



A little science...A touch of fiction...A lot of adventure...

News from the Den

Big news in the Den - The Paris Contagion is doing well and we've embarked on an advertising campaign on several sources to further increase sales. The book, in both formats, has been nominated for the Ippy awards. Fingers and all paws crossed. Increase our exposure - leave a review at your favorite site.

Shepherds has invited us to post TPC on their website, cruise on over and have a look: [Shepherd Best Books - The best geopolitical thrillers from today's headlines](#)

As COVID-19 is declining, The Golden Crown Literary Society is holding their annual conference in-person. And this year the meeting is in Denver! I am participating in an author spotlight on Thursday, 29 June at 09:00, the sci-fi panel discussion on Friday, 30 June at 11:00, and the author signing event on Saturday, 1 July from 13:30 to 15:00. If you're in the area, come down to the Hilton Downtown at 18th and California and join us.

Latest and Greatest - Science News

This month I've decided to highlight science-in-the news. We hear so much about all the things going on in politics, the Ukraine crisis, the G7 summits, and crises around the globe, we often forget or overlook science.

AI: a good thing or a threat? At Google's London-based facility — DeepMind's AlphaZero — AI has moved beyond playing chess and has begun to write computer code, creating algorithms able to sort data three times faster than human-written code. As reported in Nature, AlphaDev was first tasked with sorting numbers. This requires decision-point analysis at each step to decide where to pick the shortest (in time sense) path. Next step, asking AlphaDev to write its own code to shorten its decision processes. See [Nature's](#) article on the topic.

How do we teach science from the basics to quantum physics? This just got more difficult in India as their under-16 education systems have removed the periodic table and the study of evolution from school textbooks. The decision was based in fear. Fear of western cultural influence and conflicts with religious creation stories. This is a giant step backward. What the overall future impact of this narrow-minded decision will be on India's prominence in providing technical expertise to the world's companies is yet to be seen. The US is facing the same challenges in states which are banning books. [Read more.](#)

Science and the Law — a landmark trial is scheduled to begin this week in Montana. A group of 16 young people are suing the state over environmental policies that favor the energy/fossil fuel industries in violation of their right to a 'clean and healthful environment' as written in Montana's constitution. Held v. Montana is the first case of its kind but a number of other cases are pending in other states. Read more in the [NY Times article.](#)

How do we measure humankind's impact on our planet? By measuring significant parameters of the physics of the globe itself. One of those parameters is polar drift or wander - the Earth wobbles on its axis like a decelerating top. Imagine balancing a spinning basketball on your finger — we watch NBA players do this often. The ball spins easily with an up-and-down axis of rotation. Now imagine adding a little weight to one side of the ball —

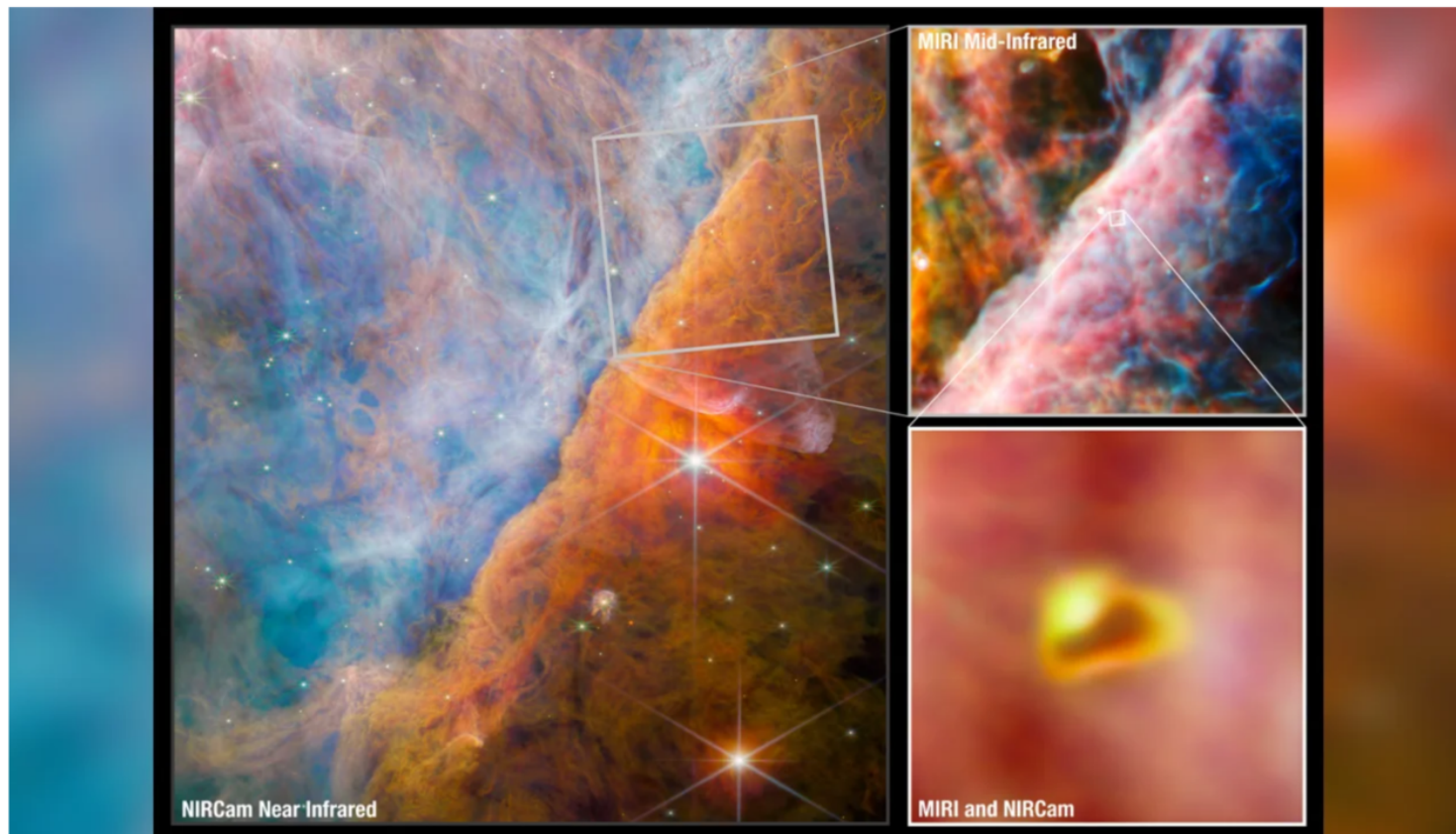
this weight imbalance will cause the ball to wobble. Now, think about the wobbling Earth, spinning on its axis that's tipped to 23.5deg. If a significant amount of weight were removed or redistributed about the globe, the planet would wobble more. That's what humankind has done — removed gigatons of groundwater from spots around the globe. From 1993 to 2010, approximately 2150 gigatons of groundwater has been removed from the subsurface. The effect of this resource draw-down is an 80cm increase in polar drift (or wobble). See the [science.org article](#).

What's in a day? A day is defined as the length of time it takes for the Earth to complete one rotation, as measured at the equator. Today, a day is measured at 23 hours, 59 minutes, 59.9997815 seconds +/- 0.2milliseconds. But, one billion years ago, a day was only 19 hours long. Why? Its all about gravity. One billion years ago, the moon was closer to the Earth. Then, our lunar satellite began stealing the Earth's rotational energy and slowing the planet down. Tides — both lunar and solar — also, impact the rotational speed of the planet. Currently, lunar tides are twice as strong as solar tides. As the moon steals more rotational energy it is able to creep into a higher orbit. And today is moving away at a rate of 3.78cm per year (that's about 1.5"). In 600 million years, it will leave Earth orbit and we'll lose our nearest planetary neighbor. See more from [Live Science](#).

Seismic monitoring stations (part of the CTBT-International Nuclear Test Monitoring System) around the globe have definitely stated that the destruction of the Kakhovka Dam in Ukraine was the result of an explosion that occurred on 6 June at 02:54 am local time. The release of flood waters, roughly the amount held in the Great Salt Lake in Utah, has had a catastrophic impact on all lands downstream. This is the same monitoring system that is referenced in The Paris Contagion. Check out the [story from NPR](#).

While Colorado continues to have an abnormally cool and wet spring (this is the wettest June on record), following an unusually wet and cold winter, other parts of the world are suffering under the heat of continued drought. This is evident in the horrible fires blanketing Canada and the resultant impact on air quality in the US. Scientists are hard-pressed to find a cause for this anomalous spring. So they are left with warm conditions and lack of precipitation and careless humans as a cause for the devastating wildfires. See more from [Nature](#).

Photo of the Month - The Orion Bar within the Orion Nebula



Images taken by the Webb telescope show a part of the Orion Nebula known as the Orion Bar, where UV light interacts with dense clouds of molecules. (ESA/Webb/NASA/CSA)

The James Webb Space Telescope captured these detailed images from the Orion Bar and detected intense UV radiation interacting with organic molecules within the nebula. The small protoplanetary disk shown in the lower right has a ring of organic chemicals in it. This shows that UV radiation plays a significant role in the generation of the precursors of life. See more in the [CNN article](#).

In Memoriam - John B. Goodenough, 100

Dr. Goodenough won the 2019 Nobel Prize for Chemistry for development of the lithium-ion battery. Light-weight, rechargeable, these amazing batteries power the vast majority of our technology today. Dr. Goodenough died on Sunday, 25 June 2023. [Read more](#).

Historical Foundations - Renate Loll, Physicist

Dr. Loll's work is at the frontier of modern cosmology. This area of study is highly theoretical and includes a diverse band of theoreticians who argue over what holds our universe together. Dr. Loll is working on a radically new theory of quantum gravity - taking the tenets of the Theory of Relativity (that gravity is the product of deformation of the fabric of spacetime) and combining it with the uncertainty principle (that we never really know the position of any subatomic particle at any time) of Quantum Mechanics. We live in a four dimensional universe — made up of three dimensions of space and time. To this Loll has stated that the fabric of spacetime is the product of a multitude of geometries from three ingredients — geometry of spacetime, quantum theory and causality. What's really mind bending about her ideas is the idea that causes come before effects. Think about that on a night you are having trouble sleeping. See the full article in [Quanta Magazine](#).

Book of the Month - *Seeing Further* by Bill Bryson

Though this book is 13 years old, it is an amazing journey through the history of the Royal Society. With

contributions from numerous other scientists, Bryson explores a multitude of personalities, discoveries and feuds as he explores modern science.

[Seeing Further](#) is available on Amazon.

Minutiae

Next month I'll have photos from the conference and a summary of how it went. I'm not good at self-promotion but that's what this conference is all about. Get out there and sell your books. More soon.

Be kind.



keep being curious

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