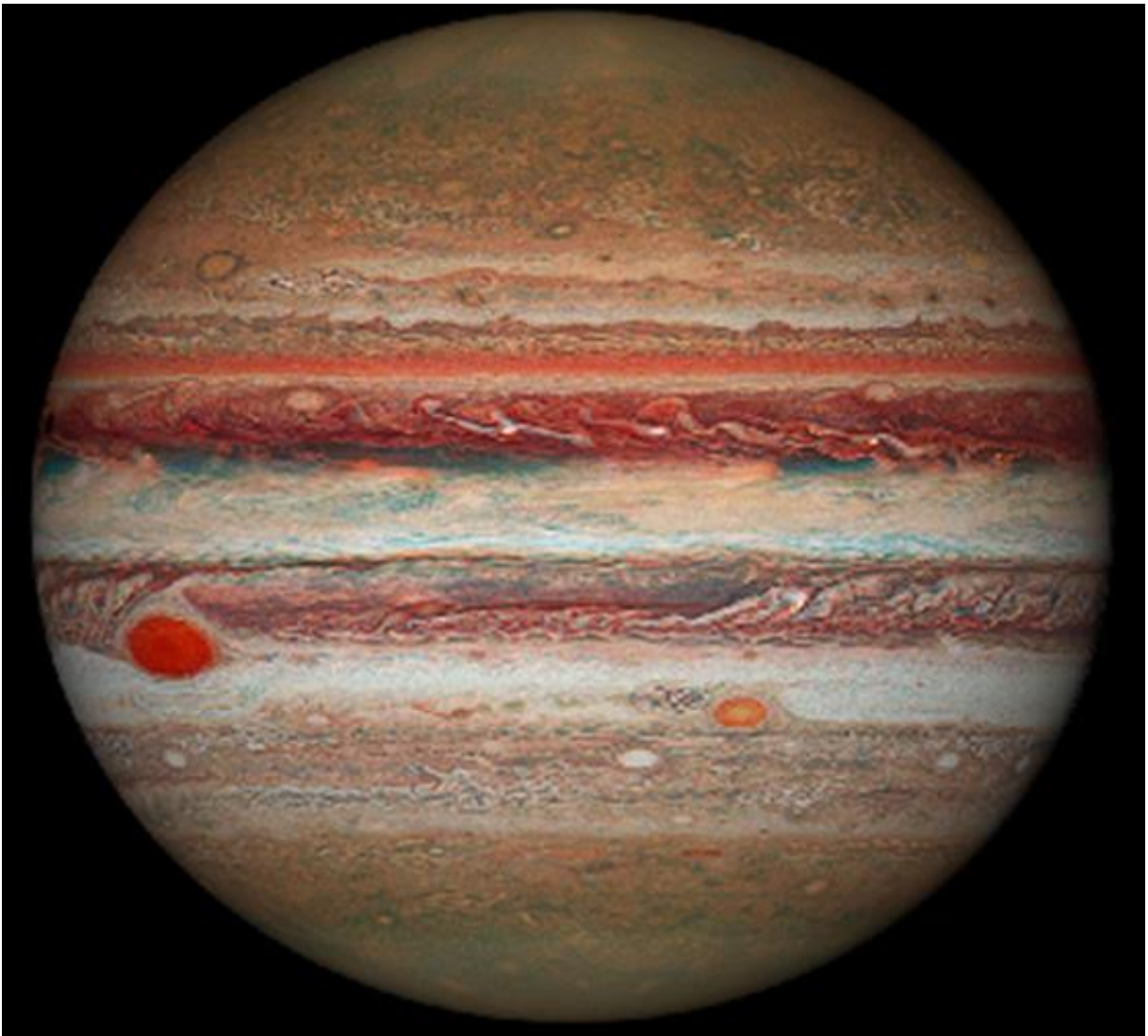


Ode to E Pluribus Unum for Sunday January 23 2022



## Hubble's Jupiter and the Shrinking Great Red Spot



*Image Credit: NASA, ESA, Hubble, OPAL Program, STScI; Processing: Karol Masztalerz*

What will become of Jupiter's Great Red Spot? Gas giant Jupiter is the solar system's largest world with about 320 times the mass of planet Earth. Jupiter is home to one of the largest and longest lasting storm systems known, the Great Red Spot (GRS), visible to the left.

The GRS is so large it could swallow Earth, although it has been shrinking. Comparison with historical notes indicate that the storm spans only about one third of the exposed surface area it had 150 years ago.

NASA's Outer Planets Atmospheres Legacy (OPAL) program has been monitoring the storm more recently using the Hubble Space Telescope.

The featured Hubble OPAL image shows Jupiter as it appeared in 2016, processed in a way that makes red hues appear quite vibrant.

Modern GRS data indicate that the storm continues to constrict its surface area, but is also becoming slightly taller, vertically.

No one knows the future of the GRS, including the possibility that if the shrinking trend continues, the GRS might one day even do what smaller spots on Jupiter have done -- disappear completely.

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## **The Algorithm that Transformed the World**

The story of Nasir Ahmed

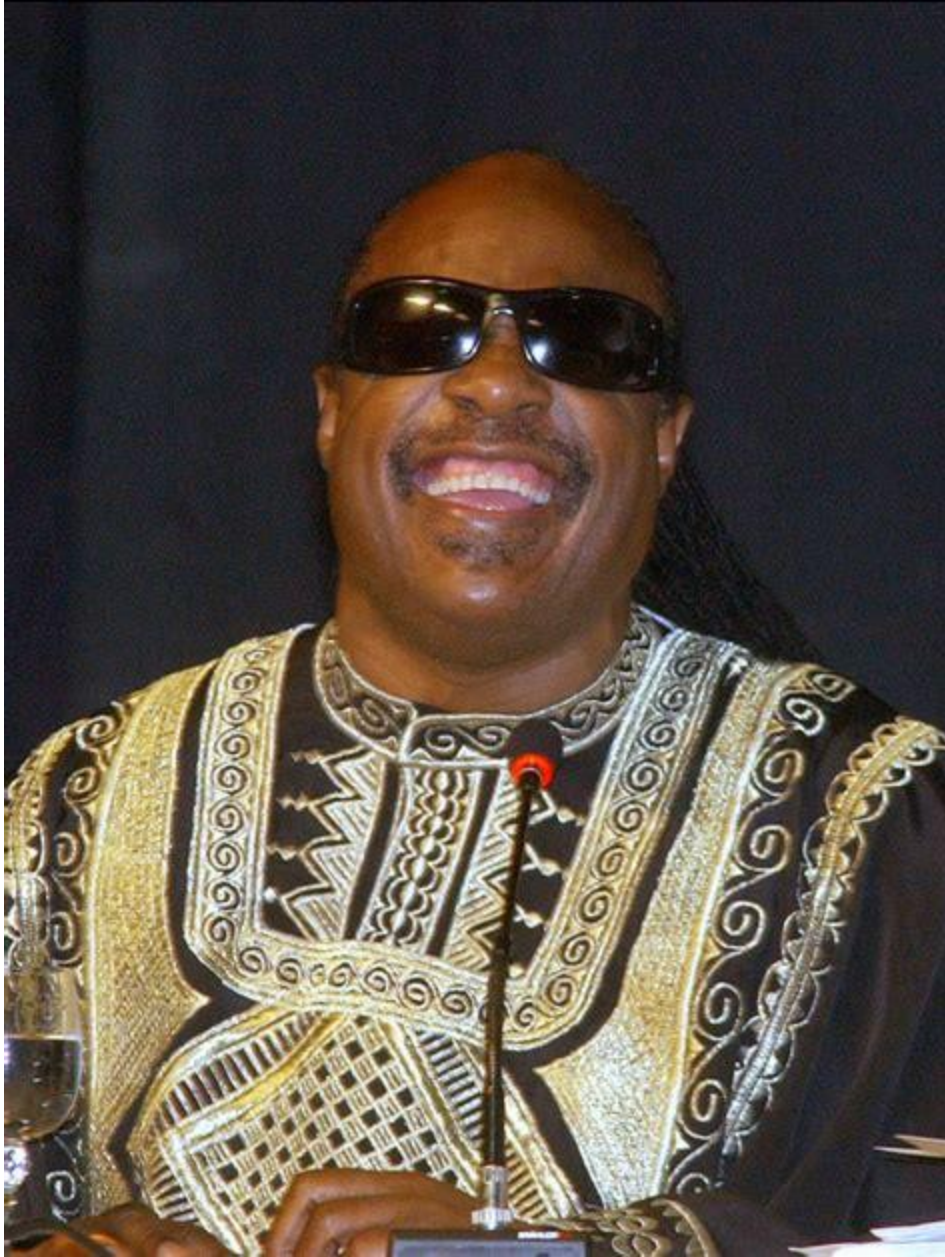


<https://www.youtube.com/watch?v=I9VXaVVs7WY>

The data compression routine he pioneered in 1961 became mainline during the pandemic. Think Zoom and its cousins.

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## **Stevie Wonder**



Stevie Wonder, is an American singer, songwriter, musician and record producer. Wonder is credited as a pioneer and influence by musicians across a range of genres that includes rhythm and blues, pop, soul, gospel, funk, and jazz. A virtual one-man band, his use of synthesizers and other electronic musical instruments during the 1970s reshaped the conventions of R&B.

Blind since shortly after his birth, Wonder was a child prodigy who signed with Motown's Tamla label at the age of 11, where he was given the professional name Little Stevie Wonder. In 1963, the single "Fingertips" was a number-one hit on the Billboard Hot 100 when Wonder was 13, making him the youngest artist ever to top the chart.

He has won 25 Grammy Awards (the most by a solo artist) and one Academy Award (Best Original Song, for the 1984 film The Woman in Red). Wonder has been inducted into the Rhythm and Blues Music Hall of Fame, Rock and Roll Hall of Fame and Songwriters Hall of Fame.

**Signed, Sealed, and Delivered** <https://youtu.be/pUj9frKY46E>

**You are the Sunshine of My Life** <https://youtu.be/yYj1DMHwFy4>

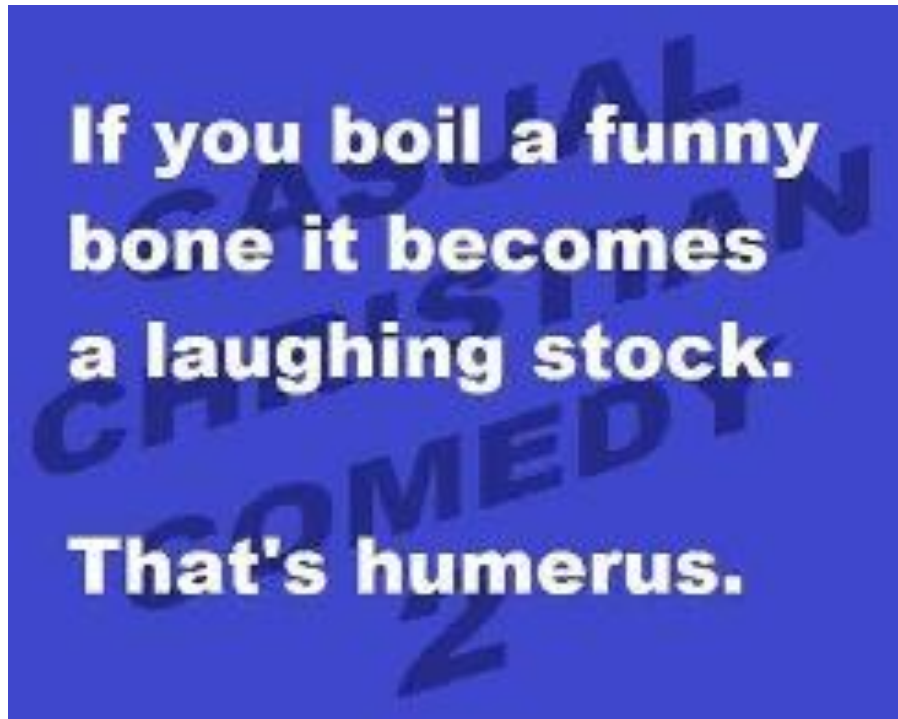
**Sir Duke** <https://youtu.be/6sIjSNTS7Fs>

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### **Djokovic O'puns! The Grand Slam:**

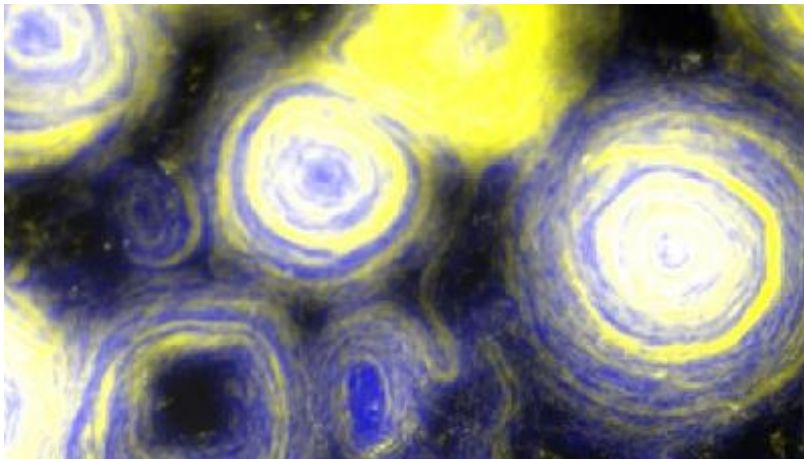
- ✚ The "Novak scene" created by the "no vaccine", has ended in everyone enjoying a poke at his expense. The D'joks are all on him.
- ✚ The Aussies have banged the door shut right in front of his face. They call it a Grand Slam!
- ✚ With Twenty won, he could have made it Twenty-One, but he will now have to kiss this chance goodbye. Clearly, a Grand Slam.
- ✚ By trying to preserve the (Mel)Bourne Identity and the (Mel)Bourne Supremacy, the Victorians have given him the (Mel)Bourne Ultimatum.
- ✚ The Aussies allege that "A Serb has turned acerb". "He has created a Balkanic eruption of sorts".
- ✚ One needs a lot of guts to create a racket and, when tension is increased, it becomes high strung.
- ✚ The flurry of exchanges that went on between the Balkan and Australian governments is called "Serb and volley".
- ✚ The Serbians allege that there is no match for Djokovic since there is no match for Djokovic. Either way, he is matchless.
- ✚ No one expected 'the one seed' to 'exceed' and become a "Tennis, the Menace".
- ✚ Someone overheard Djok saying "O my crown. Lost because of Omicron".
- ✚ And because he can't take to court, he has decided to go to court. He accuses them of 'vic' hunting.
- ✚ For Novak, the Australian Open has become Australian Close, whereas for me, it is Australian O'pun.

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### **Swarms of Mutant Bacteria Look Like Van Gogh's 'Starry Night'**



*(Image credit: D. Wall/University of Wyoming)*

A group of swarming bacteria just created strikingly artistic (and swirly) "paintings" that are reminiscent of the masterpieces by iconic Dutch painter Vincent van Gogh.

Microbiologists noticed the similarities while studying the social cooperation of predatory bacteria called *Myxococcus xanthus*.

Individuals in this species are known to form cooperative swarms, in which they share resources to help overwhelm their prey. The researchers were specifically studying a pair of proteins, TraA and TraB, that allow these microbes to recognize and bond with each other.

To do this, the team created mutated strains of *M. xanthus* that overexpressed the genes behind these proteins, to see how they would change, the scientists reported in a study published Dec. 7 in the journal mSystems.

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## **Robot Dogs are Finding Work in a Tight Labor Market**

Magdalena Petrova



*Electric and gas utility company, National Grid, uses a quadruped robot made by Boston Dynamics to do an inspection at one of its substations in Massachusetts.  
CNBC | Magdalena Petrova*

A number of four-legged robot dogs have been deployed in the workforce for applications like inspections, security and public safety among others. At their core, these four-legged robots are mobility platforms that can be equipped with different payloads depending on the type of information that companies want to gather.

<https://www.cnbc.com/2021/12/26/robotic-dogs-taking-on-jobs-in-security-inspection-and-public-safety-.html>

Competition in the four-legged robot market is heating up. In the U.S., Boston Dynamics has been developing its 70-pound Spot robot for about 10 years. Nearby, MIT has also been working on a smaller four-legged bot it calls "mini cheetah." Ghost Robotics in Philadelphia is making robots geared toward military applications, while abroad, Swiss-based Anybotics is making a four-legged robot it calls Anymal for industrial customers. And Chinese companies like Deep Robotics, Weilan and Unitree Robotics are all building their own versions, though these last two companies seem to be at least partially focusing on the personal robotics market.

According to Allied Market Research, the global inspection robots market generated \$940 million in 2020 and is expected to reach close to \$14 billion by 2030. Take for example National Grid, an electric and gas utility company that serves customers in Massachusetts, New York, and Rhode Island. The company has been using two robots

made by Massachusetts-based Boston Dynamics to do routine inspections. The robots are equipped with LIDAR to help them navigate, as well visual and thermal cameras to take detailed photos and thermal images of the equipment in the substation. Prior to using Spot, most inspections at National Grid's substations were done by people. In some cases, operation of the substation would have to be temporarily shut down, because it would not have been safe for humans to do the inspections while the equipment was still on.

"We consider the investment in the robot to be a prudent investment because it improves the safety operating conditions for our employees," says Dean Berlin, lead engineer of robotics technology at National Grid. "The robot also presents an advantage in that it's very repeatable. It collects the images from the same angle, from the same vantage every single time, which is very useful because it allows us to compare images collected at different times to each other to be able to see any trends or changes in behavior."

Others who've used Boston Dynamics' robot dog, Spot, include pharmaceutical group Merck and BP, which is using the robot to autonomously read gauges, monitor corrosion and measure methane on some of its oil rigs in the Gulf of Mexico. Malaysian oil and gas company, Petronas, is using robot dogs made by Anybotics to inspect its offshore platforms. Brazilian mining corporation, Vale, is another early adopter of Anybotics' Anymal. Having completed initial testing, Vale is now in the process of purchasing a robot to do inspections and gather data about the condition of equipment in one of its mines. Vale says having Anymal help with inspections saves its staff from having to go into potentially dangerous spaces, which are often filled with dust, noise and rotating equipment parts. BASF, a German-based chemical company is also testing Anymal at one of its chemical plants, where the robot is gathering visual, thermal and acoustic data of BASF equipment. Both Spot and Anymal have also been deployed on construction sites, and in the case of Anymal, at train yards to perform train inspections.

"These companies typically need to send out their teams of educated people to collect data about the state of their plant. And so their vision is with these types of robots, such as Anymal, to automate some of these tasks making sure that their people are safe and can save on some of the costs associated with actually transporting people on site," says Péter Fankhauser, CEO and co-founder of Anybotics.

Other use cases for quadruped robots are just starting to catch on. One of the most controversial has been using these robots for defense. In May of 2021, the New York City Police Department said that it would stop testing of one of Boston Dynamics' Spot robots earlier than planned because of fierce public backlash.

"Spot's role in public safety is one of keeping people out of harm's way. The NYPD was trying to use Spot in exactly that fashion where Spot was going to be the point of communication to a potentially barricaded and armed suspect who had hostages. That's a good use case for a robot," Boston Dynamics CEO Robert Playter told CNBC.

Though the robot in the NYPD incident was not armed and was being remotely controlled by a police officer, concerns over fully autonomous robots being weaponized has led to the formation of an initiative known as the "Campaign to Stop Killer Robots." The coalition aims to ban the development, production and use of fully autonomous weapons. Among its supporters are Tesla CEO Elon Musk, the late Stephen Hawking and hundreds of A.I. experts.

For Ghost Robotics, the defense market is the company's bread and butter. The Philadelphia-based company says that out of its 20 plus customers, 90% are U.S. and allied foreign governments. One of those customers is the U.S. Air Force, which is using Ghost Robotics' Vision 60 robot to do security patrols around several bases. The Air Force says the robots can operate in a wide range of temperatures and are equipped with 14 sensors to help provide situational awareness. Ghost Robotics has also inked a deal with Singapore's Defense Science and Technology Agency. The agency says it will test and develop use cases for four-legged robots for security, defense and humanitarian applications.



*Tech. Sgt. John Rodriguez, 321st Contingency Response Squadron security team, patrols with a Ghost Robotics Vision 60 prototype at a simulated austere base during the Advanced Battle Management System exercise on Nellis Air Force Base, Nev., Sept. 3, 2020.*

*U.S. Air Force | Tech. Sgt. Cory D. Payne*

Other use cases for robotic dogs are just starting to catch on. So far, Spot has been deployed to check the vital signs of Covid-19 patients in hospitals, take radiation measurements at nuclear power plants like Chernobyl, and remind people to maintain social distance amid the pandemic. NASA has also been sending teams of Boston Dynamics' robotic dogs into caves to see if they can one day be used to search for life



on other planets. Farmers Insurance also said that the company will deploy Spot alongside its claims personnel to assess damage caused by hurricanes, tornadoes and other climate events.

Experts predict the insurance industry alone will spend \$1.7 billion on robotics systems in 2025. And other industries may follow suit. Amid the pandemic, a tight job market is forcing many companies to turn to automation. A survey done in December of 2020 by McKinsey, showed that 51 percent of respondents in North America and Europe said they had increased investment in new technologies during 2020, not including remote-work technologies.

“As a company, we’re really pushing towards having this artificial workforce being adopted, where humans and robots work shoulder to shoulder to solve difficult problems,” says Fankhauser. “And our vision is that people shouldn’t do work which is dangerous in places they shouldn’t really be. So our vision within the [next] 10 years that it becomes standard to hire either a person or a robot to do a certain job.”

But they don’t come cheap. Anybotics’ Anymal costs \$150,000, but the company says this includes the full autonomy platform, which comes with LIDAR and a docking station. Ghost Robotics’ Vision 60 robot also costs around \$150,000. Boston Dynamic’s entry-level “explorer” Spot robot starts at \$75,000, but does not include a self-charging dock and is more limited in its autonomous capabilities when compared to the company’s more expensive “enterprise model.” The payloads are also not included in the price tag. Take National Grid’s robot for example. Although National Grid would not share with CNBC how much it paid for the robot, just the thermal cameras and LIDAR it uses alone cost upwards of \$57,000. Boston Dynamics says that it has sold several hundred Spot robots so far, while Anybotics has sold fewer than 100 robots.

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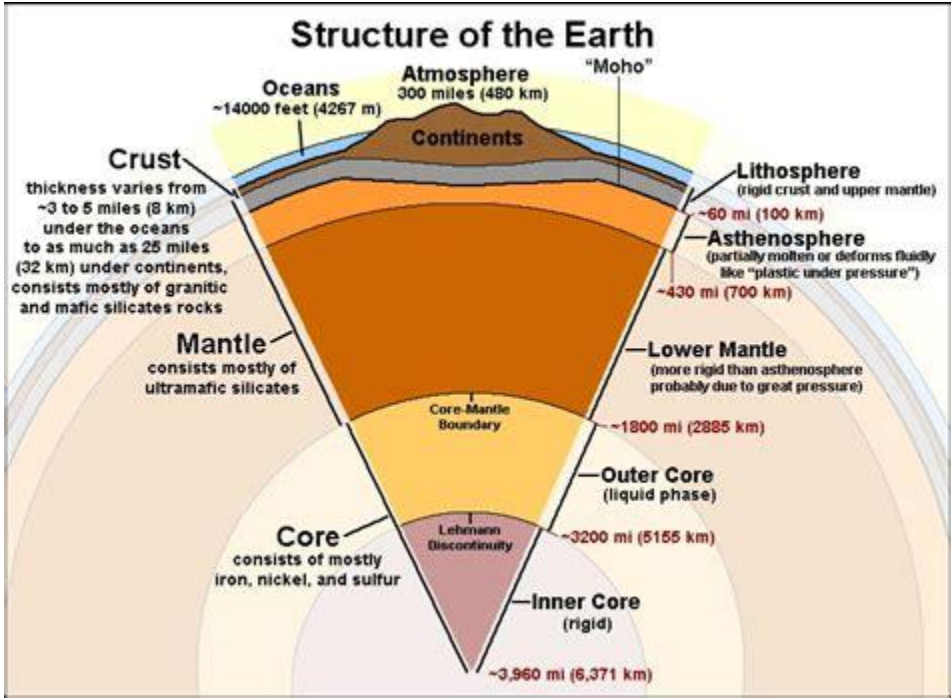
**Master Chef Senior with Gordon Ramsay**



<https://youtu.be/e6eDff-ezXU>

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**Ever Wondered What the Earth's Crust was Made of?**

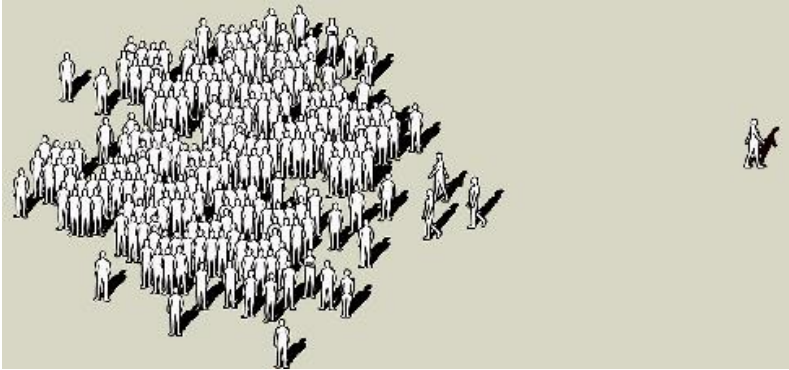


<https://www.visualcapitalist.com/cp/visualizing-the-scale-and-composition-of-the-earths-crust/>

*And here I thought it was mostly tapioca pudding.*

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## Why Some People Succeed When Others Fail



*In any large dataset involving the choices people make, a handful of people will succeed when most others like them fail. Zooming in on those outliers and mapping out how they made their choices could give those failing in similar circumstances a leg up.*

*hermann mueller/getty images, adapted by e otwell*

[Outliers](#) may hold some of the clues

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## A Caveat from Toyota on the Transition to Electric Autos



*Toyota's Robert Wimmer expresses alarm over Senators proposal to ban ICE vehicle sales nationwide*

*autospies*

Depending on how and when you count, Japan's Toyota is the world's largest automaker. According to Wheels, Toyota and Volkswagen vie for the title of the world's largest, with each taking the crown from the other as the market moves. That's including Volkswagen's inherent advantage of sporting 12 brands versus Toyota's four. Audi, Lamborghini, Porsche, Bugatti, and Bentley are included in the Volkswagen brand family.

GM, America's largest automaker, is about half Toyota's size thanks to its 2009 bankruptcy and restructuring. Toyota is actually a major car manufacturer in the United States; in 2016 it made about 81% of the cars it sold in the U.S. right here in its nearly

half a dozen American plants. If you're driving a Tundra, RAV4, Camry, or Corolla it was probably American-made in a red state. Toyota was among the first to introduce gas-electric hybrid cars into the market, with the Prius twenty years ago. It hasn't been afraid to change the car game.

All of this is to point out that Toyota understands both the car market and the infrastructure that supports it perhaps better than any other manufacturer on the planet. It hasn't grown its footprint through acquisitions, as Volkswagen has, and it hasn't undergone bankruptcy and bailout as GM has. Toyota has grown by building reliable cars for decades.

When Toyota offers an opinion on the car market, it's probably worth listening to. This week, Toyota reiterated an opinion it has offered before. That opinion is straightforward: The world is not yet ready to support a fully electric auto fleet.

Toyota's head of energy and environmental research Robert Wimmer testified before the Senate saying: "If we are to make dramatic progress in electrification, it will require overcoming tremendous challenges, including refueling infrastructure, battery availability, consumer acceptance, and affordability."

Wimmer's remarks come on the heels of GM's announcement that it will phase out all gas internal combustion engines (ICE) by 2035. Other manufacturers, including Mini, have followed suit with similar announcements.

Tellingly, both Toyota and Honda have so far declined to make any such promises. Honda is the world's largest engine manufacturer when you take its boat, motorcycle, lawnmower, and other engines it makes outside the auto market into account. Honda competes in those markets with Briggs & Stratton and the increased electrification of lawnmowers, weed trimmers, and the like.

Wimmer noted that while manufactures have announced ambitious goals, just 2% of the world's cars are electric at this point. For price, range, infrastructure, affordability, and other reasons, buyers continue to choose ICE over electric, and that's even when electric engines are often subsidized with tax breaks to bring pricetags down.

The scale of the switch hasn't even been introduced into the conversation in any systematic way yet. According to FinancesOnline, there are 289.5 million cars just on U.S. roads as of 2021. About 98 percent of them are gas-powered. Toyota's RAV4 took the top spot for purchases in the U.S. market in 2019, with Honda's CR-V in second. GM's top seller, the Chevy Equinox, comes in at #4 behind the Nissan Rogue. This is in the U.S. market, mind. GM only has one entry in the top 15 in the U.S. Toyota and Honda dominate, with a handful each in the top 15.

Toyota warns that the grid and infrastructure simply aren't there to support the electrification of the private car fleet. A 2017 U.S. government study found that we would need about 8,500 strategically-placed charge stations to support a fleet of just 7 million electric cars. That's about six times the current number of electric cars but no one is talking about supporting just 7 million cars. We should be talking about powering

about 300 million within the next 20 years, if all manufacturers follow GM and stop making ICE cars.

Simply put, we're gonna need a bigger energy boat to deal with connecting all those cars to the power grids. A LOT bigger.

But instead of building a bigger boat, we may be shrinking the boat we have now. The power outages in California and Texas — the largest U.S. states by population and by car ownership — exposed issues with powering needs even at current usage levels. Increasing usage of wind and solar, neither of which can be throttled to meet demand, and both of which prove unreliable in crisis, has driven some coal and natural gas generators offline. Wind simply runs counter to needs — it generates too much power when we tend not to need it, and generates too little when we need more. The storage capacity to account for this doesn't exist yet.

We will need much more generation capacity to power about 300 million cars if we're all going to be forced to drive electric cars. Whether we're charging them at home or charging them on the road, we will be charging them frequently. Every gas station you see on the roadside today will have to be wired to charge electric cars, and charge speeds will have to be greatly increased. Current technology enables charges in "as little as 30 minutes," according to Kelly Blue Book. That best-case-scenario fast charging cannot be done on home power. It uses direct current and specialized systems. Charging at home on alternating current can take a few hours to overnight to fill the battery, and will increase the home power bill. That power, like all electricity in the United States, comes from generators using natural gas, petroleum, coal, nuclear, wind, solar, or hydroelectric power according to the U.S. Energy Information Administration. I left out biomass because, despite Austin, Texas' experiment with purchasing a biomass plant to help power the city, biomass is proving to be irrelevant in the grand energy scheme thus far. Austin didn't even turn on its biomass plant during the recent freeze.

Half an hour is an unacceptably long time to spend at an electron pump. It's about 5 to 10 times longer than a current trip to the gas pump tends to take when pumps can push 4 to 5 gallons into your tank per minute. That's for consumer cars, not big rigs that have much larger tanks. Imagine the lines that would form at the pump, every day, all the time, if a single charge time isn't reduced by 70 to 80 percent. We can expect improvements, but those won't come without cost. Nothing does. There is no free lunch. Electrifying the auto fleet will require a massive overhaul of the power grid and an enormous increase in power generation. Elon Musk recently said we might need double the amount of power we're currently generating if we go electric. He's not saying this from a position of opposing electric cars. His Tesla dominates that market and he presumably wants to sell even more of them.

Toyota has publicly warned about this twice, while its smaller rival GM is pushing to go electric. GM may be virtue signaling to win favor with those in power in California and Washington and in the media. Toyota's addressing reality and its record is evidence that it deserves to be heard.

Toyota isn't saying none of this can't be done, by the way. It's just saying that so far, the conversation isn't anywhere near serious enough to get things done.

Anyway here is the text of his talk to the Senate:

Chairman Manchin, Ranking Member Barrasso and members of the committee, thank you for inviting me here today.

Toyota has been investing in America and employing Americans for more than 60 years. Today, we have 10 manufacturing facilities in the US, nearly 1,500 Toyota and Lexus dealerships, and 180,000 people working across the country.

In West Virginia, approximately 2,000 team members build some of Toyota's most efficient engines, transmissions and hybrid drivetrains. This year we will commemorate the plant's 25th anniversary. And as part of our on-going commitment to reduce CO2 emissions, Toyota has signed a 15-year agreement to purchase West Virginia wind power - roughly equivalent to all the electricity we use in the state.

Every auto company is committed to developing electric vehicle technology. Many have made aspirational statements about when they will phase out the internal combustion engine. But we also have to acknowledge the current reality. Last year, less than 2% of the vehicles sold in America were battery electric. If we are to make dramatic progress in electrification, it will require overcoming tremendous challenges, including refueling infrastructure, battery availability, consumer acceptance and affordability, and the reliability of the electric grid.

Too often, electrification has been defined as exclusively battery electric vehicles – or BEVs for short. We agree that BEVs are an important part of the answer – but they're not the only answer. Hybrid vehicles are also electrified, as are plug-in hybrids and hydrogen fuel cell electric vehicles. All these alternatives will help in the pursuit of lower carbon.

The narrow focus on BEVs as the only solution stems from the view that they must be the most carbon friendly since they burn no gasoline. It's true that if you compare an average hybrid, plug-in hybrid, BEV and fuel cell electric, you'll generally find that BEVs and

fuel cells are the lowest emitting, followed by plug-in hybrids and hybrids. While true in many cases, it's not true across the board.

In fact, recent data shows that plug-in hybrids can achieve nearly the same or better GHG reductions than BEVs depending on your daily driving patterns, the carbon in the electric grid, the carbon resulting from battery production, and other factors.

Don't misunderstand - we're not saying plug-in hybrids are preferred over BEVs – we're saying maximum GHG reductions can be achieved with consumers having more access to technology – not less.

Toyota has been in the electrified vehicle business for a long time. We introduced a fully electric RAV4 in the US in 1997 and a second-generation version in 2012. And starting with the Prius launch in 1997, we've sold 17 million hybrids globally and over 4 million in the US – more than the rest of the industry combined. We currently sell 16 hybrid models including two plug-in hybrid models in the US. And we recently announced a third plug-in hybrid and two new BEVs coming next year.

We're also a leader in fuel cell electric vehicles, which offer the long driving range and quick refueling consumers have come to expect from their gasoline vehicles. We've sold over 6,500 Mirai fuel cell electric vehicles in the US and over 10,000 globally. And we're commercializing fuel cell powertrains in transit buses, trucks, industrial equipment and stationary power generation.

Our 25-years of electrified vehicle history has taught us two important lessons.

First, consumer needs vary greatly. What works for one doesn't work for all. Some live in urban areas with short commutes, some need room for families, some live in areas where weather or terrain mandate 4WD, some need towing capability, and some have garages where they can charge their vehicles while many others do not.

This diversity in requirements is exactly why OEMs offer a wide variety of vehicle types, styles and powertrains. It's also precisely why multiple electrification pathways are needed to reduce carbon emissions.

If we tie our horse to a single approach, many consumers will simply opt for an internal combustion vehicle.

Second, transitioning to new technology takes time. We're proud of having sold more than 4 million hybrids in the US, but it took us 20 years to get there.

Achieving significant BEV penetration may pose an even greater challenge given the cost of batteries, the need for national infrastructure, long recharging times, limited driving range and the need for consumer behavioral change.

Without doubt, technology-inclusive policies will provide more Americans with more electrified options and will likely achieve greater GHG benefits as a result. The policy with the greatest immediate impact on sales is consumer purchase incentives. These incentives should be structured to promote all electrified vehicles, allow consumer choice, and provide greater opportunity for GHG reductions than a single pathway can provide. And these incentives can't sunset too quickly or they won't provide investment certainty manufactures need.

Similarly, robust incentives for infrastructure development and fuel production are needed. The former will speed deployment of electric chargers and hydrogen stations and increase consumer willingness to purchase. The latter will reduce fuel costs and accelerate the use of low-carbon feedstocks.

Senators, our collective destination is a carbon free transportation system and I believe we can get there. But our experience tells us it won't happen overnight, and it won't be a single technology.

We believe that this country, and the world, is moving inexorably to electrified transportation. But we need to overcome many obstacles along the way and remain supportive of all the many electric technologies on the road to that future. Thank you for your time today and I will be happy to answer any questions.

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**Danzón No. 2 by Mexican Composer Arturo Márquez.**





*Carlos Chavez in action*  
*wfmt.com*

Danzón No. 2 (Alondra de la Parra, L'Orchestre de Paris)

<https://youtu.be/pjZPHW0qVvo>

Along with Carlos Chávez's *Sinfonia India* and Silvestre Revueltas' *Sensemaya*, *Danzón No. 2* is one of the most popular and most frequently performed orchestral Mexican contemporary classical music compositions. *Danzón No. 2* gained great popularity worldwide when the Simón Bolívar Youth Orchestra of Venezuela under Gustavo Dudamel included it on their programme for their 2007 European and American tour.

Written for full orchestra, the piece features solos for clarinet, oboe, piano, violin, French horn, trumpet, flute, and piccolo. The piece has also gained an important spot in the modern concert band literature through Oliver Nickel's arrangement.

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When clowns go bad

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**Maxim Vengerov: Beethoven Violin Concerto in D Major**



This is one of the earliest and most frequently performed of violin concerti on such a grand scale. It premiered in Vienna on December 23, 1806. It was Beethoven's only concerto for violin, and it is considered to be his most lyrical work.

Beethoven wrote his concerto during a three-year period of intense creativity that produced nine large-scale masterworks, including his Triple Concerto and the Razumovsky Quartets. The Violin Concerto was commissioned by violinist Franz Clement, who wanted a dramatic showpiece for an upcoming concert. Beethoven completed the work within a few weeks but only shortly before the concert.

<https://youtu.be/gIdqiis3Mts?t=9>

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## **Dogs Can Differentiate Between Familiar and Unfamiliar Human Languages**

By Harry Baker

They are the first non-human animals to be able to tell the difference between human languages.



*Two of the dogs from the experiment next to the MRI machine.  
(Image credit: Eniko Kubinyi)*

If you were to move to a new country with a different language and bring along the family dog, your pet would likely have a hard time understanding commands from the locals, according to a new study looking at how dogs' brains react to different languages.

MRI scans revealed that dogs' brains can distinguish between familiar and unfamiliar languages, making them the first-known, and so far only, non-human animals to be able to tell the difference between human languages.

The new study, which was published online Dec. 12, 2021, in the journal *NeuroImage*, was conceived by lead author Laura Cuaya, a neurobiologist at Eötvös Loránd University in Hungary, who recently moved from Mexico to Budapest alongside her dog Kun-kun.



*One of the dogs from the experiment has its brain scanned in an MRI machine.  
(Image credit: Eniko Kubinyi)*

"We noticed that the people in Budapest were very friendly with dogs and often approached Kun-kun and talked to him," Cuaya told *Live Science*. "Kun-kun usually pays a lot of attention to people, so I wondered whether he noticed that people in Budapest speak a different language."

Cuaya and her team trained 18 dogs, including Kun-kun, to lie motionless in an MRI machine so the researchers could scan their brains. As the dogs were being scanned,

the researchers played the canines three different recordings: a Spanish reading from the famous children's book "The Little Prince;" a Hungarian reading from the same book; and a series of human noises that did not resemble speech at all. All of the dogs had been exposed to only one of the two languages, meaning one was familiar to them and the other was unfamiliar.

The brain scans suggested that not only were the dogs able to clearly distinguish between speech and non-speech, but they also reacted differently to familiar and unfamiliar languages, according to a statement by the researchers.

The researchers suspect that the the primary auditory cortex and secondary auditory cortex in dogs' brains (both located within the temporal cortex that sits at about ear level in the skull) allow dogs to process speech in two steps, known as "hierarchy processing," Cuaya said. "The primary auditory cortex detects whether a sound is speech or not," she said. "Then, the secondary auditory cortex differentiates between a familiar and an unfamiliar language."

During the experiments, researchers also found that older dogs showed more activity in the secondary auditory cortex of the brain, suggesting they were better at differentiating familiar and unfamiliar languages than younger dogs. "I think that the main reason [that older dogs are better at differentiating languages] is the amount of exposure to the language," Cuaya said. "Older dogs have had more opportunities to listen to humans while they talk."

The researchers suspect that dogs are not the only animals capable of telling the difference between human languages. "The brain is extremely good at picking up patterns, and each language has a series of sounds and patterns that makes them different from each other," Cuaya said. "After some training, the brain of many animals should be able to recognize these patterns."

However, what makes dogs unique is that they do not need to be trained to distinguish between human languages. "Their brains detected the difference spontaneously, perhaps due to the domestication process," Cuaya said. "While it is possible that many species can distinguish between human languages, dogs are one of the few that are interested in hearing us."

Previous research has shown that dogs can even tell when people are lying to them, Live Science previously reported.

Cuaya was "a little surprised" by the study's findings, but she also thinks that many people underestimate how sharp our canine friends can be.

"My experience with dogs has shown me that they are constantly paying attention to their social world and everything that happens around them," Cuaya said. "I think dogs know more about us than we imagine."

Originally published on Live Science.

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## **Otherworldly Sand Sculptures Created by Wind**



<https://petapixel.com/2022/01/19/photographer-finds-otherworldly-sand-sculptures-created-by-wind/>

Who does Hoodoos from the sandy shores of Lake Michigan? Photographer Joshua Nowicki does...and they're amazing

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## **Surviving War's End — by Werner Schwantje**



Werner Schwantje was a quiet man, a Canadian government lawyer in a trim grey suit not given to showing off. But once, long ago, he rode like a Valkyrie at the controls of a cold grey Messerschmitt

<https://www.vintagewings.ca/stories/survivor>

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## **John Ford's Battle of Midway**



<https://youtu.be/Jr4YgpKU8ak>

When Ford arrived at Midway he believed his job would be to simply document life on the atoll. He was completely unaware that the Japanese were planning to attack Midway until June 2nd— two days before the battle began. The combat footage shot by Ford and his two assistants was completely spontaneous. After the battle Ford returned to the States and edited the film in secret, believing that military censors would hack the film to pieces. Ford craftily spliced footage of the President's son James, a Marine officer, into the film before a Presidential viewing. When Roosevelt saw the film he proclaimed that he wanted "every mother in America" to see it. That's how Ford's film was released uncensored.

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## **The con artist who sold rich investors a fake country**



<https://mail.google.com/mail/u/0/#inbox/FMfcgzGmtNdkGSGNcCGxsclFCrZJTIKg>

A shoo-in for Congress.

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## **Future Aircrew: Wyatt Cloud**



Wyatt is the son of Major Brandon Cloud and the Grandson of my friend Darryl Cloud whom I featured a couple of years ago reporting on his bicycle trip from the gate at Marine Corps Recruit Depot, San Diego, CA, to Marine Corps Recruit Depot, Parris Island, SC, raising money for the Semper Fi fund that provides assistance to wounded veterans.

Who knows what flying machines await Wyatt, but I hope they will bring him as much challenge, excitement and pleasure as they have to his forebears.

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<b>CARP - Canadian Association of Retired People            Questions and Answers from            CARP Forum</b>	
<b>Q: Where can single men over the age of 70 find younger women who are interested in them?</b>	<b>A: Try a bookstore, under Fiction</b>
<b>Q: What can a man do while his wife is going through menopause?</b>	<b>A: Keep busy. If you're handy with tools, you can finish the basement. When you're done, you will have a place to live</b>



Q: How can you increase the heart rate of your over-70 year-old husband?	A: Tell him you're pregnant.
Q: How can you avoid that terrible curse of the elderly wrinkles?	A: Take off your glasses.
Q: Seriously! What can I do for these crow's feet and all those wrinkles on my face?	A: Go bra less. It will usually pull them out.
Q: Why should 70-plus year old people use valet parking?	A: Valets don't forget where they park your car
Q: Is it common for 70-plus year olds to have problems with short term memory storage?	A: Storing memory is not a problem. Retrieving it is the problem.
Q: As people age, do they sleep more soundly?	A: Yes, but usually in the afternoon.
Q: Where should 70-plus year olds look for eye glasses?	A: On their foreheads.
Q: What is the most common remark made by 70-plus year olds when they enter antique stores?	A: "Gosh, I remember these!"
SMILE, You've still got your sense of humor, haven't you?	

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### Here's How Bad the Economy Is:



- My neighbor got a pre-declined credit card in the mail.
- CEO's are now playing miniature golf.
- Exxon-Mobil laid off 25 Congressmen.
- I saw a Mormon with only one wife.
- McDonald's is selling the 1/4 ounce.
- Angelina Jolie adopted a child from America.
- Parents in Beverly Hills fired their nannies and learned their children's names.
- A truckload of Americans was caught sneaking into Mexico.
- A picture is now only worth 200 words.
- When Bill and Hillary travel together, they now have to share a room.
- The Treasure Island casino in Las Vegas is now managed by Somali pirates.

And, finally...

- I was so depressed last night thinking about the economy, wars, jobs, my savings, Social Security, retirement funds, etc., I called the Suicide Hotline. I got a call center in Afghanistan, and when I told them I was suicidal, they got all excited, and asked if I could drive a truck.

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## **My Walking Thoughts**

**January 23 2021**

### **Luck as a constant companion**

In my January 16<sup>th</sup> Walking Thoughts I talked about my difficulties with fiction writing, explaining that other than a few short stories, the bulk of my experience lay in non-fiction areas. Thus moving forward with my novel, Phantoms from Vietnam, has proved to be a task fraught with a large variety of 'unexpected consequences' that likely would have proved fatal to the project but for the happy circumstance of coming up with A Team to keep me plunging ahead.

### **My Team**

It started with my attendance at the Santa Barbara Writers Conference, an annual event that since 1975 has drawn neophytes such as I into the magic circle of skillful and highly accomplished writers who come together to share their passions. Sadly, it appears that Covid may have dealt it a death blow to the event, at least for this year, so I and others like me will not have the opportunity to rub elbows with the pros, but in the wake of the 2020 conference, I've been blessed with the association of other writers, looking to increase their skills and meet the challenges of a rapidly changing publishing landscape.

What has become My Team was assembled by Marla Miller, known throughout the writing community as 'Writers Mama.' The Zoom-based critique group meets twice a week for an hour and a quarter during which two of the members present roughly ten pages of a work in progress. At the conclusion of each reading the group chimes in with

thoughts, kudos, concerns—you name it—after which Marla adds her insight...not just about the work itself, but its genre and the marketplace to which it is bound. So you'll know, I had no idea of the niches into which different stories fall and still don't know how that applies to my work. At some point, however, I'll have to take that into account when it come time to explore publication possibilities.

What My Team has done is allow me to look at my story in ways I would never been able to on my own. Much of the critiquing has to do with `craft` but on a deeper level, they continually challenge me to view the story from the aspect of its `arc`...its flow from first to last in a way that not only make for a believable whole, but one that encourages readers to keep turning pages.

If you're still reading this, I'm going to propose that you have stories inside you that need to be told. I don't know whether writers conferences are going to reemerge following the pandemic, but yay or nay I'm going to suggest that along with your story itself, you begin to develop Your Team early in the process. Trust me, it will pay huge dividends as you move forward.

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