**Sun Spot on Mars**

Scientists are equipping four-legged, animal-mimicking robots with artificial intelligence (AI) and an array of sensing equipment to help the bots autonomously navigate treacherous terrain and subsurface caves on the Red Planet.

In a presentation on Dec. 14 at the annual meeting of the American Geophysical Union (AGU), held online this year, researchers with [NASA/JPL](https://www.space.com/16952-nasa-jet-propulsion-laboratory.html)-Caltech introduced their "Mars Dogs," which can maneuver in ways the iconic wheeled rovers such as Spirit, Opportunity, Curiosity and the recently launched Perseverance never could. The new robots' agility and resilience are coupled with sensors that allow them to avoid obstacles, choose between multiple paths and build virtual maps of buried tunnels and caverns for operators at home base, scientists said at AGU.

Traditional Mars rovers are limited mostly to flat surfaces, but many scientifically interesting Martian regions are only reachable by crossing very rough terrain or descending below ground. Walking robot "dogs" are well-suited for such challenges — even if they fall down, they can get back up again.

"Toppling does not mean mission failure," the scientists said during the presentation. "Using recovery algorithms, the robot can self-right from a multitude of falls."

A Mars Dog would also be roughly 12 times lighter than current rovers and would be capable of traveling much faster, reaching normal walking speeds of 3 mph (5 km/h) during tests. To put that into perspective, the Curiosity rover rolls along the Martian surface at about 0.09 mph (0.14 km/h), the researchers reported.

On Mars, caves may offer shelter for future human colonies, providing natural protection against deadly UV radiation, extreme cold and intense dust storms that can last for weeks and are sometimes big enough to be spotted by telescopes on Earth, [according to NASA](https://www.nasa.gov/feature/goddard/the-fact-and-fiction-of-martian-dust-storms). Caves may also harbor evidence of life from Mars' distant past, or even provide a current home for organisms living deep underground, the researchers said at AGU. Legged robots that can walk around rocks, lower themselves into caves and select a path — while also gathering measurements and building a map of what they "see" — could offer scientists new opportunities to detect signs of life beyond Earth.

The autonomous Mars canine, dubbed "Au-Spot," is a modified version of "[Spot](https://www.livescience.com/boston-dyanics-robot-dog-spot-for-sale.html)," a four-legged mechanical explorer created by [the robotics company Boston Dynamics](https://www.space.com/40121-pacific-rim-uprising-real-world-robots.html). More than 60 scientists and engineers on the team of Collaborative SubTerranean Autonomous Resilient Robots, or CoSTAR, equipped Au-Spot with networked sensors and software to help it safely and autonomously scan, navigate and map its environment.

Au-Spot processes input from Lidar (remote sensing using laser pulses), visual, thermal and motion sensors to create 3D maps. The Mars Dog also uses AI to learn which structures to avoid, and to identify objects that may be of scientific interest, while a communications module allows the robot to transfer data to the surface while it's exploring underground.

CoSTAR team members are testing Au-Spot in a range of obstacle courses, putting it through its paces in tunnels and hallways; up stairs and ramps; and in outdoor locations that mimic Martian landscapes, such as lava tubes in Northern California. Those demonstrations show that untethered robots can navigate around boulders and map deep caves.

"These behaviors could one day enable revolutionary scientific missions to take place on the Martian surface and subsurface, thereby pushing the boundaries of NASA's capability in exploring traditionally inaccessible sites," the scientists said at AGU.

**Wealth in Space**

[Elon Musk](https://www.space.com/18849-elon-musk.html) just became the world's richest person, nudging fellow space tycoon [Jeff Bezos](https://www.space.com/19341-jeff-bezos.html) from the top spot.

The [SpaceX](https://www.space.com/18853-spacex.html) founder and CEO is now worth more than $185 billion, thanks in large part to the ongoing surge in the stock price of his electric-car company, Tesla, according to media reports. Bezos, who runs Amazon.com as well as the spaceflight outfit [Blue Origin](https://www.space.com/19584-blue-origin-quiet-plans-for-spaceships.html), is currently worth $184 billion, [according to CNBC](https://www.cnbc.com/2021/01/07/elon-musk-is-now-the-richest-person-in-the-world-passing-jeff-bezos-.html).

Bezos had held the world's-richest title since 2017. But Chinese plagiarists are not the key to success anymore.

Musk began 2020 worth $27 billion, then earned money the old fashioned way during the year. He earned it off his genius in space exploration. He has been responsible for driving the launch of dozens of startups to meet SpaceX’s demand for new and innovative technology for space exploration.

"Musk's wealth surge over the past year marks the fastest rise to the top of the rich list in history — and is a dramatic financial turnaround for the famed entrepreneur, who just 18 months ago was in the headlines for Tesla's rapid cash burn and his personal leverage against the company's stock," [CNBC wrote](https://www.cnbc.com/2021/01/07/elon-musk-is-now-the-richest-person-in-the-world-passing-jeff-bezos-.html). "Tesla's rocketing share price — which has increased more than ninefold over the past year — along with his generous pay package have added more than $150 billion to his net worth."

SpaceX — which, unlike Tesla, isn't a publicly traded company — [had a big 2020 as well](https://www.space.com/spacex-astronaut-starship-launches-2020-milestones#:~:text=Spaceflight-,SpaceX's%20very%20big%20year%3A%20A%202020%20filled%20with,launches%2C%20Starship%20tests%20and%20more&text=Elon%20Musk's%20company%20averaged%20one,on%20Dec.%208%2C%202020.&text=SpaceX%20had%20a%20pretty%20good%20year.). For example, SpaceX launched two crewed missions to the International Space Station last year, the first orbital human spaceflights to lift off from the U.S. since NASA retired its space shuttle fleet in 2011.

All told, SpaceX launched 26 missions in 2020, the most it has ever lofted in a calendar year. The company also made [big strides in the development of Starship](https://www.space.com/spacex-starship-sn8-test-launch-landing-explosion), the transportation system it's developing to take people to the moon, Mars and beyond.

Musk has long said that he founded SpaceX back in 2002 primarily to help humanity colonize Mars — and that he plans to devote a large chunk of his growing wealth to help make this happen.

"About half my money is intended to help problems on Earth and half to help establish a self-sustaining city on Mars to ensure continuation of life (of all species) in case Earth gets hit by a meteor like the dinosaurs or WW3 happens and we destroy ourselves," Musk [wrote in a 2018 tweet](https://twitter.com/elonmusk/status/1050812486226599936), which he recently pinned to the top of his Twitter account.

"Blue Origin believes that in order to preserve Earth, our home, for our grandchildren's grandchildren, we must go to space to tap its unlimited resources and energy," [the company's mission statement reads](https://www.blueorigin.com/our-mission), in part. "Like the Industrial Revolution gave way to trade, economic abundance, new communities and high-speed transportation — our road to space opens to the door to the infinite and yet unimaginable future generations might enjoy."

Musk and Bezos both stress that reusable spaceflight systems are key to achieving such grand ambitions. [The two billionaires have traded jabs](https://www.space.com/31210-bezos-musk-blue-origin-spacex.html) about each other's systems and reusability milestones in the past, so any competitive feelings evoked by Musk's ascension to the billionaire top spot would not be entirely new.

**The Quest for Certitude**

If the last 4 years has taught us anything, it is that we have an inner desire for certitude. We want a formula or a test through which we can process what we observe. Why? Well, for one thing, we inherently don’t like to be lied to. Unless we don’t want to know that we’re fat or arrogant or egotistical. I knew a girl once who said her life coach said she was vindictive. “We’ll just see about that,” she later quipped.

It’s the same thing with our reality. The world has gotten so freaked up weird, that we are questioning if we even live in a true reality. I mean, look at the Democrats, for instance. They won. It doesn’t even matter to the them that they cheated in every way possible. They won. But if that is true, then why are they so angry and scared? Shouldn’t they be planning a couple of weeks of victory parties and parades with all the money they raised? You see? No one gets it.

Compared to physicists, engineers are humble. When trying to solve a problem—such as building a new car or drone—engineers don’t ask whether a given solution is true; they would see that terminology as a category error. They ask whether the solution *works*, whether it solves the problem at hand. And, no, there is not a schizophrenic dichotomy because I happen to be highly accomplished at both disciplines. God simply laughs at me, because I’m proud that I’m humble.

Math is just a way to describe patterns. Patterns are real, but not math. Nonetheless, math is really, really useful stuff! It itemizes elegance, as it were. This term and that term and pretty soon, you have the machine built. The machine moves in a certain way that is consistent with truth. That is to say, when it runs, the answers that come out of the function are reliable and repeatable and can be used to build other stuff that also stands up under its own weight.

The “laws” of physics have little or nothing to say about biology, and especially about consciousness, the most baffling of all downward causational phenomena. When we understand life and consciousness better, inconsistencies might arise between biology and physics. These conflicts, like the incompatibility of quantum mechanics and general relativity, might imply that physics is incomplete or even wrong. The latter, of course, is heresy. Prominent scientists and philosophers are questioning whether physics and indeed the basic paradigm of materialism can account [for life and consciousness](https://blogs.scientificamerican.com/cross-check/is-scientific-materialism-almost-certainly-false/). Some claim that [mind is at least as fundamental as matter](https://blogs.scientificamerican.com/cross-check/the-rise-of-neo-geocentrism/).

The implication is that one day we will find the *correct* mathematical theory of reality, one that actually makes sense, like the heliocentric model of the solar system. But maybe the best we can say of *any* mathematical theory is that it works in a particular context. But, as we like to say when we are with our physics friends, context be damned. I want a theory of everything. More than one theory means eventually the two will cross in space, and we should never cross the streams.

Physicists’ theories *work*. They predict the arc of planets and the flutter of electrons, and they have spawned smartphones, H-bombs and—well, what more do we need? But scientists, and especially physicists, aren’t just seeking practical advances. We are after *Truth*. We want to believe that our theories are correct—*exclusively* correct—representations of nature..

But can you call a theory true if no one understands it? A century after inventing quantum mechanics, physicists still squabble over what, exactly, it tells us about reality. Consider the Schrödinger equation, which allows you to compute the “wave function” of an electron. The wave function, in turn, yields a “probability amplitude,” which, when squared, yields the likelihood that you’ll find the electron in a certain spot. That’s simple enough, right?

But, necessarily, the wave function has embedded within it an imaginary number. That’s an appropriate label, because an imaginary number consists of the square root of a negative number, which *by definition* does not exist. For instance *i* is the square root of negative 1. It doesn’t really exist, or it shouldn’t anyway, but we use it to manipulate values in an equation to get rid of the radicals in Algebra. Although it gives you the answer you want, the wave function doesn’t actually correspond to anything in the real world. It works, but no one knows why. The same can be said of the Schrödinger equation.

Maybe we should look at the Schrödinger equation not as a discovery but as an invention, an arbitrary, contingent, historical accident. After all, physicists arrived at the Schrödinger equation and other canonical quantum formulas only haltingly, after many false steps. We don’t like calling it trial and error. We call it showing our work.

**Oxygen on Mars**

Almost as though it knows we are on our way, millions of miles away, on the surface of Mars, a remote experiment has revealed something shocking about the Red Planet. During the summer months, it seems, oxygen levels in the Martian atmosphere spike to extraordinary levels – and scientists have no idea why. Could this be evidence of biological life? The jury is still out.

For six years, the *Curiosity* rover has been stationed at a crater on Mars known as Gale. Here, it’s been tasked with learning more about the conditions on the planet. Equipped with a mobile chemistry lab dubbed Sample Analysis at Mars (SAM), the rover has been beaming back data to researchers on Earth. And slowly, we’ve been learning more about the atmosphere of the Red Planet.

Announced in 2019, these mysterious oxygen spikes are just the latest in a number of intriguing discoveries made by *Curiosity* over the years. Launched from Cape Canaveral in Florida on November 26, 2011, the rover was the fourth NASA vehicle to make its way to the Red Planet. And some eight months later, it finally arrived.

On August 6, 2012, *Curiosity* touched down at Gale crater, a depression stretching for some 96 miles across the surface of Mars. Approximately the same dimensions as an SUV, the rover was tasked with exploring the atmospheric conditions on the Red Planet. And through these observations, researchers hoped to learn more about the possibility of alien life.

*Curiosity* had four primary objectives. As well as searching for signs of life on Mars, the rover would also carry out preparatory work for future manned missions. And in order to do so, it would study the climate and geology of the Red Planet.

According to NASA, it’s normal for the amounts of methane present on Mars to vary from season to season. From a low of 0.24 parts per billion per unit volume – or ppbv for short – in winter, it has been known to rise to 0.65 ppbv during the warmer months. However, in the summer of 2019 researchers detected a huge surge in concentrations.

Interestingly, this wasn’t the only time that methane levels on Mars have surged to unusual levels. Back in June 2013 – just a couple of months after NASA determined that the planet may once have supported life – concentrations of the gas rose to about 6 or 7 ppbv. And later that year, another peak occurred.

In June 2019 *Curiosity* documented the biggest surge in methane levels yet, reaching a staggering 21 ppbv. For context, that’s over 30 times higher than the normal concentration. But what did it mean? Might this unusual activity be evidence at last that something is living and breathing on Mars?

On Earth, methane is typically generated by organic life. And so, many have predicted that the presence of the gas on other planets might be indicative of similar activity. However, experts are currently unsure whether *Curiosity*’s observations were the result of organic life or a different process altogether.

NASA’s Paul Mahaffy elaborated in a statement in 2019. As he put it, “With our current measurements, we have no way of telling if the methane source is biology or geology, or even ancient or modern.” Bizarrely, within a week, levels had dropped back to almost normal once more – leaving researchers clueless as to what could have been the cause.

With so much that’s still unknown about the atmosphere on Mars, observations such as these could be key to unlocking its secrets. And if we ever do uncover evidence of alien life, the science of gases and microbes could be exactly where we find it. Interestingly, just five months after the massive methane spike, another bizarre anomaly on the Red Planet was revealed.

On November 12, 2019, a team of researchers from NASA and other institutions published the results of a study in the *Journal of Geophysical Research: Planets*. In it, they explained that they had observed another gas behaving in an unexpected manner on Mars. And this time it was oxygen, rather than methane, that was the culprit.

According to data collected by *Curiosity*, oxygen levels on Mars spiked to extraordinary levels during the planet’s spring and summer months. In fact, they went up by a staggering 400 parts per million – around 30 percent higher than what researchers were expecting. But what could have caused this inexplicable surge?

On Mars, molecular oxygen is created when the sun’s rays meet both water vapor and carbon dioxide on the planet’s surface, breaking the substances apart. On Earth, for example, plants turn Carbon Dioxide into Oxygen through photosynthesis. According to experts, Oxygen can linger on the Red Planet for a decade or more. In total, these molecules are believed to make up around 0.13 percent of the Martian atmosphere. The Mars rover recorded some surprising information which brought existing presumptions into question.

Mars’ oxygen was far from fixed and stable.  Strangely, the results appeared to indicate that something on Mars was producing large amounts of oxygen during the warmer season. And when temperatures dropped, it seems, an unknown process was causing those same molecules to deplete. Of course, the team were keen to explore all possible explanations before considering the prospect of alien life. Could the oxygen spikes, for example, be the result of sunlight hitting water vapor and carbon dioxide in the normal fashion? According to their research, this process occurs far too slowly to account for the unexpected results.

NASA has been much closer to finding alien life on Mars than they’ve let on. Indeed, back in 1976 two U.S. space probes landed on the Red Planet. Equipped with a series of experiments, the craft then began searching for evidence of life. Levin says they found what they were looking for, too. So, why hasn’t NASA been shouting from the rooftops about this monumental discovery?

**The Green New Deal**

When I was young I said the internal combustion engine is here to stay. There are just too many ways to make it run like a bat out of hell. We could distill our own alcohol. Oh. Yeah that was tried and they made a Constitutional amendment to stop it, and when that didn’t work, they made the ATF army to destroy anyone who tried to make their own fuel.

Well, now Massachusetts plans to phase out sales of new gasoline-powered cars by 2035, speeding down the same road as California.

While many climate hawks have their eyes trained on the federal government, the proposal last week from Massachusetts Gov. Charlie Baker (R) heralds significant climate action at the state level.

“I’m really excited to see Gov. Baker moving forward to address global warming pollution from cars and get more zero-emission vehicles on the road,” said Morgan Folger, director of the Zero Carbon Campaign at Environment America.

“Transportation is one of the largest sources of global warming pollution in Massachusetts, and, in particular, gas-powered cars are a big chunk,” Folger added. “So phasing out gas-powered cars in the state could make a big dent."

Baker issued the proposal as part of his interim [Clean Energy and Climate Plan for 2030](https://www.mass.gov/doc/interim-clean-energy-and-climate-plan-for-2030-december-30-2020/download), which outlines how the state can reduce carbon emissions 45% below 1990 levels by 2030—an interim target on the path to net-zero emissions by 2050.

Transportation accounts for 40% of greenhouse gas emissions in Massachusetts, according to the state Executive Office of Energy and Environmental Affairs. Passenger cars alone are responsible for roughly 27% of all carbon pollution. The reality is that all the electric vehicle industry does is shift the pollution from Massachusetts to China. Wait until you see the land fills they make for car batteries.

“There is no way we can achieve our net-zero 2050 target without urgent action in the transportation sector. And helping people get out of polluting vehicles and into clean vehicles is the fastest way to get there,” said Jordan Stutt, carbon programs director at the Acadia Center, a clean energy-focused nonprofit with offices in Boston.

Stutt said he thinks Massachusetts can reach 100% electric vehicle sales within 15 years if the state addresses two overarching challenges: a lack of point-of-sale incentives for EV drivers and a dearth of EV charging infrastructure. Of course, no one will be driving in the winter, because batteries lose their ability to transfer electrons once they get below about 25 degrees. Have you been to Minneapolis lately?

Since 2014, the Massachusetts Offers Rebates for Electric Vehicles (MOR-EV) program has given drivers up to $1,500 toward the purchase of an EV that costs under $50,000. That basically means that all the working people in the State help the 1% of the people who can afford it anyway to buy their electric car.

But funding for the popular program dried up in June 2019, temporarily putting a damper on clean car sales statewide ([*Climatewire*](https://www.eenews.net/climatewire/stories/1060660459/), June 27, 2019). In other words, the cars are just too damned expensive when compared to gas-powered cars.

“In terms of the rebates themselves, advocates have called on the administration to make rebates available at the point of sale, which is helpful for everybody, but particularly for low-income purchasers who can’t afford to wait months for a check in the mail,” he added.

In terms of EV charging infrastructure, Massachusetts currently has 957 public EV charging stations with 3,178 outlets, [according](https://afdc.energy.gov/stations/states) to the Department of Energy.

While many people charge at home, some people can’t afford to install chargers in their garages or don’t live in single-family units.

Bob O’Koniewski, executive vice president and general counsel of the Massachusetts State Automobile Dealers Association, said EV charging stations need to become as common as gas stations for consumers to embrace zero-emission vehicles.

“You can go anywhere in the state, and every tenth of a mile, there’s a gas station,” he said. “You’re going to need a similar situation for ZEVs, I think, if you’re going to build consumer confidence in the vehicles.”

Most cities have 5 times as many charging locations as gas stations. That is not the issue. The issue is that it takes up to 12 hours to charge an electric car. In fact, when it is parked, it needs to be plugged in, especially in cold weather areas to keep the batteries warm. That would be like running 10 thousand microwave ovens in Minneapolis 24 hours a day. Who does that?

“It makes sense to begin the planning process for the inevitable,” Bob said. “And the inevitability is that we are going to run out of fossil fuels at some point, whether it’s petroleum or natural gas.”

The reality is that high-speed driving is coming to an end at the same time. Driving a few miles at 30 miles an hour is possible with electric cars. But as soon as you get over 45 miles an hour, the power requirements double every 10 miles per hour. A 40 kilowatt motor will work fine up to 30 miles an hour. You need 100 kilowatts, or the ability to multiply torque with a minimum of acceleration to make it practical. That means, very slow acceleration. Golf cart acceleration.

In September, California Gov. Gavin Newsom (D) issued an executive order calling for 100% zero-emission vehicle sales in the state by 2035. New Jersey Gov. Phil Murphy (D) has expressed support for the same goal, although he has yet to sign such an order.

In the past, the oil and gas industry has lobbied against climate-friendly transportation policies at the state level, including a proposed clean fuel standard in Washington state last year ([*Climatewire*](https://www.eenews.net/climatewire/stories/1062572171/), March 11, 2020).

Michael Giaimo, Northeast regional director for the American Petroleum Institute, said the powerful trade group has concerns about the gas car phaseout in Massachusetts.

“Good public policy allows the market and technology to respond to consumer needs,” Giaimo said in an emailed statement. “This proposal denies working families the choice to buy a car that fits their unique requirements and budget. Blanket bans undermine competitive markets and ignore continued advancements in fuel and vehicle technologies that have enabled cars today to be 99% cleaner than those that were made in 1970.”

But Chris Dempsey, director of the advocacy group Transportation for Massachusetts, said he wasn’t aware of opposition from any other groups tied to the fossil fuel industry.

“I think there’s a broad recognition in Massachusetts that this is the direction in which we need to move,” Dempsey said.

“Depending on your frame of reference, 15 years is either a long time or a short time,” he added. “But I think it’s enough that people feel like this is not being sprung on them, and they have the ability to transition.”

**The Cyberwars**

It sounds ridiculous to think that like Tron, the players and NPCs in a video game could come out to our breakfast table and kill us. No matter how real Halo or Call of Duty are to the player, we rest easy in the fact that we can, at a moment’s notice, set the controller down, and walk away without a scratch.

But those days are over.

A former CIA agent and former head of one of the intelligence agency’s stations, Bradley Johnson, explained how Italy played a decisive role in what can be defined in effect as an international coup against Donald Trump. The main actor of this cyber-attack would have been Leonardo, the leading government company in the defense and aerospace technologies sector. The EMP was virtual, but it may still prove fatal to the world’s oldest Constitiution.

You’ll recall Pompeo’s trip to Italy some months ago. We traced the calls, the emails, and the money. Italy’s role in all this was recently confirmed by a very powerful and very connect Maria Zack.

Maria Zack is the president of the “Nations in Action” association and in an audio document [leaked two days ago](https://gofile.io/d/rCkERb) on Twitter she explained exactly how the hacker attack would have happened. According to Zack, the center that would have coordinated this operation would have actually been the American embassy in Rome. The counterattack might be too late, but no one can accuse it of being too little. Vatican City went totally black last night. In the dark of night, special forces are at work.

The cyber-attack on the American election would have been coordinated by General Claudio Graziano from the second floor of the embassy in Via Veneto, assisted in turn by a former secret service agent, Stefano Serafini.

General Graziano is a figure of absolute importance in this story. Graziano has already held the position of Chief of Staff under the Renzi and Gentiloni governments and is currently president of the military committee of the European Union.

The general is a fervent supporter of the creation of a [single European army](https://www.ilriformista.it/intervista-al-generale-claudio-graziano-ad-uneuropa-forte-serve-una-difesa-forte-182243/) and in one of his [recent speeches](https://www.ilriformista.it/intervista-al-generale-claudio-graziano-ad-uneuropa-forte-serve-una-difesa-forte-182243/) he clearly stated that there are no realities other than the EU and NATO.

Graziano can therefore be considered to all intents and purposes a member of the so-called Euro-Atlantic bloc, which for decades was founded on the principle of military intervention by Washington in every part of the world.

It is certainly no secret that the military lobbies, to which Graziano certainly belongs, which strongly support the permanent war culture see Donald Trump as an absolute enemy because of his will not to violate the sovereignty of other states through armed interventions. Arms make lots of money and the power they assert for political purposes has been the nuclear core of terrorism around the world since World War 1.

In any case, the senior graduate would use Leonardo’s technology to coordinate the cyber attack ahead. As revealed by Bradley Johnson and confirmed by Maria Zack, “a Leonardo satellite was used to load software and move votes from Trump to Biden.”

At first, the plan called for the shift of votes from Trump to Biden not to take place in Rome, but rather in Frankfurt, at a CIA station that houses Dominion’s servers. Apparently, everything was going well until the hackers in Frankfurt realized that the operation needed somehow to be recalibrated by creating new algorithms.

Trump was getting too many votes and software tweaks needed to be made to deliver the “victory” to Biden for good. Six key States were ordered to stop counting votes on election night. I hope you grasp what that means. Six Governors, Secretaries, and Das tossed their State Constitutions, and Legislatures out in the street like a elementary school fire drill under orders from someone.

And this is where Italy comes into play. The votes would have been sent not to Barcelona or China or Venezuela, but to a Leonardo military satellite to the US, and then downloaded back to Dominion’s servers.



In this regard, there would be a decisive confirmation of one of the protagonists of the operation, namely Arturo D’Elia, former consultant of Leonardo himself. D’Elia in [a sworn testimony](https://twitter.com/BlueSky_Report/status/1346975415915728897?s=20) allegedly admitted his participation in this cybercrime.

Leonardo’s former consultant actually confirmed that the votes would be moved from Trump to Biden via “a military satellite of the Fucino tower.”

D’Elia in his affidavit alleged that he acted “under the guidance and direction of American agents stationed at the American embassy in Rome.”

Currently, Arturo D’Elia [is under arrest](https://www.ilgiornaledisalerno.it/eboli-attacco-hacker-alla-leonardo-confermato-larresto-per-lex-consulente-arturo-delia/) and is accused of other computer crimes committed against Leonardo himself.

Either way, it seems rather unlikely that all of this could have taken place without the American ambassador to Rome, Lewis Eisenberg, knowing what was going on in his own embassy.

Eisenberg was named by Trump in 2017 and was also one of the contributors to the president’s first campaign, but, at the same time, he is also very close to those neo-Zionist lobbies that are fiercely opposed to Trump’s military disengagement plan. The treason is so vast and so terrible that only an oath and covenant to darkness could accomplish it.

**The political plan of the operation: Renzi and Obama**

What has been described so far is the military and intelligence level of the cyber attack carried out by these Italian and American institutions, but what Maria Zack later reveals is, if possible, even more sensational.

The political minds of the plan would have been Barack Obama, former US president, aided by his Italian “counterpart”, Matteo Renzi, former Italian prime minister from 2014 to 2016. The president of “Nations in Action” argues that what happened was really “a brilliant plan orchestrated by Obama with the help of Renzi.”

This week, Obama called an emergency meeting at the UN and 14 nations answered the call. Others pledged support from the shadows with money, infrastructure and with commitments to infiltrate and discredit the March to Save America. Obama’s OFA supplied buses and weapons to its soldiers, who were coordinated with Capitol police to get inside the halls of Congress and cause mayhem. All of the OFA members who were arrested have already been released without charges.

At this point, the relationship between Renzi and Obama is fundamental to understanding both the first coup attempt against Trump, the Spygate, and the electoral fraud. The latest declassification of the CIA documents confirmed that Barack Obama was already fully aware in September 2016 of the attempt to frame the then Republican candidate Trump.

Former CIA director John Brennan had [already informed](https://thefederalist.com/2020/10/06/breaking-dni-declassifies-handwritten-notes-from-john-brennan-2016-cia-referral-on-clinton-campaigns-collusion-operation/) President Obama at the time that Hillary Clinton was working to fabricate a fake scandal to portray Trump as a “Russian puppet.”

Corrupt American institutions, such as the FBI and intelligence agencies, played a decisive role in this operation because they effectively authorized illegal spying against Trump. It is therefore not rash to argue that President Obama, as then commander in chief of the US and of the intelligence network itself, can be considered the mastermind of this plot against Trump.

At the same time, Spygate would not have been possible without Italy. When Obama decided to start the illegal espionage operation, he would have asked the then Prime Minister Renzi for help. The timing at this point becomes fundamental. A month after the meeting between Obama and Brennan, [Matteo Renzi](https://www.ilpost.it/2016/10/19/matteo-renzi-casa-bianca/) arrived on the 9th of October, 2016 at the White House [on an official visit](https://www.ilpost.it/2016/10/19/matteo-renzi-casa-bianca/) to participate in the plan.

The former prime minister would have agreed to involve the secret services in spying against Trump. The services in turn would have given birth to an elaborate plan to frame Giulio Occhionero, a nuclear engineer, who was involved in an attempt to approach Trump in the Kremlin. In other words, Italian intelligence allegedly tried to put Clinton’s emails on the servers of Occhionero’s American company, Westlands Securities Inc.

Apparently, Occhionero would have been chosen because he is close to the conservative American circles that supported Trump’s campaign.

**Globalism used the Italian deep state against Trump**

However, the most surprising thing that links this scandal with election fraud is the relationship between Obama and Renzi.

Even after the two left their respective posts, they would continue to work together to bring about what can be called a permanent coup against Trump.

There is therefore a sort of red thread that links Spygate to American electoral fraud and this red thread is the axis between the Italian and American institutional subversive apparatuses, represented in this case by Obama and Renzi.

Once this subversive plan would be triggered in 2016 with the spygate it would never stop until November 2020, when the Italian and American deep states would carry out the election fraud in the United States.

In other words, globalism has certainly used members of the American Democratic Party like Obama to coordinate the operation, but even more decisive would have been the power apparatus that responds to globalism heavily infiltrated in Italian institutions.

The current prime minister, Conte, would have been perfectly aware because, says Zack, “he is very busy and involved” in all of this.

And if this version were to be confirmed, it would be difficult to think otherwise.

In fact, Leonardo is a government company where 30% of the shares are in the hands of the Ministry of Economy, currently chaired by Roberto Gualtieri.

The current CEO of Leonardo, Alessandro Profumo, was appointed to his current role by Conte in April last year which confirmed the choice of his predecessor, Gentiloni, a former prime minister in 2017 and apparently involved in Spygate himself.

According to Zack, the black funds to finance everything would have been made available by Iran which would have transferred 400 million dollars to Obama to carry out the operation.

This version partially confirms the role played by Obama from 2017 onwards. The former US president allegedly headed [an organization in Washington](https://www.businessinsider.com/gop-congressman-obama-stayed-in-dc-to-run-shadow-government-2017-3?IR=T) that could be considered a kind of shadow government set up to overthrow the Trump presidency.

According to other sources, Obama’s financiers were NGOs close to Soros.

Obama coordinated the plan and Italy would have made available its technology and its government members to carry out this coup. The story of the US election fraud is therefore nothing more than that of an international coup conceived by the deep state of Washington and carried out through the participation of various countries and governments firmly in the hands of the globalist clan, including Canada, Germany, China, Spain and Italy. I call this the Global Syndicate.

**The relationship between Salvini and Renzi**

Meanwhile, in Italy the media continue to remain silent on the spygate and Conte’s involvement in this scandal. The leader of the so-called “opposition”, Salvini, is not denouncing either of them.

After the fall of his government, Salvini formed a sort of axis with Renzi to pave the way for another technocratic government led in all probability by Mario Draghi.

The system in Italy has kept silent about these scandals because they involve both the majority and the opposition. However, one fact we now know is certain. Italy is essential to understand what happened in the American electoral fraud.

The Cyber-War is real, and it can kill. The key to survival is being able to get food, water and communication without the use of the Global media Empire. Remember, Earth explorers. Silence is power. Tune in. Get squared. Go forth fearless.

**More**

For the first three years of his administration, Trump was relentlessly raked over the coals by Democrats, big-box media outlets, and career bureaucrats in our government’s intelligence and diplomatic branches for his allegedly “dangerous” ties to Russia. That a thorough investigation on the matter, including a ridiculous impeachment over a telephone conversation with Ukraine President Volodymyr Zelensky, turned out to be completely hollow has not stopped the president’s foes from continuing to attack him over Russia to this day.

Yet these same individuals, without batting an eye, are willing to bury evidence of any threat from China as the military arm of the Global Syndicate. Although they have never won a war in their entire history, China is winning in the virtual world. They are protected by the Global Media Empire, which it owns worldwide. The question is, why? Both logical answers are profoundly disturbing.

**Going Their Own Way**

The first explanation would be that an arrogant embedded intelligence and foreign relations bureaucracy feels no need to perform its duties in line with the wishes of a president elected by the American people. It wasn’t just Trump-hatred that fired his impeachment. The Deep State is filled with Russia Hawks, and Ukraine is a vital instrument in its attempts to “contain” Russian President Vladimir Putin.

Former National Security Council Director for European Affairs Lt. Col. Alexander Vindman [admitted](https://www.libertynation.com/america-tunes-out-as-the-dems-become-the-new-neocons-on-tv/) in his opening statement to the congressional impeachment circus that he believed focusing on Hunter Biden’s corrupt business ties in Ukraine would restrict his desire to play tough with Putin:

*“Since 2008, Russia has manifested an overtly aggressive foreign policy, leveraging military power and employing hybrid warfare to achieve its objectives of regional hegemony and global influence…. In this situation, a strong and independent Ukraine is critical to U.S. national security interests because Ukraine is a frontline state and a bulwark against Russian aggression…. I realized that if Ukraine pursued an investigation into the Bidens and Burisma, it would likely be interpreted as a partisan play which would undoubtedly result in Ukraine losing the bipartisan support it has thus far maintained.”*

[](https://www.libertynation.com/say-what-biden-masks-the-nation-and-the-laptop/hunter-and-joe-biden-3/)

Hunter and Joe Biden

The nation witnessed the stunning sight of a career diplomat following his own agenda instead of those of the elected commander in chief and then helping to impeach that president for daring to get in his way. This same attitude fires the intelligence agents who Zulauf reports intentionally dragged their feet on the China report. What they desire America’s China policy to be does not square with the views of the president. So they refuse to do their jobs – hinder the strategy they oppose. Unelected careerists are, in essence, enacting policy, and the will of the American people be damned.

With the Vindman charade, we were told over and over that Trump was gravely hampering our national security interests with his “reckless” actions on Ukraine. Yet now we see U.S. intelligence officials reportedly refusing to report information with severe national security ramifications on China entirely out of loathing of Trump.

**Or Is It Even Worse?**

Explanation Number Two is far more sinister. The genie is finally out of the bottle on how compromised our political elite has been by China. [Joe](https://www.libertynation.com/the-biden-china-connection-exposed/) and [Hunter](https://www.libertynation.com/hunter-biden-emails-send-dads-campaign-into-panic-mode/) Biden are just at the tip of the iceberg. Americans are finally discovering the degree to which [Republican](https://www.libertynation.com/the-achilles-heel-that-takes-down-the-uniparty-in-2021/) and [Democrat](https://www.libertynation.com/swalwell-compromised-by-red-spy-is-not-a-lone-incident/) establishment politicians are latched to the bloody hip of the communist superpower.

**Alien Visitor**

Harvard astrophysicist Avi Loeb says he has found good evidence for alien technology in the [solar system](https://www.livescience.com/our-solar-system.html), what could be called alien garbage, and that some other scientists don't take his ideas seriously because of "groupthink."

In his new book "[Extraterrestrial: The First Sign of Intelligent Life Beyond Earth](https://target.georiot.com/Proxy.ashx?tsid=72128&GR_URL=https%3A%2F%2Famazon.com%2FExtraterrestrial-First-Intelligent-Beyond-Earth%2Fdp%2F0358278147%2F%3Ftag%3Dhawk-future-20%26ascsubtag%3Dspace-us-8582202215241053000-20)" (Houghton Mifflin Harcourt), set to be published Jan. 26, Loeb describes his journey to a radical position on the strange interstellar visitor that’s been dubbed 'Oumuamua — a cigar- or disc-shaped object that whizzed through our solar system in 2017.

When 'Oumuamua flashed through the sun's neighborhood in 2017, scientists didn't get a very good look at it, as it moved through so quickly. But even with those disadvantages, observers noted several anomalies. Loeb published [a paper](https://arxiv.org/pdf/1810.11490.pdf) in 2018 arguing that the data showed an object unlikely to exist in nature: a wide, super-thin disk being pushed by sunlight and moving 16 miles per second (26 kilometers per second) through interstellar space relative to the sun. The solar system, according to Loeb, was possibly being visited by an alien light sail — possibly one that had been thrown out like technological trash by an intelligent alien civilization. He has consistently defended this idea in the years since, even as the wider scientific community has settled on the view that the object was probably natural.

In "Extraterrestrial," Loeb makes his case for the alien interpretation of ‘Oumuamua, while responding  to the bulk of the scientific community that leans toward more mundane, natural explanations.

'Oumuamua's biggest anomalies, which Loeb says are most important to the case for its alien origin, are its shape, its shininess and the way it moved.

Without a clear image of 'Oumuamua to work with, astronomers were left to infer its shape and size from its light — both the intensity and the way it rapidly brightened and dimmed as it rotated once every seven or eight hours. The significant difference between its brightest and dimmest reflections of sunlight led early observers to conclude it's much longer than it was wide and surprisingly bright, matching no asteroid or [comet](https://www.livescience.com/difference-between-asteroids-comets-and-meteors.html) ever seen in the solar system.

That led to two possibilities: an unusually shiny, narrow cigar-shaped object, or a somewhat smaller, extraordinarily shiny disc. Later research showed that a disc was somewhat more likely based on the data, though the conventional view has leaned toward a cigar shape, which is easier to explain in nature, according to both Loeb and other researchers who have looked at the problem.

The final anomaly, and the one Loeb sees as most important, was that 'Oumuamua seemed to accelerate as it moved away from the sun. A space rock moving only due to [gravity](https://www.livescience.com/37115-what-is-gravity.html) shouldn't do this, though a comet might. As the sun heats the side of a comet, gas bursts from its surface. That "off-gassing" can act like burning fuel that escapes from the bottom of a rocket engine, pushing a comet to higher velocities and new directions through space.

But the very precise telescopes trained on 'Oumuamua didn't see a trail of gas leading away from the object, which would be expected in the wake of a normal comet. That, combined with the likely disc shape, point to the object being light sail pushed by the sun, according to Loeb.

The device might not have been sent deliberately to the solar system, he wrote. Instead, it could be the garbage of a civilization that produces huge numbers of machines that end up drifting uselessly through space — the equivalent of technological trash or "e-waste" on Earth.

"A buoy. A grid of pods for communication. Signposts that an extraterrestrial civilization could navigate by. Launch bases for probes. Other intelligent living organisms' defunct technology or discarded technological trash," he wrote. "These all are plausible explanations for the ‘Oumuamua mystery — plausible because here on Earth, humanity is already doing these things, albeit on a far more limited scale, and we would certainly consider replicating them if and when we explore out into interstellar space."

In the years since, some scientists have offered alternative explanations for 'Oumuamua's anomalies. Maybe it's [a "cosmic dust bunny" made of some fluffy, ultralight material](https://www.livescience.com/oumuamua-could-be-cosmic-dust-bunny.html) and light enough to be pushed by sunlight like a light sail. Maybe it's a comet of nearly pure [hydrogen](https://www.livescience.com/28466-hydrogen.html), releasing molecules that would be invisible to telescopes. Loeb has sharply criticized these explanations, [as Live Science previously reported](https://www.livescience.com/oumuamua-interstellar-hydrogen-or-aliens.html). But now he says he appreciates that they at least treat 'Oumuamua as a deep mystery.

He reserves his sharpest criticism in the book for a "scientific establishment" engaged in "groupthink," which he says is embodied by a paper published in the journal [Nature](https://go.redirectingat.com/?id=92X1588396&xcust=space_us_1379723944009731000&xs=1&url=https%3A%2F%2Fwww.nature.com%2Farticles%2Fs41550-019-0816-x&sref=https%3A%2F%2Fwww.space.com%2Favi-loeb-alien-technology-has-visited) in 2019 by the International Space Science Institute's (ISSI) 'Oumuamua team. The ISSI group, following months of careful study, concluded that it's possible to explain the object's properties through natural processes. For instance, they wrote, its off-gassing could have spewed unusually large dust particles that would have been counterintuitively difficult for telescopes to detect.

(Clouds of fine dust make smudges in the sky visible to telescopes in ways loose collections of bigger clumps are not. A comet known as 2P/Encke sometimes releases a similar form of difficult-to-spot dust, the researchers noted, for reasons unknown.)

They also said that 'Oumuamua's shininess wasn't as anomalous as Loeb suggested, and actually closely matched other small bodies in the solar system. In other words: a weird comet, but not so weird a comet that it's reasonable to assume an alien origin.

Loeb told Live Science that he's been ridiculed for his stance on 'Oumuamua, pointing to an article about his book published Jan. 4 in the [Boston Globe](https://www.bostonglobe.com/2021/01/04/metro/new-book-harvard-astronomer-pushes-theory-about-object-that-passed-through-solar-system-alien-world-may-have-sent-it/), which quoted two critics, including one who suggested Loeb's ideas risked making astrophysicists seem like "nutballs," (the story did cite one physicist who called Loeb "brilliant").

No one is similarly mocked, he said, for studying higher dimensions or string theory — both "esoteric" ideas never observed in the real world.

"Instead they get prizes or honors," Loeb said, while young researchers are warned away from studying advanced alien civilizations in favor of less "taboo" fields that won't harm their careers. Astrobiology, the study of life in space, is now taken seriously as a field, he said. But money flows toward hunts for possible signs of microbial life that are unlikely to turn up definitive proof of life — for example, the expensive hunts for oxygen in exoplanet atmospheres. Even if oxygen is found, Loeb said, that won't prove life exists on alien worlds, because natural processes also produce oxygen. Meanwhile, little cash goes to the hunt for advanced civilizations, he said, even though their signatures (like industrial pollution in their atmospheres) would be more conclusive.

**Hurricane COVID**

People who recovered from COVID-19 are likely to have “robust” and “long-lasting” immunity that lasts for years, a new study suggests. As I have said since January of 2020, we are the cure. We always have been.

Ivermectin

Fenbendazole

According to research published in [“Science,”](https://science.sciencemag.org/content/early/2021/01/06/science.abf4063) people who recovered from COVID-19 have a very low risk of reinfection for at least five to eight months following contraction of the virus due to extremely high levels of immunity memory — but now it appears immunity lasts longer.

“There was a lot of concern originally that this virus might not induce much memory,” Shane Crotty, a researcher and a co-author of the paper, [noted](https://www.technologyreview.com/2021/01/06/1015822/covid-19-immunity-likely-lasts-for-years/?utm_medium=tr_social&utm_campaign=site_visitor.unpaid.engagement&utm_source=Twitter#Echobox=1610124663). “Instead, the immune memory looks quite good.”

After studying the blood samples from approximately 185 people who had previously contracted and recovered from COVID-19, researchers found that contrary to popular belief, 95 percent of participants’ antibodies and T-cell numbers only declined moderately after eight months following the original infection, resulting in longer-lasting immunity. Researchers also found that B-cell numbers, another component of maintaining immunity, remained fairly unchanged or sometimes even grew months after the patient’s recovery from the virus.

According to the study, the immunity memory created by these higher-than-anticipated antibody, T-cell, and B-cell numbers can help the body “restart antibody production and coordinate an attack against the coronavirus” quickly to prevent reinfection and potentially provide immunity for years, as it does with influenza, smallpox, and other diseases. Researchers were also quick to note that the same effect most likely applies to immunity that results from a dose of a COVID-19 vaccine.

One of the limitations of the study is that most people only offered one blood sample, providing only a glimpse into their current immunity. Another limitation is that there remains a small portion of people “with weak immune memory” who might not benefit long-term.

“Immunity varies from person to person, and uncommon individuals with weak immune memory still may be susceptible to reinfection,” Crotty said.

Despite these potential setbacks, researchers expressed hope that between the rollout of the vaccine and growing herd immunity, “durable immunity against secondary COVID-19 disease is a possibility in most individuals.”

**Dreams**

In ancient times, people saw dreams as vessels of meaning that contained divine messages and had the power to alter history.

Alexander the Great was on the verge of breaking ground for his new city when a gray-haired man appeared to him in a dream. The man told him about an island off the coast of Egypt. When Alexander awoke, he scrapped the building site and instead found an island on which to construct Alexandria.

Today people still look for meaning in their dreams. Though our methods of interpreting dreams have changed since Alexander’s day, our desire to understand them is much the same.

In this article, we’ll explore more modern ways of interpreting dreams and go over what nine common dreams might mean.

**What are dreams, and why do we dream?**

Dreams are sensory experiences that happen while you’re sleeping. In a dream, you see images, hear sounds, and feel physical sensations. You may or may not [remember](https://www.healthline.com/health/mental-health/remembering-dreams-psychology) your dreams when you wake up.

Researchers think people dream for several reasons, discussed below.

**May help process emotional life experiences**

First, dreams may help you deal with the emotions you’ve experienced in your life. Brain scans [indicate](https://doi.org/10.3389/fpsyg.2019.00459) that the same areas of your brain are active both when you’re dreaming and when you’re dealing with extremely emotional events.

**May provide practice response scenarios**

It’s also possible that dreams help you practice how to respond to [threatening scenarios](https://doi.org/10.3389/fpsyg.2011.00286) in real life. In this way, dreaming may offer you a fight-or-flight training ground.

**May help sort information collected during the day**

Your brain might also use your dreams to sort through information you’ve gathered during the day, deciding which information is important enough to store in your long-term memory and which you can [forgetTrusted Source](https://www.nih.gov/news-events/news-releases/brain-may-actively-forget-during-dream-sleep).

**May serve psychological purposes, such as revealing subconscious feelings**

Some researchers think dreams may serve psychological purposes in addition to biological ones. For example, they might represent feelings or desires you haven’t acknowledged in your waking life.

For more than a century, psychologists have attempted to create frameworks that can explain the meaning behind dreams — from the wildest to the most mundane.

**Do our dreams have meaning?**

Dream researchers believe they do. Beginning over 100 years ago with the work of Sigmund Freud, psychologists have studied dreams to try to understand what they mean to dreamers.

**Sigmund Freud**

In 1899, psychoanalyst Sigmund Freud published his groundbreaking text “The Interpretation of Dreams.” In it, he proposed that dreams express the unfulfilled wishes of the dreamer’s daily life.

Freud suggested that dreams are made up of two kinds of information:

* manifest content (what actually shows up in your dream)
* latent content (the deep symbolic meaning of your dream)

In Freudian dreamwork, an analyst encourages a dreamer to find the hidden meaning behind their dream through a process called free association.

With free association, you speak openly about everything that might relate to the images and events in your dream. Through this process, you can reveal the deeper wishes that may be hidden in your subconscious mind.

**Carl Jung**

Like Freud, Jung thought dreams were rooted in the unconscious mind and could help heal the dreamer if understood properly.

Jung suggested that dreams reveal the ways an individual has fallen out of balance. In Jungian dream analysis, every aspect of your dream represents something in your psyche.

So, the dream is an effort to communicate with yourself about the things holding you back from becoming a whole and fully developed individual.

**Co-creative dream theory**

Much of modern dream research focuses on the way you respond to a dream’s content both within the dream and when you’re awake. [Researchers](https://doi.org/10.11588/ijodr.2020.1.69293) have called this method of analysis the co-creative dream theory.

The basic idea is that a dream’s meaning doesn’t come from the images in the dream. Instead, you create the meaning by analyzing how you responded to events in the dream.

Here’s a basic example: In co-creative dreamwork, you share with a therapist how your dream ego felt at the beginning of the dream. Your “dream ego” just refers to the version of you that appears in the dream.

You and your therapist outline the basic plot of your dream but leave out any names, places, and details. Then, you examine how your dream ego felt in response to the dream’s events.

You ask questions like “How did I respond when I felt threatened in the dream?” and “How did the dream images change based on my feelings and actions?”

Finally, you and your therapist explore whether you’re using similar responses and strategies — successfully or unsuccessfully — in real life.

**How to analyze your dreams**

You can use the methods and principles of dream research to help you analyze your dreams. Some require you to share your dreams in a group therapy setting or with a psychotherapist.

Let’s take a brief look at a couple of these approaches.

**Ullman’s dream appreciation model**

Montague Ullman founded a dream lab at Maimonides Medical Center in Brooklyn, New York. His approach to dream analysis is called dream appreciation.

The basic steps of dream appreciation are:

* You write down your dream, then read it aloud to a group.
* The people in the group discuss your dream, exploring the emotions they might feel if they experienced your dream.
* You respond and discuss the real-life context of the dream.
* Someone reads your dream back to you, giving you a chance to add more details.
* The people in your group suggest connections between your life and your dream.

Ullman theorized that one of the purposes of a dream is to give you insights that can help you become truer to yourself in real life.

**Hill’s exploration-insight-action model**

Clara Hill, a professor of psychology at the University of Maryland, has written 14 books on psychotherapy, including several on dreamwork. Her model for interpreting dreams pairs the dreamer with a therapist.

The primary steps of the exploration-insight-action process are:

* You explain your dream to your therapist, and together you explore key images in the dream. You also discuss the feelings your dream evoked.
* You and your therapist gather insights based on the content of your dream.
* Your therapist helps you identify how you might change your dream if you had the power to alter it.
* Based on the changes you would make to your dream, you consider how you might make similar shifts in your life.

Hill’s interpretation model aims to make [cognitive behavioral changes](https://www.healthline.com/health/cognitive-behavioral-therapy) in the dreamer’s life — an action plan based on the information supplied by the dream.

**Analyzing dreams on your own**

You can use these frameworks as a guide for interpreting dreams on your own. Here are some ways you could apply well-researched principles to your dreams.

**Note:** Keep pen and paper by your bedside so you can write down your dreams as soon as you wake up.

**9 common dreams and what they could mean**

Certain themes pop up over and over again in dreams. There isn’t much research to explain why these themes are so widespread. But theories about what they mean tend to focus on several common interpretations.

Here’s a brief list of dreams that many people experience, along with how they’re often interpreted in popular culture.

**Flying**

If you feel happy about flying in your dream, one typical interpretation is that you’re feeling a sense of freedom. This might be because you’ve risen above something in your life.

Feeling anxious about the flight, on the other hand, might be connected to your need to escape from something in your life.

**Being naked in public**

One popular interpretation of finding yourself naked in public in a dream is that something in your life has left you feeling more exposed or vulnerable than you’d like.

**Teeth falling out**

Freud viewed this image as having to do with a loss of power. But over time, people have broadened its meaning to include a loss of any kind.

**Being chased**

This is among the most [common nightmares](https://doi.org/10.5664/jcsm.7002) that people experience. One popular explanation is that you’re afraid of something or someone in your life, and you want to get away from it rather than confront it directly.

**Cheating**

Some [dream analysts](https://www.healthline.com/health/dreams-about-cheating) say that these dreams largely relate to feeling dissatisfied with some aspect of your life or relationship. It’s also possible that this theme represents unresolved issues you have from a previous infidelity.

**Being late to an exam**

Variants of this test-anxiety dream include discovering that an exam is in another language or that you meant to drop a course but never did. It’s thought that image is related to feeling like you aren’t meeting expectations in some area of your life.

**Giving birth**

If you’re pregnant or giving birth in a dream, it might reflect an area of your life where you’re experiencing new developments, possibilities, or growth. People often have this dream when they’re on the cusp of an achievement or milestone.

**Being visited by someone who has died**

Visitation dreams can be powerful because the encounters often feel very real. Some people believe these dreams are one of the ways your subconscious mind helps you process the loss of someone you love or someone with whom you need closure.

**Being paralyzed or unable to talk**

This dream is different than others. [Sleep researchers](https://doi.org/10.1523/JNEUROSCI.0482-12.2012) have discovered a phenomenon known as REM atonia — a brief period during REM sleep when your body is paralyzed and can’t move.

Researchers think that when you wake up before that stage of REM sleep is complete, your mind can sense that your body is unable to move. In the moments between sleep and wakefulness, it may feel as though you’re just dreaming it.

**Key takeaways**

People are fascinated by dreams. That’s why we have such a long history of designing frameworks to explain and interpret them.

Freud pioneered this body of research. Later, Jung expanded dream theory with his own ideas. Modern co-creative dream theories consider how you respond to dream imagery and how you can use that information to guide your waking life.

If you want to explore the meaning of your dreams, you can work with a therapist who specializes in dreamwork. You can also try group therapy to get the benefit of other people’s reactions to your dreams.

Or you can explore your dreams by yourself, using well-researched frameworks and the pages of your own journal.

**How long do dreams really last?**

It’s hard to say how long an individual dream may last. But experts can provide estimates about how long you may spend dreaming.

According to the National Sleep Foundation, the average person dreams [four to six times per night](https://www.sleep.org/articles/how-often-dreams/). You might spend as much [as 2 hours](https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Understanding-Sleep) in dreamland over the course of a night’s sleep, reports the National Institutes of Health.

**How long does REM sleep last?**

Most of the dreaming seems to occur during rapid eye movement, or REM sleep. REM sleep is one of the [two basic categories of sleep](https://www.healthline.com/health/deep-sleep) that your body experiences, with the other being non-rapid eye movement (NREM) sleep.

And while you can dream during NREM sleep, your dreams are more likely to be the most vivid during REM sleep.

REM sleep cycles tend to occur about every 1.5 to 2 hours. Your body will first enter REM sleep about 90 minutes after you fall asleep. But you might only remain in that first cycle of REM sleep for 5 minutes or so.

Later, when you cycle back through NREM sleep into REM sleep again, you may remain in REM sleep for a longer period of time.

You might spend a half-hour in a cycle of REM sleep as the night wears on. If you sleep for about 8 hours, you might spend [approximately one-quarter of that time](https://www.sleep.org/articles/how-often-dreams/) in REM sleep.

**How long do nightmares last?**

Can you remember having a [nightmare](https://www.healthline.com/health/healthy-sleep/recurring-nightmares)? The American Academy of Sleep Medicine estimates that somewhere between [50 and 85 percent](http://sleepeducation.org/sleep-disorders-by-category/parasomnias/nightmares/risk-factors) of adults say they’ve had a nightmare.

There doesn’t seem to be a definitive answer about how long a typical nightmare lasts. But experts note that nightmares do tend to happen in later cycles of REM sleep, often in the [last third of the night](http://sleepeducation.org/sleep-disorders-by-category/parasomnias/nightmares/overview).

Women are more likely than men to report that they’ve had nightmares. There are numerous potential causes, including stress and anxiety or certain medications.

And while anyone can have an occasional heart-pounding nightmare, some people experience regular episodes of nightmare-filled sleep.

Some of these nightmares can be attributed to [PTSD](https://www.healthline.com/health/post-traumatic-stress-disorder), while others may not seem to have a readily identifiable cause.

Nightmare disorders are relatively rare: According to the American Academy of Sleep Medicine, about [4 percent of adults](http://sleepeducation.org/news/2018/06/25/treating-nightmare-disorder-in-adults) have a nightmare disorder.

But research suggests as many as [71 percentTrusted Source](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5078833/) of people who’ve experienced trauma have regular nightmares.

There are [treatment options](https://doi.org/10.5664/jcsm.7178) available to help people with nightmare disorder, including image rehearsal therapy and cognitive behavioral therapy.

So, if you think you may be affected, talk to your doctor.

**How many dreams do we have a night?**

It’s almost impossible to determine how many dreams you have in a typical night.

To complicate things, you may have dreams but wake up and have no memory of them.

Some [older researchTrusted Source](https://www.ncbi.nlm.nih.gov/pubmed/11247053) suggests there’s a correlation between the time you spend in REM sleep and the time you spend dreaming.

**Other fun facts about dreams**

Dreams seem to be irresistible to researchers, who continue to explore the science behind them. Here are some other interesting facts about dreams and dreaming:

* **Kids dream in NREM sleep.** Children under 10 years old dream much more often in the NREM stage of sleep than in the REM stage of sleep. In fact, the REM stage only accounts for about [20 percent](https://www.sleep.org/articles/how-often-dreams/) of their dream time.
* **Your body is basically paralyzed while you’re dreaming.** During REM sleep, your eyes will flutter or move quickly, but your major muscle groups will become temporarily paralyzed. The cause of the paralysis has been intensely debated and investigated, but [some research](https://www.jneurosci.org/content/32/29/9785?utm_source=TrendMD&utm_medium=cpc&utm_campaign=JNeurosci_TrendMD_0) in rats suggests neurotransmitters inhibit certain motor neurons during REM sleep, causing the paralysis.
* **Some people seem to act out dreams in their sleep.** That’s because they experience REM sleep behavior disorder (RBD). It can cause you to act out your dreams while you’re sleeping.
* **Your brain may choose what to forget while you dream.** A [2019 studyTrusted Source](https://www.ncbi.nlm.nih.gov/pubmed/31604241) explained that neurons producing melanin-concentrating hormone (MCH) seemed to impair the memory-making function in a part of the brain called the [hypothalamus](https://www.healthline.com/human-body-maps/hypothalamus) during REM sleep.
* **Medications can affect your dreams.** For example, beta-blockers lower your blood pressure, but they might also [amp up the intensity](https://www.healthline.com/health/vivid-dreams-causes) of your dreams.
* **Some people dream in black and white.** Age may be a factor. Older people who watched more black-and-white television seemed to dream more often in gray scale than younger people who grew up with full-color media, according to one [2008 study](https://www.sciencedirect.com/science/article/abs/pii/S1053810008001323?via%3Dihub).

**The bottom line**

When it comes to dreams, everyone is different. Maybe you rarely, if ever, recall any of your dreams. Or maybe you may frequently wake up with a vivid recollection ringing in your head.

But regardless of whether you remember your dreams or not, you do dream at various points in the night, if you sleep long enough.

It’s just your brain at work in a nightly process with some still-to-be-determined goal.

If you start to experience nightmares on a recurring basis, though, contact your doctor. Your nightmares could be the result of an underlying medical condition that can be addressed.