Ode to E Pluribus Unum for Sunday June 16 2024

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Visualization: A Black Hole Accretion Disk

Visualization Credit: NASA's Goddard Space Flight Center, Jeremy Schnittman

What would it look like to circle a black hole? If the black hole was surrounded by a swirling disk of glowing and accreting gas, then the great gravity of the black hole would deflect light emitted by the disk to make it look very unusual.

The featured animated video gives a visualization.

The video starts with you, the observer, looking toward the black hole from just above the plane of the accretion disk. Surrounding the central black hole is a thin circular image of the orbiting disk that marks the position of the photon sphere -- inside of which lies the black hole's event horizon.

Toward the left, parts of the large main image of the disk appear brighter as they move toward you. As the video continues, you loop over the black hole, soon looking down from the top, then passing through the disk plane on the far side, then returning to your original vantage point.

The accretion disk does some interesting image inversions -- but never appears flat. Visualizations such as this are particularly relevant today as black holes are being imaged in unprecedented detail by the Event Horizon Telescope.

https://youtu.be/l36UkYtq6m0

Salsipuedes

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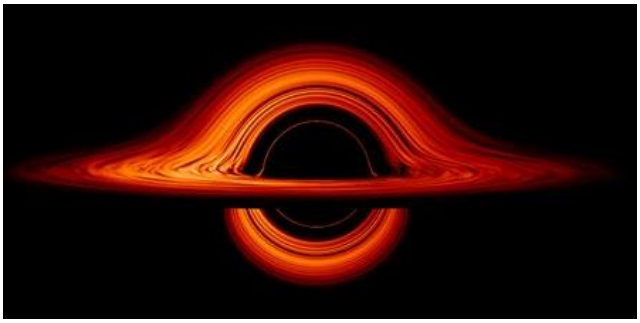
NASA Simulation's Plunge into a Black Hole: Explained



NASA Goddard

When it comes to navigating one of these monsters, taking a virtual journey makes a lot of sense.

https://youtu.be/chhcwk4-esM

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Could 'Glitch' in Relativity Rewrite the Rules of the Universe?

An artist's rending of the moment an observer crosses a black hole's event horizon.
(Image credit: NASA's Goddard Space Flight Center/J. Schnittman and B. Powell)

First formulated by Albert Einstein in 1915, the theory of general relativity remains our best and most accurate understanding of how gravity works on medium to large scales.

Yet, zoom out even farther to view enormous groups of gravitationally bound galaxies interacting, and some inconsistencies appear to emerge. This suggests that gravity, which is theorized to be a constant across all times and scales, could actually become slightly weaker at cosmic distances.

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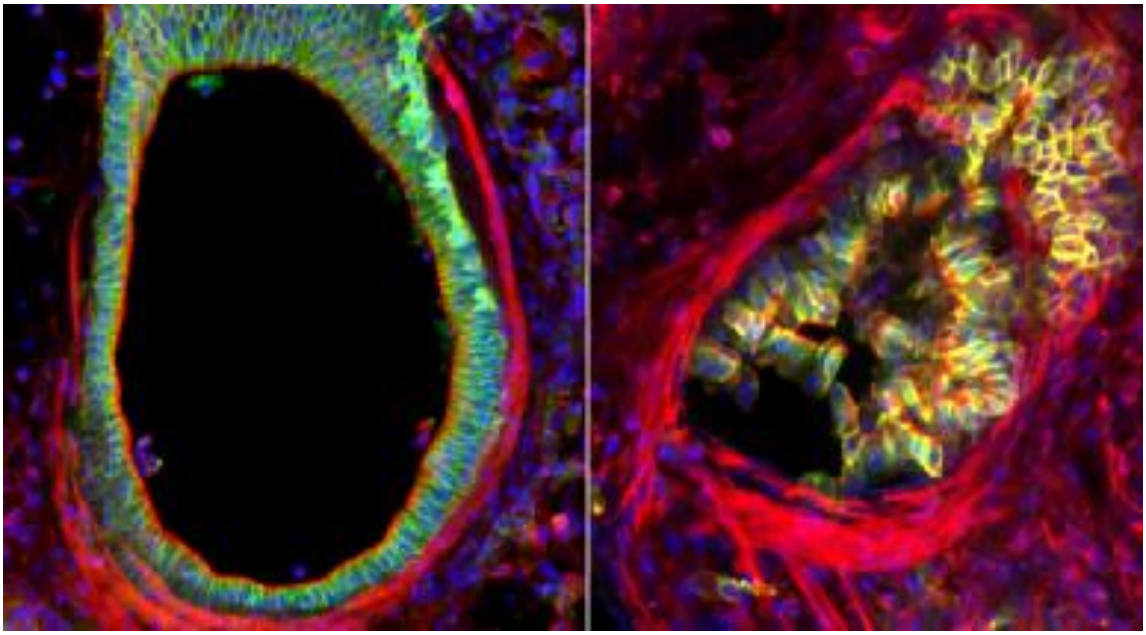
Chronic Asthma Could be Caused by Cell Overcrowded Airways



These images show how an asthma attack can affect the airways. In the left image, mouse

epithelial tissue (greenish-yellow) lining the lung is fully open but collapses (right) once treated with a drug known to narrow the airways. The constriction can lead to the tissue jettisoning epithelial cells, new research shows.
Dustin Bagley

Treatments have targeted the symptoms of the lung disease, not the cause

Despite a wealth of available treatments to control the symptoms of chronic asthma, the lung disease has no cure. The discovery of an unexpected cause of asthma could change that.

A glitch in the mechanical process that drives normal turnover of epithelial cells lining the lungs could be to blame, researchers report in the April 5 Science. Better understanding of this physical force underpinning chronic asthma attacks might lead to new ways of combating the disease.

https://bit.ly/3QN5LkT

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Absent Since 1943, Pelicans Are Nesting on Great Salt Lake Island

Photo courtesy of utah's division of wildlife resources

In 2014, the DWR began efforts to place transmitters on these pelicans, conducting annual surveys to monitor populations that use the Great Salt Lake during spring and fall migrations. It was on April 29 of this year that biologists confirmed that the pelicans were again nesting at Hat Island.

Monitoring surveys for this season are still ongoing, and pelicans are continuing to arrive at their nesting colonies, so the DWR doesn't yet have a final tally of how many pelicans have returned this year. However, initial estimates show 800 birds on Gunnison Island, and about 1,300 on Hat Island.

https://bit.ly/3UL110c

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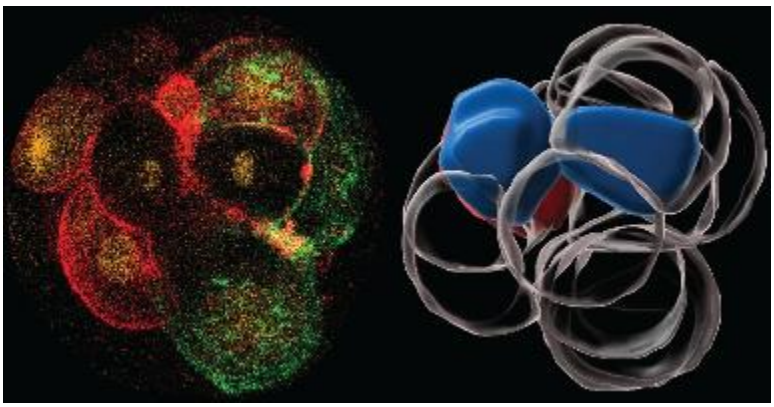
Human Embryos Embrace Asymmetry to Form the Body

The cells generated by the very first division of the fertilized egg make a lopsided contribution to the body's organs and tissues.



A living human embryo (left) is shown at the eight-cell stage, when it is already undergoing asymmetric cell division (asymmetric cell division in blue, right; artist's illustration).
Credit: Sergi Junyent

The two cells that make up a one-day-old human embryo might look identical at first glance. But a study published May 15 shows that most of the human body forms from only one of those cells. The work shows that the very first division of a fertilized egg primes the resulting cells to seek different fates, paving the way for the intricacies of the fully developed fetus.

https://bit.ly/3V0DARQ

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Energy Storage 10 Times Cheaper Than Lithium-Ion Batteries?

Fourth Power's energy-storing technology is a winner in Fast Company's 2024 World Changing Ideas Awards.

[Photo: Fourth Power]

Inside a lab near Boston, big blocks of carbon—each six feet long, two feet tall, and weighing more than a ton—will soon be stacked into a system that will heat them up to a glowing-hot 4,350 degrees Fahrenheit. It's a demo of new technology designed to dramatically cut the cost of storing renewable energy.

"Our battery is going to be cheaper than new natural gas," says Arvin Ganesan, CEO of Fourth Power, the startup behind the tech.

Right now, though lithium-ion batteries have dropped in price, they're still expensive enough that they don't work well for long-term energy storage. Fourth Power's new technology could be 10 times cheaper and can store power for as long as a month. It's the winner in the energy category for Fast Company's 2024 World Changing Ideas Awards.

Cheaper energy storage is key to making the transition to a fully clean electric grid, since solar and wind power aren't always available. The challenge is exacerbated by the fact that the demand for energy is quickly growing, for everything from AI and bitcoin to electric cars and heat pumps.

The new tech, invented by MIT professor Asegun Henry, is designed to tap into excess renewable energy. (In California, it could run on extra solar power in the middle of the day; in Iowa, it could run on extra wind power.) That energy heats up liquid tin, which flows down carbon pipes to heat up the blocks. When the grid needs electricity again, the system generates it using special solar panels that run on the white-hot light from the pipes rather than sunshine. Because the system was designed for durability, the team expects it to last for three decades—far longer than lithium-ion batteries, which quickly degrade.

All of the components have been proven in the lab. The company's demonstration plant, under construction now, could be running by 2026. After the demo, scaling up

the modular plants should be straightforward, says Ganesan, who left a job at Apple to help the startup make its technology a reality. "We're at an inflection point for the grid," he says. "We have the tools in place to really start to make a dent in our greenhouse gas emissions. It's not just about interesting technology, but it's really how do you get it out there—how do you get scale."

By Adele Peters for Fast Company

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Filming Sharks

Cinematographer and Emmy Award winner Andy Brandy Casagrande is a conservationist and great white shark specialist.

Andy has helped produce, shoot and host numerous shows on Discovery's Shark Week. He has contributed to countless research expeditions and continues to collaborate closely with the world's top shark scientists and technologies. In this quick-fire Behind the Lens interview, we chat to him about the future of shark documentaries and more.

"Becoming a wildlife filmmaker happened completely by accident. I was living in South Africa working for the White Shark Trust as

a research cameraman when National Geographic came to make a documentary about our work. They offered me a staff job and the rest is history."

https://oceanographicmagazine.com/features/andy-brandy-casagrande-filming-sharks/

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Humans Could Live Underwater by 2027 in this Subsea Habitat

Courtesy of Deep

The first step in making humans aquatic lies in DEEP's flagship technology: the Sentinel System, a modular subsea habitat that can be scaled to accommodate dozens of humans — something like an International Space Station of the sea. The sleek, futuristic system would enable researchers to live and work on the ocean floor at a maximum depth of 200 meters (656 feet) for 28-day stretches. The systems would have a service life of 20 years, and could be reconfigured and relocated without returning to the surface.

https://bit.ly/3QKDD1R

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Mexico's First Michelin Star Eateries: They Include CDMX Hotspots and Tiny Taco Stand

victorfotomx / Los Danzantes / Michelin Guide

For the first time, Michelin brought its acclaimed restaurant guide to Mexico, honoring two restaurants with two Michelin stars and 16 with one. In its "long-awaited" guide, the company also announced six green stars for sustainable eateries and 42 Bib Gourmands, which recognize good food at moderate prices.

Among the recently minted restaurants, you'll find famed Mexico City hotspots like Pujol and Quintonil, and an iconic taco stand that's been around for decades. The list also features spots in other locales across the country, from Oaxaca to Baja California and Quintana Roo.

"My team of inspectors have eagerly embraced all the flavors this unique destination has to offer," Gwendal Poullennec, the international director of the Michelin Guide, said in a previous statement, adding, "Mexico has a wealth of intriguing and impressive dining options and passionate culinary talent." Take a look at the full list of starry spots.

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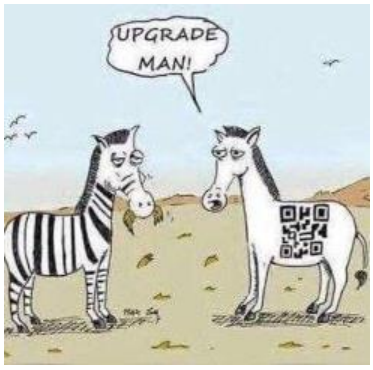

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AI Predicts the Structure of Every Protein in the Universe

AI-powered structural biology software, AlphaFold, models how proteins fold.
(Image credit: Christoph Burgstedt/Science Photo Library via Getty Images)

AlphaFold3 uses AI to helps scientists more accurately predict how proteins interact with other biological molecules.

https://bit.ly/44VHz5L

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And the Winning National Championship Air Racing Host City Is...

Roswell Air Center, new home of the National Championship Air Races, starting in 2025.

…the Roswell Air Center airport (KROW), a former military airfield about five miles outside of town. The 5,000-acre airport is widely known as a storage facility (aka "boneyard") for retired airliners and other aircraft.

Among the reasons for choosing Roswell over the other two finalists, Casper, Wyoming, and Pueblo, Colorado, was the range of side attractions nearby, such as the Mescalero Sand Dunes, the Walker Aviation Museum located onsite at KROW, the Spring River Zoo, Carlsbad Caverns and of course the city of Roswell itself, famous for its connection to the history of investigating unidentified flying objects. An annual UFO Festival is held in Roswell in early July.

By Mark Phelps, a senior editor at AVweb.

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Why Is This Basic Computer Science Problem So Hard?

Nan Cao for Quanta Magazine

How can a programmer ensure a critical piece of software is bug-free? Theoretical computer scientists use a fundamental question called the reachability problem, which determines whether a computer will reach or avoid various dangerous states when running a program. To better understand the complexity of the problem, researchers turned to a mathematical tool called vector addition systems. In a series of recent breakthroughs, computer scientists have now determined that the complexity of the reachability problem for vector addition systems is defined by a famous function called the Ackermann function, which becomes extremely complex even with small inputs.

https://youtu.be/IzSs_gJDVzI

The full article for links to papers:

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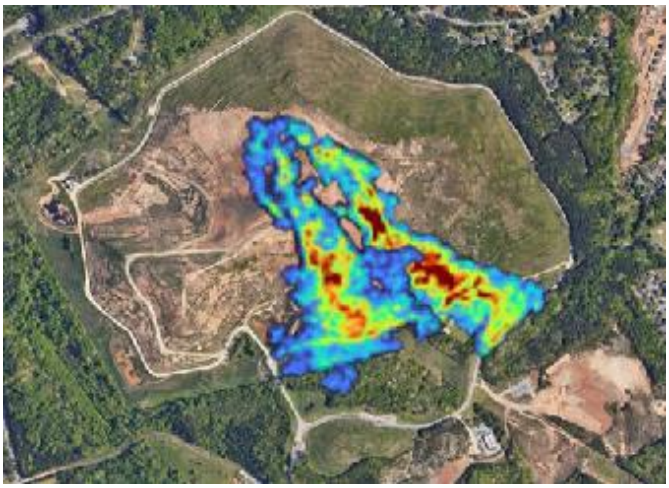
Are Landfills Worse Greenhouse Gas Culprits Than We Thought?



Methane plumes observed by Carbon Mapper during aerial surveys at a landfill in Georgia. Credit: Carbon Mapper

When it comes to methane emissions, stop blaming cows—blame trash. Landfills emit the greenhouse gas at almost three times the rate previously reported to federal regulators, according to a new study published in Science.

Using a new technology called imaging spectrometers, scientists collected data from 20% of the largest landfills in the US by flying over them and measuring the concentration of methane in the air. Previous estimates of methane emissions were based mostly on computer models, not real data, because of the dangers of manually measuring emissions, which required workers to walk around active dump sites with handheld sensors.

The new study found that over half the landfills tested were emissions hotspots known as methane plumes.

The scientist who led the study, Dan Cusworth, said that plumes can form when decades' worth of decomposing trash, which scientists call "garbage lasagna," sits in the landfills.

Big picture: Methane has 80 times the warming capacity of carbon dioxide in the short term. Most climate change policies that target methane emissions focus primarily on the oil and gas industry, but the scientists behind the study argue that their data proves landfills should also be considered. "Even if we transition to cleaner fuels, we're still going to be dealing with waste management," Cusworth said.—CC

My mentor on landfill gas emissions, Ode member and UCLA professor Eugene Tseng, is among the world's leaders in dealing with the issue. His solutions involve the interception and treatment of organic wastes at material recovery facilities through a variety of advanced gasification methods.

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Adages and Recognitions for a Sunny Sunday

The ability to speak several languages is an asset, but the ability to keep your mouth shut in any language is priceless.

Be decisive. Right or wrong, make a decision. The road is paved with flat squirrels who couldn't make a decision.

When I get a headache, I take two aspirin and keep away from children just like the bottle says.

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Once-in-an-Eon Event that Gave Earth Plants Has Happened Again

The first-ever nitrogen-fixing organelle in a eukaryotic cell has been confirmed.

The marine alga Braarudosphaera bigelowii has a hitchhiker in the form of bacterium UCYN-A, which has evolved to become an organelle (arrow) within the algal cell.
Image credit: Tyler Coale/UCSC

A marine bacterium was subsumed into its algal host organism, co-evolving with it for long enough that it can now be considered an organelle, part of the alga's cellular machinery. That means these algae are the first eukaryotes (organisms with their DNA in a membrane-bound nucleus) known to contain an organelle capable of fixing nitrogen.

https://bit.ly/3UkFlYL

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Cortes Bank's Surfing Waves 100 Miles Out from San Diego

Philip Thurston/stock

For big wave surfers, 20- to 30-foot peaks are standard fare. At Cortes Bank, the summit of an underwater mountain around 100 miles due west of San Diego where waves can reach around 10 stories high — making it a highly coveted yet highly perilous spot to shred.

https://bit.ly/44pzUMH

Even if you've never even though of surfing you need to look at these videos. Kawa-thundering-bungas.

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Your Flame-Throwing Robot Dog for Under $10,000

techeblog.com

Thermonator, the first "flamethrower-wielding robot dog," is completely legal in 48 US states.

lamethrowers are not specifically regulated in 48 US states, although general product liability and criminal laws may still apply to their use and sale. They are not considered firearms by federal agencies. Specific restrictions exist in Maryland, where flamethrowers require a Federal Firearms License to own, and California, where the range of flamethrowers cannot exceed 10 feet.

https://bit.ly/3w46reH

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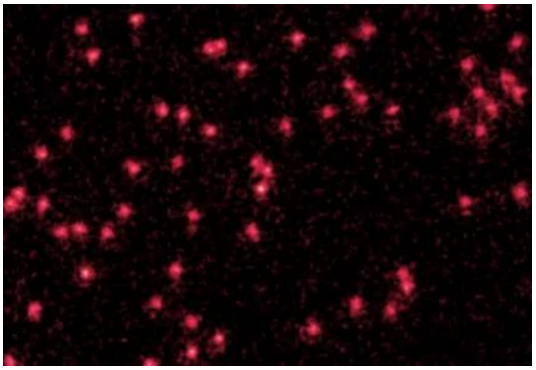
Image Shows Atoms Transforming into Quantum Waves

Could Schrödinger's cat have been a hot curl surfer dude?



The image shows Lithium atoms cooled to near absolute zero appearing as red dots on the image. By combining several of these images, the authors were able to observe atoms behaving like waves a stunning demonstration of the idea that atoms exist as both particles and waves — one of the cornerstones of quantum mechanics. .
(Image credit: Verstraten et al.)

A new imaging technique, which captured frozen lithium atoms transforming into quantum waves, could be used to probe some of the most poorly understood aspects of the quantum world.

https://bit.ly/3UpPV0H

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All-Electric US Hospital to Open in Southern California Next Year

CO Architects

The University of California, Irvine is preparing to open the nation's first all-electric, zero-emission hospital, a major milestone for the resource-reliant health care industry.

The mission of sustainability is reflected in the "biophilic" building designs from CO Architects, which aims to portray the hospital as "a symbolic bridge between busy urbanscape and untouched nature."

https://bit.ly/3WJ3GdJ

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The Social Benefits of Getting Our Brains in Sync

A growing body of research is showing how neural activity can sync up among multiple people, resulting in better social and creative outcomes.
Iker Ayestaran for Quanta Magazine

Our brain waves can align when we work and play closely together. The phenomenon, known as interbrain synchrony, suggests that collaboration is biological.

Dozens of recent experiments studying the brain activity of people performing and working together — duetting pianists, card players, teachers and students, jigsaw puzzlers and others — show that their brain waves can align in a phenomenon known as interpersonal neural synchronization, also known as interbrain synchrony.

Humans, like other social animals, have a propensity to sync their behaviors. If you walk next to someone, you will likely begin walking in step. If two people sit alongside one another in rocking chairs, chances are they will start rocking at a similar pace.

Such behavioral synchrony, research shows, makes us more trusting, helps us bond and turns up our sociable instincts.

https://bit.ly/3VExKqb

I suspect this is the basis for close order drill in the military.

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Poetry Corner

Lewis Carroll (1832-1888)

biographieonline

Charles Lutwidge Dodgson, better known by his pseudonym, Lewis Carroll, is remembered for his iconic children's fiction such as Alice's Adventures in Wonderland and Through the Looking-Glass. He explored the genre of literary nonsense with his poems such as Jabberwocky. He was also a photographer, a mathematician, and an inventor.

As a boy, Carroll excelled in mathematics and won many academic prizes. At age 20, he was awarded a studentship (called a scholarship in other colleges) to Christ College. Apart from serving as a lecturer in mathematics, he wrote essays, political pamphlets and poetry. "The Hunting of the Snark" displays his wonderful ability in the genre of literary nonsense.

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The Hunting of the Snark

Fit the First
The Landing

"Just the place for a Snark!" the Bellman cried,
As he landed his crew with care;
Supporting each man on the top of the tide
By a finger entwined in his hair.

"Just the place for a Snark! I have said it twice:
That alone should encourage the crew.
Just the place for a Snark! I have said it thrice:
What I tell you three times is true."

The crew was complete: it included a Boots—
  A maker of Bonnets and Hoods—
A Barrister, brought to arrange their disputes—
  And a Broker, to value their goods.

A Billiard-marker, whose skill was immense,
  Might perhaps have won more than his share—
But a Banker, engaged at enormous expense,
  Had the whole of their cash in his care.

There was also a Beaver, that paced on the deck,
  Or would sit making lace in the bow:
And had often (the Bellman said) saved them from wreck,
  Though none of the sailors knew how.

There was one who was famed for the number of things
  He forgot when he entered the ship:
His umbrella, his watch, all his jewels and rings,
  And the clothes he had bought for the trip.

He had forty-two boxes, all carefully packed,
  With his name painted clearly on each:
But, since he omitted to mention the fact,
  They were all left behind on the beach.

The loss of his clothes hardly mattered, because
  He had seven coats on when he came,
With three pair of boots—but the worst of it was,
  He had wholly forgotten his name.

He would answer to "Hi!" or to any loud cry,
  Such as "Fry me!" or "Fritter my wig!"
To "What-you-may-call-um!" or "What-was-his-name!"
  But especially "Thing-um-a-jig!"

While, for those who preferred a more forcible word,

He had different names from these:
His intimate friends called him "Candle-ends,"
And his enemies "Toasted-cheese."

"His form is ungainly—his intellect small—"
(So the Bellman would often remark)
"But his courage is perfect! And that, after all,
Is the thing that one needs with a Snark."

He would joke with hænas, returning their stare
With an impudent wag of the head:
And he once went a walk, paw-in-paw, with a bear,
"Just to keep up its spirits," he said.

He came as a Baker: but owned, when too late—
And it drove the poor Bellman half-mad—
He could only bake Bride-cake—for which, I may state,
No materials were to be had.

The last of the crew needs especial remark,
Though he looked an incredible dunce:
He had just one idea—but, that one being "Snark,"
The good Bellman engaged him at once.

He came as a Butcher: but gravely declared,
When the ship had been sailing a week,
He could only kill Beavers. The Bellman looked scared,
And was almost too frightened to speak:

But at length he explained, in a tremulous tone,
There was only one Beaver on board;
And that was a tame one he had of his own,
Whose death would be deeply deplored.

The Beaver, who happened to hear the remark,
Protested, with tears in its eyes,
That not even the rapture of hunting the Snark

Could atone for that dismal surprise!

It strongly advised that the Butcher should be
Conveyed in a separate ship:
But the Bellman declared that would never agree
With the plans he had made for the trip:

Navigation was always a difficult art,
Though with only one ship and one bell:
And he feared he must really decline, for his part,
Undertaking another as well.

The Beaver's best course was, no doubt, to procure
A second-hand dagger-proof coat—
So the Baker advised it—and next, to insure
Its life in some Office of note:

This the Banker suggested, and offered for hire
(On moderate terms), or for sale,
Two excellent Policies, one Against Fire,
And one Against Damage From Hail.

Yet still, ever after that sorrowful day,
Whenever the Butcher was by,
The Beaver kept looking the opposite way,
And appeared unaccountably shy.

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The Walrus and the Carpenter'.

The sun was shining on the sea,
Shining with all his might:
He did his very best to make
The billows smooth and bright —
And this was odd, because it was
The middle of the night.

The moon was shining sulkily,
Because she thought the sun
Had got no business to be there
After the day was done —
‘It’s very rude of him,’ she said,
‘To come and spoil the fun.’

The sea was wet as wet could be,
The sands were dry as dry.
You could not see a cloud, because
No cloud was in the sky:
No birds were flying overhead —
There were no birds to fly.

The Walrus and the Carpenter
Were walking close at hand;
They wept like anything to see
Such quantities of sand:
‘If this were only cleared away,’
They said, ‘it would be grand!’

‘If seven maids with seven mops
Swept it for half a year,
Do you suppose,’ the Walrus said,
‘That they could get it clear?’
‘I doubt it,’ said the Carpenter,
And shed a bitter tear.

‘O Oysters, come and walk with us!’
The Walrus did beseech.
‘A pleasant walk, a pleasant talk,
Along the briny beach:
We cannot do with more than four,
To give a hand to each.’

The eldest Oyster looked at him,
But never a word he said:

The eldest Oyster winked his eye,
And shook his heavy head —
Meaning to say he did not choose
To leave the oyster-bed.

But four young Oysters hurried up,
All eager for the treat:
Their coats were brushed, their faces washed,
Their shoes were clean and neat —
And this was odd, because, you know,
They hadn't any feet.

Four other Oysters followed them,
And yet another four;
And thick and fast they came at last,
And more, and more, and more —
All hopping through the frothy waves,
And scrambling to the shore.

The Walrus and the Carpenter
Walked on a mile or so,
And then they rested on a rock
Conveniently low:
And all the little Oysters stood
And waited in a row.

'The time has come,' the Walrus said,
'To talk of many things:
Of shoes — and ships — and sealing-wax —
Of cabbages — and kings —
And why the sea is boiling hot —
And whether pigs have wings.'

'But wait a bit,' the Oysters cried,
'Before we have our chat;
For some of us are out of breath,
And all of us are fat!'

‘No hurry!’ said the Carpenter.
They thanked him much for that.

‘A loaf of bread,’ the Walrus said,
‘Is what we chiefly need:
Pepper and vinegar besides
Are very good indeed —
Now if you’re ready, Oysters dear,
We can begin to feed.’

‘But not on us!’ the Oysters cried,
Turning a little blue.
‘After such kindness, that would be
A dismal thing to do!’
‘The night is fine,’ the Walrus said.
‘Do you admire the view?

‘It was so kind of you to come!
And you are very nice!’
The Carpenter said nothing but
‘Cut us another slice:
I wish you were not quite so deaf —
I’ve had to ask you twice!’

‘It seems a shame,’ the Walrus said,
‘To play them such a trick,
After we’ve brought them out so far,
And made them trot so quick!’
The Carpenter said nothing but
‘The butter’s spread too thick!’

‘I weep for you,’ the Walrus said:
‘I deeply sympathize.’
With sobs and tears he sorted out
Those of the largest size,

Holding his pocket-handkerchief
Before his streaming eyes.

'O Oysters,' said the Carpenter,
'You've had a pleasant run!
Shall we be trotting home again?'
But answer came there none —
And this was scarcely odd, because
They'd eaten every one.

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Chords & Riffs

Alan Hovhaness (1911-2000)

3quarksdaily.com

Alan Hovhaness ranks among the most intrepid of musical explorers in 20th century classical music. He began to be a widely recorded and lauded American composer in the late 1950s and was the recipient of numerous awards. With his "world view" of music and an often chaste, consciously melodic style, he was ahead of his time aesthetically but has, since the 1990s, enjoyed something of a revival as audiences have 'caught up' with him.

There remains relatively modest scholarly commentary on Hovhaness despite the wealth of radical individuality in some phases of his six decades of creativity. This is somewhat surprising given that during the 1940s and 50s he was firmly entrenched within that maverick group of American composers (others included Henry Cowell, Jonn Cage and Lou Harrison) who spearheaded one of the great shifts in 20th century American music, namely that of looking to non-Western cultures for creative renewal in art music. In addition, Hovhaness spearheaded quasi-aleatoric textural music as early as the 1940s, a technique which became known as 'ad libitum' in the 1960s.

The composer's huge output of more than 500-odd works was unusually diverse, prompting lively debate and opinion over the perceived merits of certain musical phases

over others. Like other 20th century restless creators, such as Villa Lobos and Henry Cowell to name but two, Hovhaness did not set out to write a polished masterpiece with every work. But as Leonard Bernstein remarked in 1960, "Some of Hovhaness's music is very, very good". Indeed, Hovhaness's best works stand shoulder-to-shoulder with those of America's most lauded composers, and many are more original if lesser known. But Hovhaness was an outsider by temperament and choice, his artistic credo somewhat impermeable to musical fashion and his aesthetic intent often more in sympathy with the Orient than Occident.

His biggest breakthrough till then came in 1955, when his Symphony No. 2, Mysterious Mountain, was premiered by Leopold Stokowski in his debut with the Houston Symphony, although the idea that Mysterious Mountain was commissioned for that orchestra is a common misconception. That same year, MGM Records released recordings of a number of his works. Between 1956 and 1958, at the urging of Howard Hanson, an admirer of his music, he taught summer sessions at the Eastman School of Music long presided over by Hanson.

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Concerto for Cello https://youtu.be/UmesPGCUdic
Mysterious Mountain https://youtu.be/zQZBrJmzsrc
And God Created Great Whales https://youtu.be/b1M0R_IiW2I
Mount St. Helens https://youtu.be/GJ9A5tn-9RE

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My first encounter with Alan Hovhaness was his Concerto for Cello played by the Los Angeles Philharmonic in the late 1940s. I was perhaps 11 at the time and have been thereafter a fan of his music. For years it seemed that only the composer and I were captivated but after his death at the beginning of the century the worm began to turn, and critics today are more appreciative of his work. I'd like your opinion.

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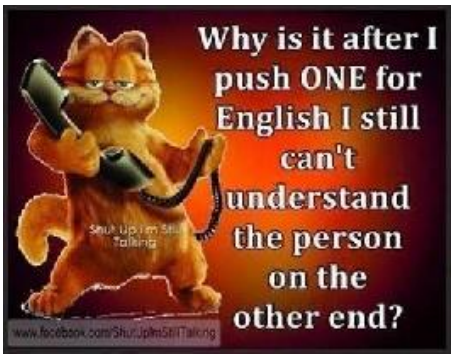

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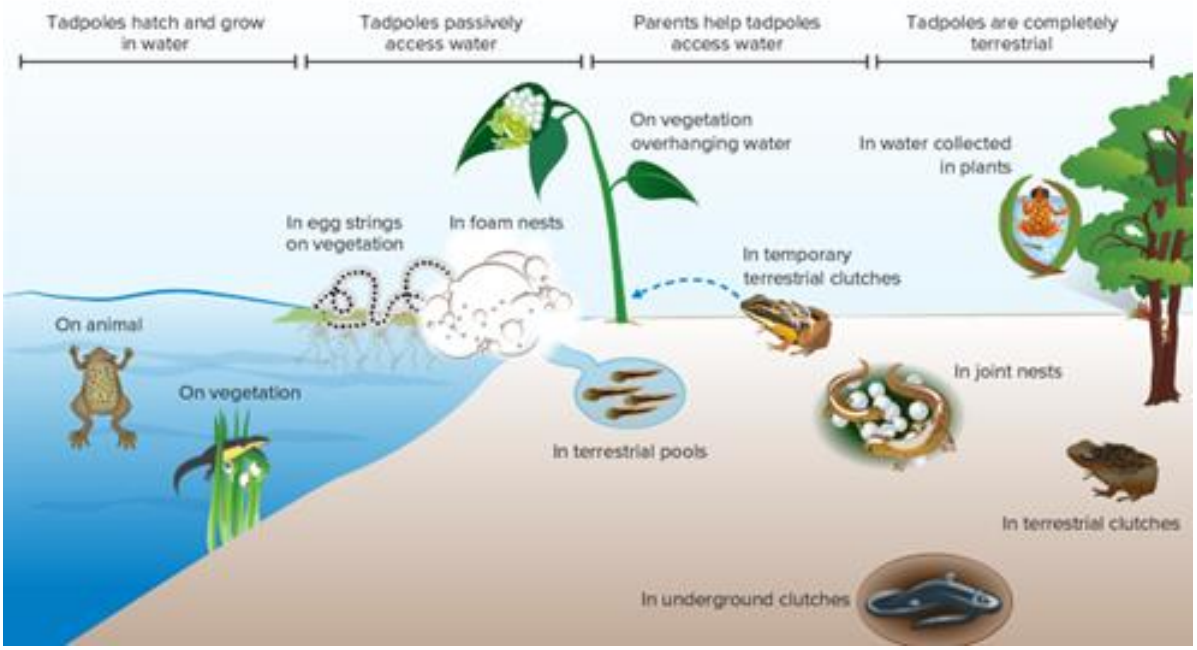
The Tender Art of Tadpole Parenting



Amphibians have evolved a wide variety of parental care behaviors both in the water and on land.
Knowable Magazine

From poison frogs to worm-like caecilians, some amphibians are hardworking and surprisingly creative caregivers

https://bit.ly/44zaNqO

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Victorian Illustrated Shakespeare Archive

' 'The Tempest Full Page Introductory Illustration' (1846
Michael John Goodman, The Victorian Illustrated Shakespeare Archive [1 February 2016].

How to Cite the Archive: General references to the archive should employ the following formula: Michael John Goodman, The Victorian Illustrated Shakespeare Archive [date accessed]. e.g. For a record of key illustrations to Howard Staunton's Complete Plays of Shakespeare (1865-67), see Michael John Goodman, The Victorian Illustrated Shakespeare Archive (VISA) [1 February 2016].

This Archive is indebted to the Database of Mid-Victorian Illustration and The Illustration Archive, directed by Prof. Julia Thomas

https://shakespeareillustration.org/

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27,000 Acres on California's Central Coast Protected in Perpetuity

The Land Conservancy of San Luis Obispo County
Facebook

Home to endangered species and over 250 exotic animals, a ranch in San Luis Obispo, California, will be protected in perpetuity after the land was entered into a conservation easement, blocking future development on 27,512 acres of property (an area nearly the size of San Francisco).

"Some people want to take from the land, but we are caretakers of it," co-owner Felicia Morrison told the San Luis Obispo Tribune of Camatta Ranch, which has been in her family for over 45 years. "How you take care of your children, you take care of the land."

The easement between Camatta Ranch and the Land Conservancy of San Luis Obispo County is the largest one the nonprofit has ever supported — and comes after the California Wildlife Conservation Board dedicated more than $10 million to preserve the area.

"It's an incredible landscape filled with rolling hills, green grass, oak woodlands, and really important wildlife habitat," said Land Conservancy Executive Director Kaila Dettman. "It's really, really exciting to protect something of this scale."

See more photos of Camatta Ranch and the family dedicated to preserving the land.

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OpenTable's Top 100 Brunch Restaurants in America for 2024

Brennan's – New Orleans, LA
Brennan's

When it comes to Mother's Day, many people can't wait to celebrate—cue the brunch bookings. To help make your celebration extra special, OpenTable has scanned diner metrics and over 14 million diner reviews to narrow down the restaurants where people rave about brunch. The result is our annual Top 100 Brunch Restaurants list, a collection of the top spots across the country for a memorable meal.

https://bit.ly/4bwiq3v

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How to Build 300,000 Airplanes in Five Years

B-25 bombers being assembled in North American Aviation's Inglewood, California factory, 1942
North American Aviation

One of the most important elements in the "Arsenal of Democracy" was aircraft. Over the course of the war the U.S. produced around 325,000 airplanes valued at roughly $46 billion ($800 billion in 2024 dollars). Not only is this more aircraft than what Germany, Japan, and Italy combined produced during the war — it's also more aircraft than have been built for commercial transport in the entire history of aviation.

https://bit.ly/45alEbc

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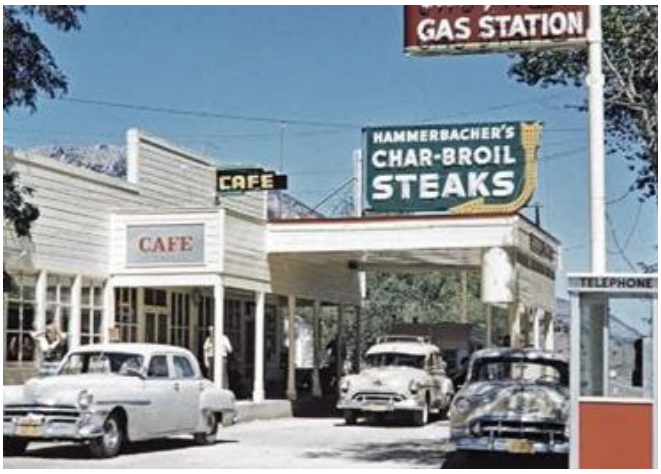
1950s & '60s American Road Trip



youtube

https://youtu.be/dEop35cLIbs

In 1957—five years before Route 66 on TV--Tom Schmidt and I drove a 1957 Corvette around the country…13,000 miles. Why didn't we become famous?

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Tonga Volcanic Eruption Wasn't Triggered by What We Thought

An aerial photograph of the Tonga volcano during the eruption in January 2022.
(Image credit: Maxar/Contributor via Getty Images)

Scientists think Tonga's record-breaking 2022 eruption was triggered by gas building up to a "critical point" rather than by a reaction between magma and seawater as previously assumed.

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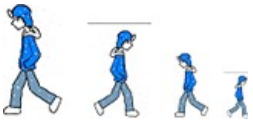
My Walking Thoughts



For Sunday June 16 2024

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Getting the Trojan's Takeoff Ducks in a Row

Ok, I made it to the throat of the runway without incident so all I had to do from there was call for takeoff clearance and be on my merry way, right?

Well not quite.

Now began the multiple tasks of making sure the bird was truly ready for flight and in this the T-28 made the T-34 and in fact every military jet I would eventually fly oh so simple by comparison.

Before even getting around to the takeoff checklist there was the small matter of making certain all the engine instruments were 'in the green,' which was to say:

- Oil temp 40 minimum, 70-90 normal 95 max, all in degrees centigrade.
- Oil pressure 65 min; 65-75 norm; 90 max, (in psi with which I was familiar).
- Fuel pressure 21-25 psi…(ditto).

Next came a few systems checks that while I don't expect you to be truly thrilled in their recitation, they became so emblazoned in my memory that I'm going to torture you with them anyway.

First off was the propeller check that begins with the prop control handle forward at Full Increase. Then you advance the throttle to achieve 1600 rpm. Now it is back to the prop lever again where you select Full Decrease that is supposed to lead to a drop of 400 rpm (It always did, which to this day is a constant source of amazement).

After that comes the supercharger check. Why? Because the Trojan is blessed with a two-stage blower, the Low for use up to about 12,000 feet and the High stage for from there up to the bird's service ceiling of 28,000 feet. This time starting with the prop

lever pushed forward to Full Increase and the manifold pressure (MAP) sufficient to achieve 1600 rpm, you move the blower handle forward to High, following which you advance the throttle to 30 inches MAP then return the blower handle to Low. It's a little like rowing a canoe in some rapids, but in this your focus is on the instruments where you look for a decrease in MAP. Got that?

Good since you're almost through all the monkey business…only once again, not quite.

It's now time for you to advance the throttle to the field barometric pressure—the one that ground control gave you along with your taxi clearance, remember?—and check your tachometer for 2250 rpm. It's the critical test of the magnetos where you start by adding throttle to achieve 2300 rpm and check for maximum drop of 75 rpm by killing in order Left mag, Right mag, and finally Both mags to insure you could totally disable the engine's ignition system in an emergency.

Finally once back to idle again it's time for you to perform the Takeoff Checklist: (Ta..Ta..Ta…DAH.)

- Tabs 0, 0, 5 degrees Right Rudder
- Wing flaps UP
- Canopy Fully Closed
- Fuel Shutoff ON; Fuel Pressure OK, tanks FULL. Boost Circuit Breakers IN
- Blower LOW
- Propeller FULL INCREASE
- Mixture RICH
- Harness Tight and LOCKED
- Cowl and oil cooler flaps ¼ OPEN

If you're smart you know better than to memorize checklists, though I could recite every one of them in my sleep, but the point here is that you want to go through them item by item, touching or eyeballing each one in turn. In this case I was pushing the Mixture handle to its RICH stop when Lieutenant Winans voice assaulted me over the intercom.

"You still awake up there, Trotti?" I finished checking the last two items on the list before saying, "Yes, sir. Ready to go."

"Call tower for takeoff and let's get the show on the road before sunset."

"Roger that, sir."

Switching to Comm Chanel Two, I announced in the best Smilin' Jack approximation, "South Whiting Tower, Two Whiskey 284 ready for takeoff."

Somehow it all came out without a squeak.

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Another Look at Leadership

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4 Leadership Principles That Drive Company Culture

This tech cofounder and CEO calls them the "Four I's"—instinct, integrity, intensity, and inclusion. Here's how to cultivate the values they stand for.

tech.uci.edu

There is a quote from leadership and company culture expert Larry Senn that says, "Culture is not an initiative. Culture is the enabler of all initiatives." I couldn't agree more.

At our startup, the values behind our culture fuel and inspire everything we do—from empowering customers with our technology to how we problem-solve and interact with one another. We refer to them as the "Four I's": instinct, integrity, intensity, and inclusion.

Each of these words holds a lesson and contributes to our company culture in a specific way. No two company cultures are exactly alike, but there's something to be learned from each of them.

Here's more on the "Four I's"—and how to cultivate the leadership values they stand for:

Instinct

In both life and business, we can never expect prospects to come out and directly state their problems; it is up to us as individuals to hone our instincts to anticipate what those problems are. This is an especially critical skill for business leaders: Competition is fierce, new products and services emerge daily, and customers are not fully aware of the scope of their problems (or what they will be in the near future).

I learned this early during my initial entrepreneurial experiences, where I would constantly sweat the details instead of taking the plunge. My wife, who has that gut instinct, encouraged me to take the risk and go "all in" before I had all of the details figured out, and that was the push I needed to find the way.

Developing these instincts requires time and experiencing both successes and failures as the result of one's decisions. While no two situations separated by time are the same, if leaders can ask hard questions and not fear the answers, they will be able to derive meaningful insights and strengthen their decision-making abilities. It is important not to take the easy way out and avoid asking these questions, or a fast-moving competitor could come up with a better solution.

Integrity

I learned early lessons about integrity from my father who was running a large business conglomerate and had the ability to drastically alter our standard of living if he was willing to compromise his values. He chose not to, and witnessing him pass up short-term gains for potential long-term regret was impactful.

As a business leader, upholding a high level of integrity is vital to maintaining trust with both customers and your team. Where leaders most often go astray is when they take shortcuts and get rewarded for it, usually in hypergrowth scenarios. This makes it seem permissible for them to repeat that behavior, which inevitably leads to their downfall at some point. As the saying goes, "you can fool some of the people all of the time, but you can't fool all the people all the time."

I've found that the best way to maintain a high standard of leadership integrity is to surround oneself with people who hold similar values and keep others accountable. My cofounder, for example, helps keep me honest about what our technology can and cannot do. (The last thing we ever want is for a customer to feel like we pulled a bait-and-switch, so we are exceedingly clear about the capabilities and limitations of our technology.) Additionally, leaders should always stay open to criticism. One way to do this is by always asking customers—even very satisfied customers—how their experience could have been better.

Intensity

Intensity is at the heart of every successful startup. There needs to be an intense sense of passion, urgency, and accountability to drive the company's mission. This often comes naturally in the early days, but it can be hard to sustain after several years of successfully meeting goals and milestones. It is grueling, both emotionally and physically, not just for us as individuals, but also for our families to go through these experiences.

This is why it is so important for leaders to continually challenge their teams to keep them engaged. We are constantly pushing ourselves to achieve higher performance, more ease of use, and to pursue exciting opportunities that emerge—without overextending our team. Leaders should always stay curious and open to new opportunities, and draw on inspiration from customers that are thriving as a result of their solutions.

Inclusion

It can be easy for businesses to fall into the trap of only hiring people they know. But companies are doing themselves and their employees a big disservice by failing to source from a larger and more diverse talent pool. Prioritizing inclusion is critical for diversity of thought and pushing the boundaries of what's possible. Hiring people with similar backgrounds limits companies to only linear growth; hiring from diverse backgrounds enables exponential growth.

The value of company culture that embraces inclusion extends beyond just hiring: It is also about engaging with the larger community to gain perspectives around the types of challenges they are facing. For example, 22 million U.S. seniors don't have access to broadband internet. Some years ago, I became involved with the technology committee in my community, and we have made it our mission to make sure everybody in town has access to at least two internet service providers at a reasonable cost. To me, inclusivity is about considering the "greater good" and not just catering to the people you can relate to.

Final Thoughts on Leadership and Company Culture

Though every company's culture is different, all organizations can benefit from strengthening the values behind the "Four I's". Today's business landscape is challenging: Competition is at an all-time high, talent can be hard to come by, and retention is something many organizations are struggling with. Having a strong, healthy company culture can mitigate these challenges and should be at the top of every leader's list of priorities.

By Ameesh Divatia for Fast Company

Ameesh Divatia is cofounder and CEO of Baffle, Inc., the easiest way to protect sensitive data. He has a proven track record of turning technologies that are difficult to build into successful businesses in the service provider and enterprise data center infrastructure markets, with three companies acquired for more than $425 million combined.

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