia & nearby countries. caalist@prix.pricom.com.au. Their Public Relations Officer is Philip Rhoades. phil@pricom.com.au GPO Box 3411, Sydney, NSW 2001 Australia. Phone: +6128001 6204 (office) or +61 2 99226979 (home.)

BELGIUM: Cryonics Belgium is an organisation that exists to inform interested parties and, if desired, can assist with handling the paperwork for a cryonic suspension. The website can be found at www.cryonicsbelgium.com. To get in touch, please send an email to info@cryonicsbelgium.com.

BHUTAN: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Thimphou & Paro. Contacts : Jamyang Palden & Tenzin Rabgay / Emails : palde002@umn.edu or jamgarnett@hotmail.co Phones : Jamyang / 975-2-32-66-50 & Tenzin / 975-2-77-21-01-87

CANADA: This is a very active group that participated in Toronto's first cryopreservation. President, Christine Gaspar; Vice President, Gary Tripp. Visit them at: <http://www.cryocdn.org/>. There is a subgroup called the Toronto Local Group. Meeting dates and other conversations are held via the Yahoo group. This is a closed group. To join write: csc5@cryocdn.org

QUEBEC: Contact: Stephan Beauregard, C.I. Director & Official Administrator of the Cryonics Institute Facebook Page. Information about Cryonics & perfusion services in Montreal for all cryonicists. Services available in French & English: stephan@cryonics.org

CHILE: Community oriented to provide reliable information on human cryopreservation, as far as technical scientific as well as other practical aspects. Dissemination, awareness and education on issues related to the extension of life in general and cryonics in particular. Contact José Luis Galdames via galdamesh.jl@gmail.com.

FINLAND: The Finnish Cryonics Society, (KRYOFIN) was established in 2008 and is an organization collaborating with all nearby groups and organizations. Contact them at: kryoniikka.fi Their President is Ville Salmensuu ville@salmensuu.fi

FRANCE: SOCIETE CRYONICS DE FRANCE is a non profit French organization working closely with European cryonics groups. For more information: J.Roland Missionnier: phone: 33 (0) 6 64 90 98 41 or email: cryonicsnews.inpi@gmail.com • **Facebook group**

Francecryonics-Webnode Vivien Gruss, member of Cryonics Institute, has opened a web site for the information of persons interested in cryonic suspension.

GERMANY: DGAB There are a number of Cryonicists in Germany. Their Organization is called "Deutsche Gesellschaft für Angewandte Biostase e.V.", or short "DGAB". More information on their homepage at www.biostase.de. If there are further questions, contact their Board at vorstand@biostase.de

GERMANY: CRYONICS-GERMANY is an active group providing cryonics support, including a special 8-member Standby Response Team. Members from Germany or Internationally are welcome to join. at <http://cryonics-germany.org>. Direct inquiries to contact@cryonics-germany.org.

INDIA: Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr and authority in Bangalore & Vellore Area. Contacts : Br Sankeerth & Biooster Vignesh / Email : vicky23101994@gmail.com Phones : Biooster / 918148049058 & Br Sankeerth / 917795115939

ITALY: The Italian Cryonics Group (inside the Life Extension Research Group (LIFEXT Research Group)) www.lifext.org and relative forum: forum.lifext.org. Contact Giovanni Ranzo at: giovanni1410@gmail.com

Kriorus Italy: Representative Filippo Polistena, email: filippopolistena45@gmail.com. phone: +39 334 298 9378

JAPAN: Hikaru Midorikawa is President Japan Cryonics Association. Formed in 1998, our goals are to disseminate cryonics information in Japan, to provide cryonics services in Japan, and eventually, to allow cryonics to take root in the Japanese society. Contact mid_hikaru@yahoo.co.jp or <http://www.cryonics.jp/>

NEPAL: Can help Cryonics Institute Members who need help for the transport & hospital explanation about the cryonics procedure to the Dr and authorities in Kathmandu. Contact : Suresh K. Shrestha / Email : toursuresh@gmail.com Phone : 977-985-1071364 / PO Box 14480 Kathmandu.

THE NETHERLANDS: Dutch Cryonics Organization is the local support group since 2002 and able to provide advice, standby, perfusion and shipment 24/7, in case of need. We are an active group utilizing the latest equipment. New members from The Netherlands welcome.

E-mail: info@cryonisme.nl
website: <http://www.cryonisme.nl>

NORWAY: Can help Cryonics Institute Members who need help for the transport & hospital explication about the cryonics procedure to the Dr, funeral home and authority at Sandvika. Contacts : Gunnar Hammersmark Sandvika Begegravelsesbyrå / Phones : 011-47-2279-7736

RUSSIA: KrioRus is a Russian cryonics organization operating in Russia, CIS and Eastern Europe that exists to help arrange cryopreservation and longterm suspension locally, or with CI or Alcor. Please contact krorius@gmail.com for additional information or visit <http://www.krorius.ru>. Phone: +7 962 947-50-79

SWEDEN: www.kryonik.se or Facebook: Svenska Kryonikföreningen. Initially, the society will focus on providing information and assistance to those who wish to sign up for cryonics. Eventually, we also hope to provide practical assistance in cases, possibly in collaboration with other European groups.

SWITZERLAND: www.cryosuisse.ch

CRYOSUISSE The Swiss Society for Cryonics is an active group with over 30 members. To join, email info@cryosuisse.ch

UNITED KINGDOM: Cryonics UK is a nonprofit UK based standby group. www.cryonics-uk.org Cryonics UK can be contacted via the following people: Tim Gibson: phone: 07905 371495, email: tim.gibson@cryonics-uk.org. Victoria Stevens: phone: 01287 669201, email: vicstevens@hotmail.co.uk. Graham Hipkiss: phone: 0115 8492179 / 07752 251 564, email: ghipkiss@hotmail.com. Alan Sinclair: phone: 01273 587 660 / 07719 820715, email: cryoservices@yahoo.co.uk

Can help Cryonics Institute Members who need help, funeral home, transport at London. Contact : F.A. Albin & Sons / Arthur Stanley House Phone : 020-7237-3637

INTERNATIONAL: The Cryonics Society is a global cryonics advocacy organization. www.CryonicsSociety.org. They publish an e-newsletter *FutureNews*. Phone: 1-585-643-1167.

HELP US STAY UP-TO-DATE!

Please send any corrections or changes to the address below. If you know of, or are considering starting a support, standby or other cryonics-related group in your area, please send details to

dg@cryonics.org.



Please note, this list is provided as an information resource only. Inclusion on the list does not constitute an endorsement by the Cryonics Institute or our affiliated organizations. We urge our readers to use this list as a starting point to research groups that may meet their own individual needs. We further note that readers should always use their own informed judgment and a reasonable amount of caution in dealing with any organization and/or individual listed.



Bulletin Board



Writers Wanted

Got something to say?

The CI Newsletter is looking for submissions from our readers!

If you've got a great idea for a story, please forward it to:

dg@cryonics.org

CRYONICS QUESTIONS?

Need some help with your membership?

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Did you know the Cryonics Institute offers FREE LIFETIME Memberships for minor children of paid Lifetime Members? Any minor children (under the age of 18) of fully-paid Lifetime Members are eligible for a permanent Lifetime Membership of their own. If you'd like to give your children the priceless gift of a second chance of life with you in the future, please contact us at 1 (586) 791-5961 and ask about Lifetime Membership Benefits.



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—Professor Peter Gouras, M.D., Ph.D., Columbia University, about the first edition.

ANTEFOREWORD

Small Answers to Some Large Questions

Some major questions of philosophy have probable answers that are easy to state, although not always easy to understand. Here they are—twenty questions, all overlapping or interrelated in various ways, to be fleshed out in later sections.

1. What should I do next?

In a sense, this is the only question in life, so I put it first, the rest being in no particular order. We might call this Tonto's Question. Those old enough may recall that Tonto would ask the Lone Ranger, "What we do now, Kemo Sabe?"

You of course will ask yourself. The short answer, for now, is: Read this book.

2. "Wha' hopen?"

How did the universe originate? Nobody has a clue. One guess is that our "universe" is a simulation in some joker's computer. Or perhaps a passing fancy in the mind of Koshchei the Deathless, creator of things as they are. (See "The World According to J.B. Cabell.")

3. What is life?

According to some philosophers, it is a disease of matter, a skin condition of the planet. Actually, life-as-we-know-it (at the sentient level) is characterized by the capacity for subjective experience or feeling, the physical basis of which is not yet understood.

4. What is the purpose of life?

"Girls just want to have fun." Boys too.

5. Is it good to be self-centered?

It is physically impossible not to be. You are self-centered, whether you know it or not and whether you like it or not.

6. Does man have free will?

At the conscious level, she does. Beyond that, the question is meaningless.

7. Is the universe deterministic?

Yes.

8. Is fatalism therefore justified?

No.

9. What is consciousness?

An aspect of brain function, perhaps involving a standing wave binding space and time.

10. What are the criteria of survival?

This is an unsolved problem, but the common-sense strategy is to try to save or recover as much as possible of both your material and your configurations.

11. Can a machine think and feel?

We do, and we are machines, or mechanisms, just like every other part of nature.

12. Could a digital computer emulate a person and have subjective experiences?

Probably not. Some types of "automata" might, however.

13. Is the "Turing Test" valid or useful?

No.

14. Is the universe partly random, as in the

usual interpretation of quantum theory?

Randomness at a basic level is a meaningless concept—even though there could be parts or aspects of nature forever inaccessible to us.

15. Is any part or aspect of life outside the domain of science?

No.

16. Is it possible for science to answer basic questions of value or what one "ought" to do?

Yes.

17. Is there life after death?

Probably, for those who choose cryonics instead of the cemetery or crematory.

18. Why should I fear death?

Dying can be a drag, but death is not to be feared, since dead people don't suffer. On the other hand, they don't enjoy life much either. Almost always, one should strive to stay alive.

19. What about the paradoxes of logic?

There aren't any.

20. If I had one wish, what should I wish for—assuming we rule out things like omnipotence and omniscience?

We are reminded of an old story:

It came to pass in the land of Israel that Solomon, the son of David, found favor in the eyes of the Lord, and the Lord did appear unto him, and spake unto him, saying (in a very deep and resonant voice):

"Solomon, son of David, thou hast found favor in mine eyes, wherefore am I moved to grant unto thee that which thou most desireth. What wilt thou?"

Solomon thought about this for a time, while God watched the sparrows falling, and after he had thought long enough, Solomon said:

"Lord, grant me wisdom."

And the Lord did grant him wisdom—and in that moment, Solomon realized that he should have asked for money!

P.S. If wishing doesn't work, try working.

FOREWORD

Anything New?

What's in it for You?

What's it all about, Alfie & Angie?

Is it possible to be happy though honest? Happy though selfish? Selfish though virtuous? Confident though puny? Can we navigate and survive in the vast, dark, cold and dangerous place we inhabit?

I claim to have better answers to these questions (and several others) than any previously available.

Old, New, Borrowed & Blue:

Search for a valid self-centered philosophy, or philosophy of self interest, has ancient antecedents and numerous contemporary exponents, but I aim and claim to improve on all of them, while partly sharing with many. Self-centrists are still in a relatively small minority, and not everyone is capable of resonance. There is no assurance that you will receive illumination or benefit from it. You may even get the blues. But the potential reward is more than commensurate with the effort.

To Academics:

This is not a "scholarly" work. I don't use much jargon and don't list many of the writers or works in the various fields. Instead, I offer my version of central insights, along with some selected background, aimed primarily at intelligent laymen. Nevertheless, I believe scholars will find some new ideas and challenges here.

It's All About You.

Most people realize some of the time, and a few people realize most of the time, that the most important part of the universe is you, to a near certainty. The most important things are all in your head—literally—and in your own calculations you should be not just number one, but every other number too. Certainly it will take a bit of doing to explain how you can (usually) be self-centered without being "selfish" or uncooperative, how you can (usually) reject altruism and still be kind and even generous, and how you can (usually) be calculating without being cold. Just stay with me for a few hundred pages—if your enemy permits.

Pogo said, "We have met the enemy, and he is us." The enemy of your understanding is you—or perhaps just a bit more tactfully, we should say your prior conditioning, the memes or cultural censors ready to pillory you for deviations from the alleged norm. But if the enemy has let you read even this far, maybe he is over-confident and you can outflank him.

Names & Games:

This volume might have been called The Book of Ought. "Ought" as in "should," not as in "naught." Not "should" as in "Big Daddy said so," but "should" as in "What can I do in order truly to maximize my personal satisfaction in the long run?" Happiness is elusive, and its pursuit is the game of life. Most of you are

losing the game, because you have been misinformed about the rules. We'll try to change that.

If You Play by the Old Rules, You Can't Win.

In our generation, the conditions of life have begun to change radically—almost unnoticed.

1. Death is no longer inevitable—even death from old age.

Aging research may be able to save our younger people by eliminating the causes of senescence, whether genetic or otherwise. Babies born today may never die of old age or any other "natural" cause.

Cryonics may save even those near death today, and some who have already "died", by keeping them in frozen storage until repair technology is equal to their needs.

This means that all previous bets are off. Unless you are one of a tiny minority, your outlook and values are built on ancient premises of a life brief and ignorant.

2. We are just beginning to study the inmost anatomy and physiology of the brain.

Values are based on wants or needs. Yet, so far we do not really know, on a basic level, what we are or what we need. We may think we know what we want, but we don't necessarily know what we ought to want. This is largely a biological question, which cannot be definitively answered until (at minimum) we understand the anatomy and physiology of feeling (qualia). But we can make a start, and build something more useful than any previous philosophy.

Old-style philosophers always went lame in

trying to address individual needs, partly because the conditions of the past were simply incompatible with human requirements, so an unhappy compromise was the best their "wisdom" could achieve. In plain words, they lied a lot, to themselves as well as to their auditors. It's still dark out there, but a faint glow is on the horizon.

The Unfairness of It All:

Life isn't fair. So what? Stop the world, and let you off? Picket the Pontiff? Stick your head out the window and yell, "I'm mad as hell and I'm not gonna take it anymore!"? Mumble a mantra? Have another drink? Find someone who will make nice? Whistle a happy tune? Work harder?

Whoa, there. Work harder? Aren't you working too hard already?

Maybe—but you are almost certainly working with the wrong priorities. Sure, money is important, even vital in a literal sense; and so are social status and many other goodies. But unless you straighten out your priorities, you are probably doomed, literally and forever.

Figuring priorities is itself work, and work for which most people are unsuited and ill prepared. Go complain to Management. Then settle down and do what you need to do.

New Rules, Better Odds, Humongous Prizes: Some of this material is original. (I thought of it independently.) Some is novel. (I was apparently the first.) Some is both original and novel ... and of course nobody cares about that. The important thing is relevance (along with entertainment).

The ethical and social philosophers of past and present have been characterized mostly

by error and irrelevance, blather and vacuity. They have earned the disregard shown by the public, which has an appetite for nonsense only when it is amusing or comforting, not ponderous and dreary.

St. Thomas Aquinas thought he could prove whether or not one angel could "move another angel's will," and that this was an interesting and appropriate topic of learned discourse. Spinoza thought all motivation stemmed from the instinct of self-preservation, and went on to "show" that we should sacrifice ourselves for a higher good. Nietzsche derided the Herden-moral (herd morality) of Christianity, but could offer instead only the Herren-moral (morality of the master, a foretaste of Nazism), and still called for individual sacrifice. The moderns have decorated their discussions with a lot of references to quantum theory and the DNA helix, but have not done much better on the bottom line, which is: What should we do, and what hope is there for the individual?

I propose to show what we ought to do, and why—sketch the nature of the self as best we can currently guess, and draw the logical but

unsettling conclusions.

There will be no pretense, no misdirection, no claims of divine guidance or special privilege. Facts will be referenced when appropriate, and opinions labeled. A light touch will be essayed rather often, even at risk of an accusation of flippancy, to avoid the MEGO reaction; but the basic intent is to reveal the world as it is, and ourselves as we can become. This is a new and greater gospel.

The bad news is that there is still no certainty, no guarantee of anything; you still have to place your bets and take your chances.

The good news is that you now have a better chance to win the game of life, and that the prizes are unprecedented. Your life need no longer be limited—not in duration, not in quality, not in power, and not by any spurious prior claims of institutions asserting a mortgage on your soul. In short, the truth will make you free, in a sense and scope never before known.

Stick around.

INTRODUCTORY NOTES

Intro Note 1—The Pork Problem:

This is not a book about swine. I do indeed say the bottom line is looking out for number one—and figuring out what that means—but not in any simple-minded sense; the hog at the trough is no one's ideal.

Self-interest is not "selfishness"; the Pleasure Principle does not mean you grab every swivel-hipped temptation that rhumbas by.

It is not about self-congratulation either. You are a long way from adequate, let alone splendid. Nevertheless, your primary duty is to yourself. I will prove this, among other things, and explicate Auden's plaint:

We are all here to help others.

What I can't figure out is, what are the others here for?

Intro Note 2—Promises & Warnings:

I claim to prove—not just assert, but prove—that "me-first" and "feel-good" constitute the only possible bases for conscious motivation. But the arguments are not easy and the consequences are not comfortable. Those who stay with me will find life better, but in most respects, not easier. The new guidelines, for example, will often be different than the old, but will also be more demanding, not less.

The new outlook will offer greater hope than ever before, but will also demand more effort and discipline. Better nourishment, but still no free lunch.

Intro Note 3—It's Going to Cost You:

The ideas in this book are liberating. But freedom isn't cheap.

Most people don't even want to be free. Slavery has its attractions: familiarity, safety, and indeed its own freedoms, viz., freedom from many risks and most responsibilities. Just do what you're told or have been taught and Massuh will take care of you (in his fashion).

You can emancipate yourself from some of the chains of tradition—even those of death itself. But the price of liberty is more than vigilance. You must consciously resolve to shake off the shackles of alien interests and discover where your own true interests lie.

You will have to look in some dark places. To put it another way, you will have to look yourself in the face, and embrace what you have been trained to believe is ugly. You will have to learn to like your real self, while most people prefer not even to know their real selves.

Yet, in the end, if you have the strength to call your enemies by their true names and reject their insolent claims, and go on from there to build your own universe, the reward may be more than commensurate with the cost.

Intro Note 4—Lies We Live By:

The Antiquity of Newspeak.

Humanity has always lived by lies—majestic, Orwellian lies.

Giving is receiving.

Sacrifice is reward.

Obedience is freedom.

And the ultimate capper: Death is life.

—with some “reasons” such as the notion that we “live on”... ..through our descendants. ...through our works. ...through the institutions we support. ...in Heaven. ...in the Universal Spirit. Some of these lies have tiny facets of truth to them. But even if we needed these grains of truth, we would have to swallow some bitter pills of poison to get them, and this is no longer necessary—at least for some of us.

In the early 21st Century, the conditions and premises of life have undergone a fundamental change—almost unnoticed as a practical matter.

One hears the dismal refrain of the “wise” that technology only changes gadgets and peripherals, that “human nature” and “morality” and “spirit” remain the unchanging linchpins of attitude and conduct. We shall see that the fact is far different: technology has already provided the wherewithal to liberate the human body and spirit.

A new world is ours for the taking and a new self for the making. Our gradually developing discussion is intended to spell out the evidence in broad and in fine.

Intro Note 5—New Questions:

One version of an old saw goes, “If Hare Krishna is the answer, it must be a pretty strange question.” Most of the answers of classic philosophy are wrong, partly because they start with the wrong questions—questions that often already contain implicit answers, because of the hidden premises. Only a tiny fraction think to examine our assumptions with anything like rigor.

In particular, even among those who accept the primacy of seeking personal satisfaction and survival, it is extremely rare to question the mechanisms of satisfaction and the criteria of survival. I haven’t solved these problems, but I put them in clearer perspective, and offer some interim guidelines.

Intro Note 6—For Goodness’ Sake:

There might be said to be two basic questions of philosophy: (1) “What is?” and (2) “What is good?” I’ll devote some space to the former, but my main concern is the latter. Most philosophers still say that “good” or “bad” can only be evaluated with respect to means, not ends. Nothing, they say, is good or bad in itself, except by conviction in the individual or agreement in society. Most working scientists agree that values lie outside the province of science. Many laymen think that good and bad, right and wrong, are in the word of God or in our DNA, and most of the rest agree that “Everyone has a right to his own opinion.”

They are all wrong, although the DNA people come closest. There is an objective criterion for the validity of ends, viz., certain conditions/events in your brain, which we are just begin-

ning to sort out. It is useful, even though oversimplified, to call such a content feel-good. The whole study is relatively simple in principle, but very complicated in practice. In particular, while the foundation is in biology, the application also requires experience and logic. We'll gradually see how it goes.

Intro Note 7—New & Improved?

You are always being asked to buy something "new and improved." Some of my main theses were anticipated, at least in part, by many previous writers and speakers, in some cases, millennia earlier. In particular:

The Hedonists, Epicureans and Utilitarians, and several other groups, all had good ideas, but quickly got off track, were unable to develop their theses, or mixed in some bad ideas, and have long been dismissed from the mainstream. I'll dust them off and shine them up.

"Enlightened self interest" has a long and respectable history, but with large gaps and much confusion in the rationale and application. Perhaps the closest to my view is that of Robert J. McShea and Daniel W. McShea, who have written on biology and value theory, but they also miss important distinctions and specifics—more about that later.

So much for the Foundations; now, the Frontiers:

Brain science and computer science—biophysics and math—in recent times have revealed both new philosophical problems and new ways to handle old ones.

One of the most obvious new questions arising out of brain science and computer science together is whether a brain is a computer, and

whether a computer is or could be a brain. New light is also cast—and new shadows too—on the questions of what constitutes a mind, a soul, a person. Much of this will be gradually illuminated as we move along.

Intro Note 8—Self-Interest: The Youniversal Motivator.

It is self-interest that drives the world.

This is not only the way it is— It is the way it should be, and more than that, the only way it *can* be.

The hedonists, epicureans and utilitarians—and even Buddhists, in their fashion—thought they understood this, and started out more or less on the right track. But they quickly became confused and lost their way. Aristotle understood it too—at least the rudiments of it—but failed to develop it.

Self-interest is a deceptively simple-sounding concept; but in actuality, it is complex and slippery, with many levels of subtlety. Among other things, it cannot be applied without a reasonable grasp of the nature of the physical world that gives rise to all our constraints and all our opportunities.

Of those who are seriously addressing the question for the first time, some will quickly concede the primacy of self interest, based simply on definitions. After all, your decisions are based on your values or wants, which means they are intended for your satisfaction (or to minimize dissatisfaction). Others—most—will need more convincing.

My promise is to clarify the concept and its applications—and to clarify also what we know or guess about the world of nature, whose rules set our only limits.

By obeying the real rules—rather than arbitrary dictates of archaic societies or imagined divine authorities—you win such freedom as exists.

You do not escape duty—but you learn how to do your only real duty, which is to yourself. You do not entirely escape guilt—but you learn to feel guilt only when it is appropriate and useful, when you have offended your own nature and compromised your own future. You do not escape pain, but you learn not to inflict it on yourself. You do not escape work, but you do escape despair.

The pursuit of self-interest is the most American of endeavors, because it is the pursuit of happiness...which you may even catch.

Intro Note 9—Ecstasy Engineered?

If the Pleasure Principle is the correct basis of value, doesn't that have some peculiar implications? If what we want—and ought to want—is just to feel good, then shouldn't our continuous goal be to feel better? Does that mean our ultimate goal should be non-stop orgasm or the psychological equivalent? Can we bio-engineer ecstasy? Are there any limits to the sublime—or to the ridiculous?

These are good questions, but they do not—as some imagine—constitute a *reductio ad absurdum* for our thesis.

The quantification of satisfaction, the problem that stymied and discredited the Epicureans and Utilitarians, remains unsolved. We do not yet have the biological knowledge we need. We don't know the nature(s) of the "self circuit" and its modulations, or the relation between basic feeling and functions of cognition and

abstraction.

We do know, for example, that someone can be more motivated by a project—which may involve mostly plain hard work—than by present pleasures. A basement tinkerer may prefer to keep working and miss his supper, or even miss a session of sex. Duty may take precedence over delight. Clearly, satisfaction comes in various styles or flavors, which have not yet been sorted out or placed in hierarchies. This does not imply any fundamental contradiction, but only warns us against premature conclusions about specifics.

David Pearce, a young Brit, has written *The Hedonistic Imperative* (see www.hedweb) which goes beyond anything I have previously seen in the Pursuit of Happiness. He thinks we can indeed more or less go onward and upward, forevermore, Excelsior! Sublime to sublimer to even more sublime, with pain or even minor irritations relegated to the primitive past. He might even be right. I'll have a bit more to say on his work later.

Intro Note 10—Word Games? Tautologies?

When one of the old guard (almost everybody) is told why there is no such thing as genuine altruism—that the basic motive is always to please oneself—the shrewder of them may respond something like this:

"You're just twisting words. If my highest value and prime motive is service to [others, the state, God, art, whatever], then I suppose you could say that in this service I please myself. But I am still serving, and still subordinating most of the usual selfish interests that people have. There is still a profound difference between the "selfishness" of service, if you insist on calling it that,

and the ugly selfishness of—say—trying to get rich. Service is still a higher value than money-grubbing. Word games apart, it is still basically appropriate to say that service is altruistic and greed is selfish."

Relatively sophisticated traditionalists may use philosophical language, call positions similar to mine "egoism", and claim that our references to satisfaction, pleasure, etc. are "tautological" and our claim non-falsifiable, hence not scientific. In other words, they say, if we label as "selfish" anything that we want in any way or degree, then certainly all motivation is "selfish"—but that is not a valid or useful procedure, they insist.

Let us just note that the simplest way to deflate the claim of "word twisting" is to ask the objector: "How do you determine what you ought to do? My starting point is the biological, internal satisfaction(s) of the organism (me); what is yours?" I guarantee his answer(s) will be incomprehensible, contradictory, arbitrary, circular, vacuous, or/and based on hidden premises.

Intro Note 11—Cryonics & Immortalism.

For many people, the most immediate and important aspect of sci/tech is the potential of saving and greatly extending your life through cryonics—cryo-preservation (in deep cold) of the legally dead in hope of eventual restoration to youthful good health by future medical technology. Beyond that is also the possibility of a transcendent future for individuals now living. I have written two previous books on these topics, *The Prospect of Immortality* and *Man into Superman*. These are available in full on the web site of the Cryonics Institute, www.cryonics.org.

[cryonics.org](http://www.cryonics.org), along with a large quantity of related and updated material. Brief sketches are included in this book.

Intro Note 12—Life & Death, Identity & Survival:

Suppose you were blasted to smithereens in an explosion, but then somehow the smithereens were gathered together and reassembled into you, good as new, just as you were the moment before the explosion. (If you prefer, think about the beam-me-up machine in Star Trek, also known as Star Trek.) Would this be survival? Would it be the "real" you?

Play with thought experiments and answers all you like, but the fact is that in our present state of ignorance, no one knows. No one even knows for sure that we "really" survive from day to day in the ordinary course of events, by rigorously defensible criteria. So what should one do? One should read on, of course.

Intro Note 13—Binding Space & Time:

At this point, just a very brief introduction to an approach toward reconciliation of intuition and a rigorous philosophy of personal identity or criteria of survival:

First, I postulate that "you" are a physical system with spatial and temporal extent.

A physical system could hardly exist at a geometric point in space, if there is any such thing, so it must have spatial extent. It must bind space. The important parts and functions of your brain occupy a non-zero volume.

Likewise, a system could hardly live at an instant of time, if there is such a thing. For

subjective experience, it seems necessary to have change and the passage of time. You must bind time. Any feeling or experience probably requires non-zero time. This notion is reinforced by the fact that feelings involve signals inside the brain, which require time between initiating and acquiring and interpreting.

This means that you identify in greater degree with your nearer continuers (yourself at later times), both because they are more like your present self and because you have a clearer idea of what their interests or values will be. There is overlap all along the line, with greater overlap for nearer continuers and predecessors. This fits nicely with the intuition of most people, as biology and evolution have shaped them.

Of course, nothing is yet proven. Among other questions, we are still mostly in the dark regarding the basics of both space and time—objective time and subjective time. Still, this view has a good deal going for it.

Intro Note 14—Moving Targets & Living with Uncertainty:

Choosing goals and routes, or objectives and tactics, is a bit like shooting at a moving target. You must try to achieve, not necessarily what you think you want most right now, but what you guess you are likely to want tomorrow, and what you ought to want tomorrow. And you must try to achieve it under changing conditions. A formidable task—but if ideal decisions are impossible, good decisions can usually be found.

The mark of maturity is serenity in the face of uncertainty. Serenity—or some approximation thereto—is achieved through a complex pro-

cess of learning and development, doing one's best to stack the odds in one's favor and against the mindless, casual cruelty of circumstance. What must be mightily resisted is the temptation to accept the popular or plausible assurances that have fooled most of the people most of the time.

Can you trust the best or the wisest—even if you can identify them? No. Can you trust yourself? No. Is this a counsel of despair? Emphatically not. It is a counsel of careful courage, at every stage making the best decisions you know how, and building from there—even if you have to demolish some previous structures along the way.

Intro Note 15—Grand Finale?

As a boy, I was impressed by the incredible gallantry of ordinary people leading their "lives of quiet desperation," bearing their burdens, pains, disappointments and injustices with relatively little complaint, going to their mind-numbing little jobs every day. Finally, they die quietly and rot even more quietly. For a generation or a few they may be dimly remembered—which helps them not at all—but in the blink of an eye, in geologic time, they will be forgotten, and maybe the whole human race as well. Of course, I realized that evolution must have made us this way—but I for one would not hold still for that.

The only alternative I could see back then was the "grand finale" or going out with a bang. If life or its prospects became too unpleasant, I would gather or seize what resources I could and have myself a going-away party, which might take one of two forms.

(a) I would literally party, buying enough

women and wine and whatever for a thorough binge, and then a clean exit with a bullet to the head.

- (b) I would exploit my nothing-to-lose status by some self-sacrificial feat of derring-do, more or less in the martyr mode. Maybe assassinate a dictator or something like that.

Of course, it's different now. A "finale"—loud or quiet—is not inevitable. Given the potential of anti-senescence and cryonics, there is ample rationale for prudence and cooperation up to "death" and beyond. Intro

Note 16—Learning What to Want:

Your problem is what to do. This breaks down into two problems, one of them being how to get what you want. The other is how to decide whether you have the right target, or whether to try to change what you want.

What you want isn't necessarily what you ought to want. One person I read about wanted to be a chicken. Some want to be Napoleon. Some want to be God. A great many want to be movie actors. A great many more just want to lie down. The issue, however, is what they (and we) should want, with respect to many pos-

sible alternatives, in many different situations. This is another way to put the main problem of philosophy. We must identify our bottom-line biological requirements, and decide how best to satisfy these in light of logic and the physical nature of the universe.

Intro Note 17—It Ain't Easy—but it's not impossible either.

Is a frog's ass waterproof? Some of my propositions will be seen as just that obvious, and every little bit helps.

I must acknowledge that not all of what follows is just fun and games, and not everyone will be able (at first try) to hack through the occasional thickets. We are, after all, traversing some pretty rough terrain—trying, indeed, to make progress toward unriddling the universe, or at least the innerverse. But I have made a rather strenuous effort to keep it simple in most cases, and clear in all cases, and I do believe there is something here for most readers.

Some readers may fault me for occasional choice of soft targets for ridicule, but I think these have a rationale. Seeing examples of smart people falling for really dumb ideas gives food for thought.

OVERVIEW

Following are the main theses and topics. I propose to prove the theses, in the sense of offering evidence that should be persuasive to any open mind. (Confucius say, man with hole in head have open mind.)

- I. The world is one, with no dualism of matter and spirit. It can be likened to a giant machine (although not necessarily in the classic Laplacian sense); all its aspects and parts, including people (to the extent that parts are separable) are cogs or smaller machines; and this does not diminish us, but on the contrary, offers enormous hope, because *machines can be repaired and improved*.
- II. The problem of the person (or the nature of personal identity and consciousness, or the structure of the self, or the problem of criteria of survival) may not be the profoundest—but is certainly the most important—of all scientific questions. Some tentative insights are offered, and implications of these and of alternatives are discussed.
- III. *Me-first* and *feel-good* are the essential foundations of all legitimate value systems for the individual. This ought to be seen as

a truism, but most of us cannot overcome our conditioning and genetic programming without extended and many-faceted discussion—and after that comes the hard part, the tricky interpretation and application.

- IV. Aging and death can be conquered—not only for the species, but for individuals now living. If necessary, nanotechnology of repair (Drexler machines) will virtually assure that we reach the goals of gerontology and cryonics. Duration of your life need have no limit—even if you die next month.
- V. How to do it: Preachments & Practices
- VI. If you succeed in building the self-centered value system, and if you avoid dissolution of the self—what next? If you conquer your conditioning, if you win freedom from “natural” death—what lies beyond?

When delusions and death are left behind—what does existence hold?

Open-ended development, for the individual as well as society, offers life without (known or artificial) limits—for those willing to make the effort and accept the costs and risks.

Next Issue:

Chapter One: Wisdom and Windbags

