Hiram's Lighthouse

PROVIDING MASONIC *LIGHT* FROM TORONTO EAST DISTRICT

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Nullius in verba

... by the Lighthouse Beam

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Hiram's Lighthouse - October 1, 2022
Grand Lodge Merit Award Winner for District Newsletter 2008

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October 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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2	3	4	5	6	7	8
9	10	11	12	13	14	15
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EVENTS

Click Here to Print Calendar

...Now here's a Lodge in

Travellers Lodge
St George's Hall
28 Broad St
Lagos, Nigeria

Around and About
(News & Notices)

The Bancroft Masonic Lodge has started to meet once again since the start of COVID-19, and now they will start with a new set of officers. During their meeting on Monday, Sept. 12 the new officers were voted in.

They currently have 13 officers, with nine of them returning to their post, four are new. This includes worshipful master Kevin Fudge, who will take the lead for the lodge over the next year. The new board of officers were welcomed by District deputy Grand Master Mark Durant.

Fudge says that the Masonic Lodge is looking forward to the return of social events and being able to take part in the community once again. The Bancroft Lodge was started in 1905 and has been raising funds for community events and organizations ever since. Some of their biggest supports is to the bursaries for music graduates every year at North Hastings High School, kidney dialysis unit at the Quinte Health Care hospitals, and they sponsor several youth events such as the soccer teams.

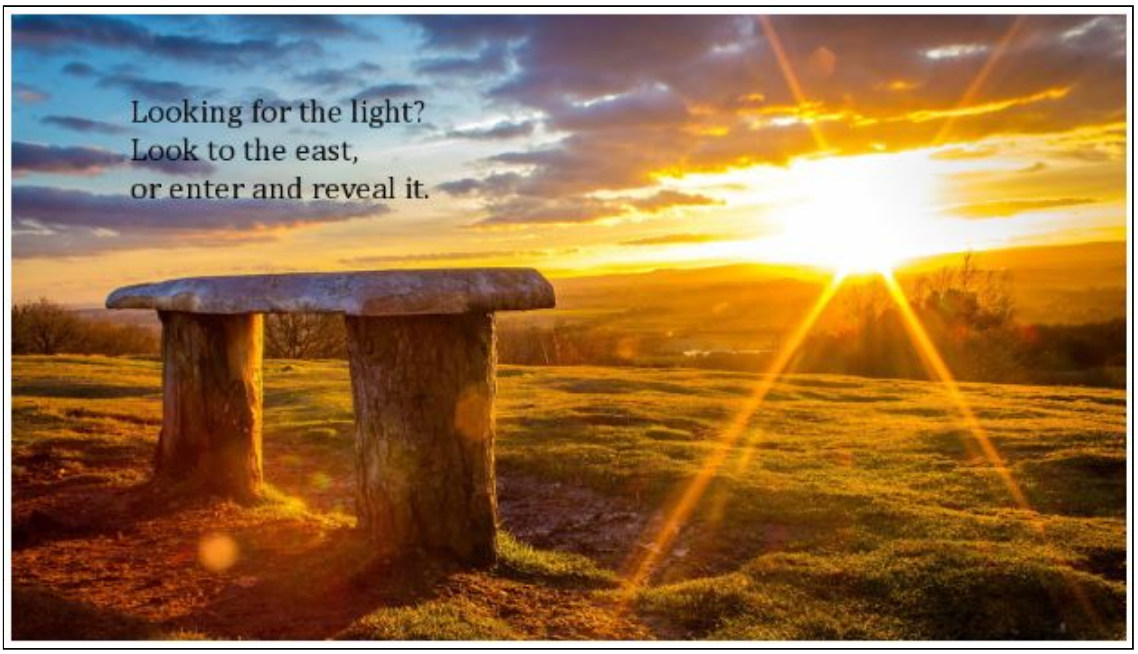
The Bancroft Masonic Lodge is planning to hold an open house later in the year. The exact date has not been released yet, however the Lodge is inviting the community to come visit them during the event and learn more about their organization. They are also looking for more members, those interested are asked to email bancroftlodge482@gmail.com.

This Month in History

October 30 Birthday - Emily Post (1872-1960) was born in Baltimore, Maryland. She wrote influential books on etiquette and a syndicated newspaper column giving advice on manners in specific situations.

October 31, 1941 - Mount Rushmore National Memorial was completed after 14 years of work. The memorial contains 60-foot-tall sculptures of the heads of Presidents George Washington, Thomas Jefferson, Abraham Lincoln and Theodore Roosevelt - representing America's founding, political philosophy, preservation, and expansion and conservation.

October 31, 1517 - Martin Luther nailed his 95 Theses to the door of Wittenberg's palace church, denouncing the selling of papal indulgences and questioning various ecclesiastical practices. This marked the beginning of the Protestant Reformation in Germany.



Please take the time to log in and review the new Grand Lodge website.
www.grandlodge.on.ca

Nature & Science

Physicists Just Entangled A Pair of Atomic Clocks Six Feet Apart

Few things in the Universe keep the beat as reliably as an atom's pulse.

Yet even the most advanced 'atomic' clocks based on variations of these quantum timekeepers lose count when pushed to their limits.

Physicists have known for some time that entangling atoms can help tie particles down enough to squeeze a little more tick from every tock, yet most experiments have only been able to demonstrate this on the smallest of scales.

A team of researchers from the University of Oxford in the UK have pushed that limit to a distance of two meters (about six feet), proving the mathematics continues to hold true over larger spaces.

Not only could this improve the overall precision of optical atomic clocks, it allows for a level of comparison in the split-second timing of multiple clocks to a degree that could reveal previously undetectable signals in a range of physical phenomena.

As the name indicates, optical atomic clocks use light to probe the movements of atoms to keep time.

Like a child on a swing, components of atoms whizz back and forth under a consistent set of constraints. All that's needed is a reliable kick, such as a photon from a laser, to set the swinging in motion.

Various techniques and materials have been tested over the years to advance the technology to the point that differences in their frequencies barely add up to a second's worth of error over the 13-odd billion years of the Universe – a level of precision that means we might need to rethink the very way we measure time itself.

As fine-tuned as this technology happens to be, there comes a point when the very rules of time-keeping themselves become a little vague thanks to the uncertainties of the quantum landscape that introduce a bunch of catch-22 situations.

For example, higher frequencies of light can improve precision, but comes at the cost of small uncertainties between the photon's kick and the atom's response becoming more important.

These in turn can be ironed out by reading the atom multiple times, a solution not without its own problems.

A 'single shot' reading with the right kind of laser pulse would be ideal. Physicists know that the uncertainty of this approach can be improved if the atom being measured has already had its fate entangled with another.

Entanglement is at once an intuitive and bizarre concept. According to quantum mechanics, objects can't be said to have a value or state until they're observed.

If they're already part of a bigger system – maybe through an exchange of photons with other atoms – all parts of the system will be fated to deliver a relatively predictable outcome.

It's like flipping two coins from the same wallet, knowing if one comes up heads the other will come up tails even as it spins in the air.

The two 'coins' in this case were a pair of strontium ions, entangled with a photon that was sent down a short length of optic fiber.

The test itself didn't produce any revolutionary levels of precision in optic atomic clocks, though it wasn't intended to.

Instead the team showed by entangling the charged atoms of strontium, they could reduce the uncertainty of the measurement under conditions that should allow them to improve precision in the future.

Knowing macroscopic distances of a few meters presents no challenge, it's now theoretically possible to entangle optical atomic clocks around the world to improve their precision.

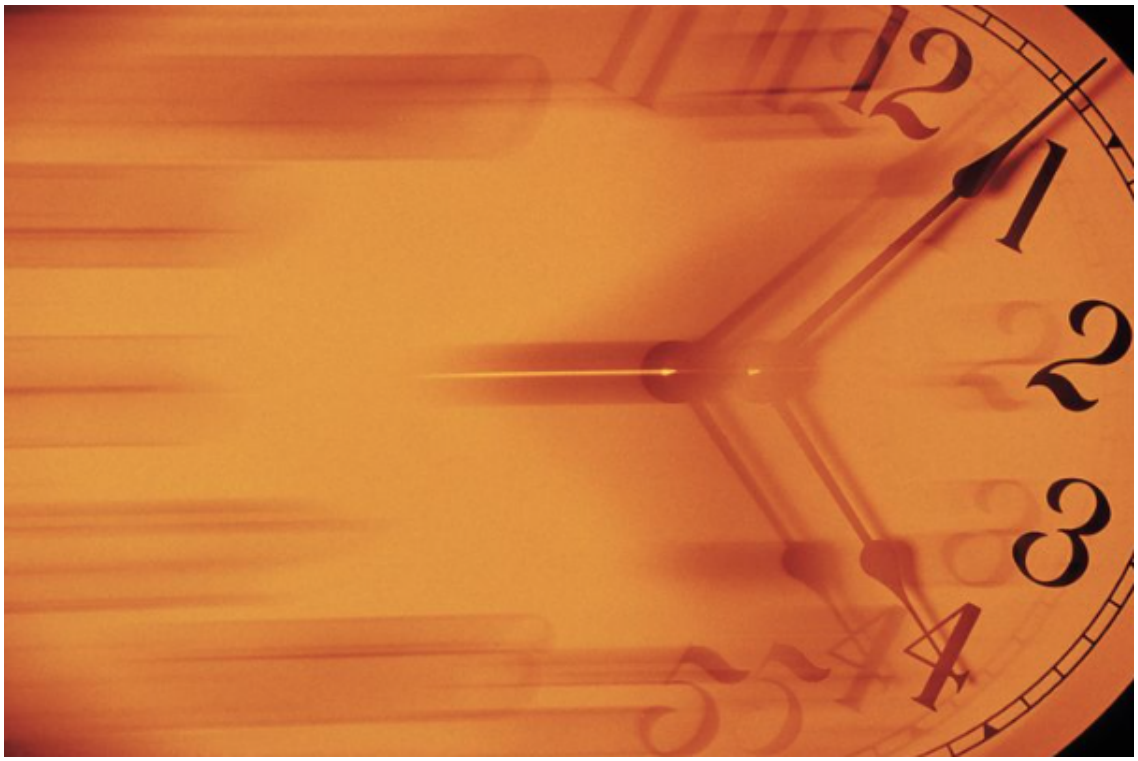
"While our result is very much a proof-of-principle, and the absolute precision we achieve is a few orders of magnitude below the state of the art, we hope that the techniques shown here might someday improve state-of the art systems," says physicist Raghavendra Srinivas.

"At some point, entanglement will be required as it provides a path to the ultimate precision allowed by quantum theory."

Squeezing a little more confidence out of every tick-tock of an atomic clock could be just what we need to measure tiny differences in time produced by masses over the smallest of distances, a tool that might lead to quantum theories of gravity.

Even outside of research, using entanglement to reduce uncertainty in quantum measurements could have applications in anything from quantum computing to encryption and communications.

This research was published in *Nature*.



The Infamous 'Grandfather Paradox' Doesn't Make Time Travel Impossible After All

It just means you can't go back in time and kill your grandfather

It's a classic science fiction trope: a time traveler journeys back in time and causes a change in history that has disastrous effects on the present or even threatens their very existence.

If these changes jeopardize their ability to travel back through time in the first place, then surely the traveler can't make that change to time, right? But then they *can* go back in time again, so, can make those changes again … and so forth.

That's the essence of a trap called the "grandfather paradox," an idea that has been used to great effect in books, films, and TV shows—from Ray Bradbury's short story *A Sound of Thunder* to *Futurama* to *Back to the Future*. And as much fun as this concept is in science fiction, it's also something that actual physicists and philosophers are intensely thinking about.

"The argument runs like this, *if* you could 'go back in time' then you could go back to a time before your grandfather had had any children and murder him," Tim Maudlin, a philosopher of science who investigates the metaphysical foundations of physics and logic, explains to *Popular Mechanics*. "But if that happened, then one of your parents would not have been born, so you would not have been born, so there would be no you to go back in time. Contradiction."

This problem arises from the risk time travel would present to one of the most preserved ideas in physics—causality, the idea that cause *must* proceed effect in all circumstances.

"The grandfather paradox is usually presented as a *reductio ad absurdum,* or a refutation of the proposition that time travel is possible," Maudlin says. "So the hypothesis must be impossible because of the grandfather paradox; time travel—or reverse causation—is not possible."

Though he doesn't ultimately think travel backward through time is possible, Maudlin thinks that the grandfather paradox shouldn't prevent time travel in and of itself. Instead, the paradox just prevents what actions can be conducted on a trip through time.

"The grandfather paradox does not prove that you can't go back in time, just that you can't go back in time and kill your grandfather," he says. "There would be nothing logically wrong with going back in time and, say, saying 'Hello' to your grandfather."

Researchers from the Massachusetts Institute of Technology (MIT) have an idea of just how causality violation could be prevented.

Time Travel That Protects Granddad

Seth Lloyd, a professor of mechanical engineering at the Massachusetts Institute of Technology and a self-described "quantum mechanic," has been conducting research for over a decade that suggests a way of going back in time and avoiding the grandfather paradox altogether.

This involves the physics of closed timelike curves (CTCs), paths through time and space that return to their starting point, which are allowed by general relativity — Albert Einstein's theory of gravity and the effect mass has on space and time, or the single entity of spacetime.

> "If you follow a closed timelike curve in your spaceship, you can end up interacting with your former self."

"A closed timelike curve is a path through spacetime that leads to the past," Loyd tells *Popular Mechanics*. "If you follow a closed timelike curve in your spaceship, you can end up interacting with your former self. That is, closed timelike curves allow time travel."

There are a few different types of CTC models, which Lloyd illustrates with examples from popular fiction.

"There are basically two different possible types of models for CTCs. In one — which we call, imaginatively, Type I — the time traveler can intervene to change the past as she remembers it, at which point she enters into a different quantum branch of the universe — as in *Back to the Future*, *Hot Tub Time Machine*, and other time-travel narratives," he explains. "In such Type I theories of time travel, it's perfectly possible for the time traveler to kill her grandfather."

In the other type of CTC model , which is predictably called Type II, time travel has to obey a principle of self-consistency. Sometimes called the Novikov self-consistency principle, or Niven's Law of the conservation of history, this principle prevents causality violation by placing some events in order on the same CTC. This self-consistency would prevent our time-traveler from landing her machine on granddad, even if she wanted to. Some effect would always divert her course.

"In Type II theories, the time traveler cannot change the past, no matter how hard she tries," Lloyd says. "Examples of Type II time travel narratives include *Harry Potter and the Prisoner of Azkaban*, and the Terry Gilliam film, *Twelve Monkeys*."

Terminator Photons: Back in Time With a Mission to Kill

Lloyd and his team set about exploring a version of Type II CTCs that combine the concepts of quantum teleportation with post-selection — the factor in a computation that allows certain results to be accepted while others are rejected.

"Quantum teleportation is a process in which a quantum system dematerializes here and then rematerializes somewhere else based on the counter-intuitive quantum phenomenon of entanglement [the idea that two or more particles can be linked in such a way that a change in one instantaneously causes a change in the other no matter how

distant they are],” Lloyd says. “In the quantum theory of CTCs that we developed, travel through the closed timelike curve is closely related to teleportation.”

Signs of 'Significant' Brain Rewiring Have Been Found in Space Travelers

There's still lots to explore and learn about the effects that space travel has on the body – and it seems those effects include some neuron rewiring that goes on in the brain.

Researchers studying the brains of 12 cosmonauts found what they describe as "significant microstructural changes" in the white matter that manages communications within the brain, and to and from the rest of the body.

The data were obtained through diffusion magnetic resonance imaging (dMRI) scans taken just before and right after the time participants spent in space, which lasted an average of 172 days. Further scans were carried out seven months later, and while there was a reversal of some changes, a few of them were still visible.

Specifically, the team found changes in neural tracts related to sensory and motor functions, and speculate this could have something to do with the cosmonauts' adaptation to life in microgravity.

"Considering the different physics and kinesthetics applying to the extreme environment of space and the hypothesis that these have significant effects on the brain's representation and control of the body, these tracts are therefore suspected to reflect this altered sensorimotor function shown in space travelers," the team writes.

This is the first time a brain imaging technique known as fiber tractography has been used in relation to the effects of spaceflight. The technique builds up a 3D picture of neuron tracts, revealing the brain's wiring scheme.

While changes in the brains of space travelers have been observed before, by using fiber tractography this study was able to take a better look at the actual connections between neurons and how they shifted.

Initially, the researchers thought that they'd spotted changes in the corpus callosum, the central highway connecting both hemispheres of the brain, but on closer analysis they were seeing an expansion of the brain's ventricles – a communicating network of chambers, filled with fluid, that sit next to the corpus callosum.

"The structural changes we initially found in the corpus callosum are actually caused by the dilation of the ventricles that induce anatomical shifts of the adjacent neural tissue," says neuroscientist Floris Wuyts, from the University of Antwerp in Belgium.

"Where initially it was thought that there are real structural changes in the brain, we only observe shape changes. This puts the findings in a different perspective."

Changes in the wiring of the brain aren't unusual of course – this plasticity enables us to learn new skills, make new memories, and so much more. At the moment it's not clear exactly what the implications of this space-related rewiring might be.

What's certain is that our bodies do try to adapt to the harsh environment of space. Previous studies have shown signs of an increased risk of disease and potential ways the brain could get damaged. It also appears that spending time in space affects men and women differently.

It's early days for the study of this particular brain adaptation using this particular scanning technique, but the more we know about human bodies and zero gravity, the better we'll be able to prepare for journeying to other worlds.

"These findings give us additional pieces of the entire puzzle," says Wuyts. "Since this research is so pioneering, we don't know how the whole puzzle will look yet. These results contribute to our overall understanding of what's going on in the brains of space travelers."

"It is crucial to maintain this line of research, looking for spaceflight induced brain changes from different perspectives and using different techniques."

The research has been published in *Frontiers in Neural Circuits*.

Tikkun תיקון

The Prophetic Jewish, Interfaith & Secular Voice to Heal and Transform the World

Exodus: An Allegorical Portrait of the Human Mind in its Relationship to God

By Bob Rosenthal **| July 25, 2012**

The interpretation of the Bible and its stories is a time-honored tradition in Judaism, one that dates back over two millennia. Since the fall of the second temple in 70 C.E., such interpretation has gone by the name of *midrash*. However, midrash is not simply the act of clarifying difficult Biblical passages or wrestling with abstruse questions that most of us would find utterly irrelevant. (To debate the number of angels crowded atop the head of a pin is not midrash.) Midrash is not purely a scholarly endeavor, because its goal is not scholarship *per se*. Rather, midrashic interpretation reflects an ongoing attempt to unearth the hidden truth latent in scripture, to peel away the corrosive patina accumulated over many years of reading with eyes clouded by convention, and reveal the pure shining essence of divine wisdom. By applying different glosses, different lenses, to the old, time-worn Bible tales, we can find in them

startling new layers of meaning—like placing a dull rock under a black light to reveal luminous veins of color otherwise hidden to the eye.

I would like to share a new and quite radical midrash regarding the story of Exodus, one that I have found extremely powerful. It broadens our understanding of Judaism by linking it with the mystical quest at the heart of all the worlds' great religious traditions, both Eastern and Western. It simultaneously deepens our relationship to Judaism by making Exodus personally relevant. As the Passover *Haggadah* makes abundantly clear, the story of Moses and Pharaoh applies to all of us, now, in the present tense. We're enjoined to celebrate as if God had led us personally from bondage in Egypt. This is not mere metaphor, nor is it hyperbole. Viewed through the lens of this incisive new midrash, Exodus leaps into blazing color as a model for the spiritual journey itself—a roadmap for our own passage out of bondage and into freedom.

So, what is this midrash? How can we use it to bring forth the true colors of Exodus? We start with the understanding that Exodus is far more than just a simple story about winning freedom. It is an allegorical portrait of the human mind. Its two central characters—Pharaoh and Moses—are not just historical figures, not just characters in a biblical drama. They are archetypes that portray opposing aspects of the human mind in its relationship to Spirit.

Pharaoh represents the part of the mind that sees itself as separate from God and Spirit: the limited ego-mind. Moses represents the part of the mind that is and has always been in full, direct connection with God and Spirit—what I call the Moses-mind. Both are present within us. The plagues brought on by Pharaoh's stubborn resistance to freeing the Hebrews are *our* plagues. They afflict us whenever we bow to the Pharaoh-like ego—when we identify with it and accept its goals as our own. Likewise, the miracles performed by Moses are *our* miracles. They arrive the moment we make the decision, consciously or unconsciously, to be free from ego and follow instead the guidance of Spirit that comes to us through the Moses-mind.

The Hebrews of Exodus are tossed back and forth between these two powerful, opposing forces. They toil in slavery under Pharaoh with no hope of release. When Moses first appears, they reject his help. After the devastation of the tenth plague, he leads them out of Egypt and across the seemingly impassable barrier of the Red Sea. Despite these miracles, however, when faced with the forbidding desolation of the wilderness, they question his guidance. Yet at Mount Sinai, they cling to Moses, refusing to let him go, retreating from a direct encounter with God, because He seems too fearful.

In their vacillation, the Hebrews offer a compelling portrait of our own spiritual dilemma—a mirror of our own confused wanderings as we seek the Promised Land of inner peace and freedom. To whom do we listen, Moses or Pharaoh? Which voice is stronger in us? Which the more trustworthy? Their agendas for us are starkly opposite. So which do we choose to follow?

We are the Hebrews—all of us, regardless of our religious affiliation—and the journey of Exodus reflects our ongoing struggle as we're pulled between these two dueling aspects of the mind: ego and Spirit, Pharaoh and Moses. This makes Exodus as relevant today as it was 3,000 years ago, for the human mind has not changed.

The Hebrews' journey, with its triumphs and failures, can cast a light to help guide us along our own paths. For like the Hebrews of Exodus, we have not yet reached the Promised Land. We are still en route, still in the process of making that journey. Perhaps now, with this midrash in hand, and with the help of Spirit, we can complete the journey together.

(Excerpted in part from the book From Plagues to Miracles: The Transformational Journey of Exodus, From the Slavery of Ego to the Promised Land of Spirit*, by Robert Rosenthal, M.D., Hay House, 2012.)*

“A good traveler has no fixed plans, and is not intent on arriving.”

– Lao Tzu

... by the Lighthouse Beam

Your brain on travel

How exploring new places can strengthen the mind | VOX

Administration

PHOTO CREDIT National Geographic

NOTICE: Hiram's Lighthouse is currently looking to expand its Editorial Board, should you or someone you know be a good candidate, please contacts the editor at hiramslighthouse@gmail.com with a brief bio.

ADMINISTRATION:

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To get a notice into the newsletter at least one month before the event, send a message to hiramslighthouse@gmail.com with all the information and we'll run it every month until the function is past.

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