

The March 1st, 2017 Edition of THE REVENGE HUMP DAY!

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Welcome to the March 1st, 2017 Edition of THE REVENGE HUMP DAY!

This has been a very hard week for me in some because of the ups and downs I have been subjected to. On Thursday, February 23, my old friend, "Klon" Newell. I met Klon over 30 years ago and he has been one of my closest friends since then. He helped me start LibertyCon and has helped me keep my sanity at times when things around me were crumbling. A rock of sanity in a world of crazy, Klon would always make me laugh as he was giving me the devil. He was loved by almost all who know him and his passing leaves an incredibly large hole in my universe. But I know I will be seeing him again in a better place. Goodbye my old friend, I will miss you forever.

On Sunday, February 26, I had the privilege of watching my grandchildren, Alexander the Grape and Beth, Destroyer of Worlds, received the sacrament of confirmation at Saint Jude Catholic Church. SHE WHO MUST BE OBEYED served as sponsor for Alexander the Grape and Jason, the Deposed Emperor, served as the sponsor for Beth, Destroyer of Worlds. The Sunday Evening service was very beautiful and very crowded. SWMBO made sure that Brandy, Emperor of the Known Universe, Sister Betty Vannucci (Linda's Aunt who is a Sister of Charity), Ms. Barbara Durkin (My children's other mother) and Kyla (Alex's beautiful girl friend) all got to the church an hour and 15 minutes early to make sure we got a seat for the festivities right up front. We had a great view, but I do admit that the pew really got hard to sit in for that long. But it was an event that I didn't want to miss because it's a once in the life opportunity for our family. I am proud of both of my grandchildren and I will remember Sunday for the rest of my life.

One Monday I woke up to a case of the sniffles and to find out that SWMBO had taken Poppee to the hospital. Let me tell you what happened in her own words from facebook. "Dad back in the hospital as of yesterday morning!!! Same problem!! Fluid overload and extreme shortness of breath!!! As always prayers would be appreciated!!!!!" Poppee will be staying at Memorial Hixson for a few days while they get him stabilized. You know, when you hit 92 years old problems with your health seem to happen to you at warp speed. We are looking forward to getting Poppee back home with us.

So on that "hopeful note", why don't y'all sit back and relax because here's the best in gossip, jokes and science for your reading pleasure!

Uncle Timmy

<G>~<O>~<S>~<S>~<I>~<P>~<S>~<T>~<A>~<R>~<T>~<S>~<H>~<E>~<R>~<E>~<I>

"KLON" NEWELL PASSES AWAY

From: "Mike Waldrip" waldripk@gmail.com

For those of you who were not aware, Dick "Klon" has been in declining health for the past year or so. Last Thursday he was taken to the hospital after a fall. He had progressed into episodic dementia and was unable to eat normally. After several difficult days he passed peacefully this morning (Saturday, February 25, 2017) while in hospice.

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There will be no funeral service as he had insisted for many years that his body be donated to the Medical College of Georgia (also for those many years I insisted they wouldn't take him if they had a choice).

There will be a memorial service at a latter date.

Think of him fondly today and please pass the word..

IT IS GREAT SADNESS IT IS MY DUTY TO TELL ALL OF MY FRIENDS THAT DICK "KLON" NEWELL PASSED AWAY THIS MORNING IN ATHENS, GEORGIA. KLON SUFFERED A FALL LAST WEEK AND STARTED TO HAVE PROBLEMS EATING. KLON WHEN AWAY EXACTLY AS HE WOULD HAVE WANTED. NO FUSS, NO MUSS AND QUIETLY.

KLON WAS ONE OF THE FOUNDING MEMBERS OF LIBERYCON OVER 30 YEARS AGO AND SERVED ON IT'S BOARD FOR OVER 10 YEARS. HE WAS OUR FIRSGT DIRECTOR OF PROGRAMMING AND AN INSPIRATION TO SPIRIT OF OUR CONVENTION.

I WILL MISS MY OLD FRIEND BUT KNOW THAT I WILL BE SEEING HIM AGAIN SOMEDAY. I KNOW THAT HE IS IN HEAVEN NOW SWAPPING JOKES WITH KERRY GILLEY AND WAITING FOR ME TO JOIN THEM. IT IS REALLY HARD TO WRITE THIS BECAUSE OF HOW CLOSE I WAS TO HIM FOR DECADES. ALL I CAN SAY IT THAT THERE IS A HOLE IN MY HEART THAT WILL NEVER BE FILLED. GOODBYE MY OLD FRIEND. TIM

<L>~<I>~~<E>~<R>~<T>~<Y>~<C>~<O>~<N>

THE BIRMINGHAM COMICS FESTIVAL 2017

THE BIRMINGHAM COMICS Festival is proud to announce it will be celebrating its third consecutive year of activity across the second city this June.

A city-wide series of comics-related events, large and small, will again take place from fun days out for kids to academic lectures, exhibitions and film shows alongside its popular convention that is moving to a new city-centre based state-of-the-art venue.

For more information visit:

<https://birminghamcomicsfestival.com/bcf-2017-press-release-1/>

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THE \$10 RASPBERRY PI ZERO W

From: "Mel Boros" boros@pobox.com

A bit of nostalgia hit after viewing this video. I can remember buying a "deluxe" 25-in-1 project board from Allied Radio. It was kit comprised of two transistors (germanium) and related components mounted on a circuit board that had connection holes for jumper wires (with conical pins crimped to each end). It cost \$25~\$35 back in the 1950's.

Today, for \$10 one can buy this tiny computer that can be programmed with complex functionality. It has HDMI video, USB for keyboard & mouse, and WiFi & Bluetooth. It also has a neat case housing.

<http://www.techrepublic.com/article/raspberry-pi-zero-wireless-the-smart-persons-guide/?ftag=TRE684d531&bhid=20475111516392849658393921790594>

Amazing!

<L>~<I>~~<E>~<R>~<T>~<Y>~<C>~<O>~<N>

Re: Rhino poachers

From: "Frank Brayman" afranklin3@gmail.com

Saw a documentary about Kenya's national parks on National Geographic. Apparently, rhino and elephant poachers these days are about as well armed as a Mexican drug cartel (same reason - big money in it.) It also showed an anti-poaching patrol by Kenyan game wardens. There were a dozen of them, and they looked a lot like the King's African Rifles circa 1945, complete with Bren machine guns, but minus the British officer. I'm guessing that the 50 dead poachers were killed in fire fights, not just random guys that the wardens lit up to make their enforcement quota.

<T>~<H>~<E>~<J>~<O>~<K>~<E>~<S>~<S>~<T>~<A>~<R>~<T>~<H>~<E>~<R>~<E>

From: "Ray Beloate" beerman@rittermail.com

MUSLIM BOOKSTORE

I was recently window shopping in the mall and I approached a Muslim book store.

I was wondering what exactly was in a Muslim bookstore, so I went in.

As I was wandering around taking a look, the clerk gave me the evil eye, and then asked if he could help me.

I imagine I didn't look like his normal clientele, so I asked, "Do you have a copy of Donald Trump's book on his U.S. immigration policy regarding Muslims and illegal aliens?"

The clerk said, "Kiss my ass... get out... and stay out!"

I said, "Yes, that's the one. Do you have it in paperback?"

<J>~<O>~<K>~<E>~<S>

AN OLDIE BUT A GOODIE

A retired older couple return to a Mercedes dealership where the salesman has just sold the car they were interested in to a beautiful, leggy, busty blonde in a mini skirt and a halter top.

The old man was visibly upset. He spoke to the salesman sharply. "Young man, I thought you said you would hold that car till we raised the \$55,000 asking price," said the older man. "Yet I just heard you closed the deal for \$45,000 to the lovely young lady there. And, if I remember right, you had insisted there was no way you could discount this model."

The salesman took a deep breath, cleared his throat and reached for a large glass of water. "Well, what can I tell you? She had the cash ready, didn't need any financing help, and, Sir, just look at her, how could I resist?", replied the grinning salesman sheepishly.

Just then the young woman approached the senior couple and gave the car keys to the old man... "There you go," she said. "I told you I could get that idiot to lower the price See you later, Dad. Happy Father's day."

OPTIMISM IS GOING AFTER MOBY DICK IN A ROWBOAT AND TAKING TARTAR SAUCE WITH YOU!

<J>~<O>~<K>~<E>~<S>

TIME MANAGEMENT:

Yesterday my daughter e-mailed me again, asking why I didn't do something useful with my time.

"Like sitting on the couch, watching TV and drinking wine is not a good thing?" I asked.

Talking about my "doing-something-useful" seems to be her favorite topic of conversation.

She was "only thinking of me", she said and suggested that I go down to the Senior Center and hang out with the guys.

I did this and when I got home last night, I decided to play a prank on her.

I e-mailed her and told her that I had joined a Parachute Club.

She replied, "Are you nuts? You are 81 years old and now you're going to start jumping out of airplanes?"

I told her that I even got a Membership Card and e-mailed a copy to her.

She immediately telephoned me and yelled, "Good grief, dad, where are your glasses?"

This is a membership in a Prostitute Club, not a Parachute Club!"

"Oh man, I'm in trouble again," I said, "I really don't know what to do. I signed up for five jumps a week!"

The line went quiet and her friend picked up the phone and said that my daughter had fainted.

Life as a Senior Citizen is not getting any easier, but sometimes it can be fun.

<J>~<O>~<K>~<E>~<S>~<of>~<the>~<W>~<E>~<E>~<K>

From: "Mike Waldrip" waldripk@gmail.com

Will Rogers, who died in a 1935 plane crash, was one of the greatest political sages this country has ever known.

Some of his sayings:

1. Never slap a man who's chewing tobacco.
2. Never kick a cow chip on a hot day.
3. There are two theories to arguing with a woman. Neither works.
4. Never miss a good chance to shut up.
5. Always drink upstream from the herd.
6. If you find yourself in a hole, stop digging.
7. The quickest way to double your money is to fold it and put it back into your pocket.
8. There are three kinds of men: The ones that learn by reading. The few who learn by observation. The rest of them have to pee on the electric fence and find out for themselves.
9. Good judgment comes from experience, and a lot of that comes from bad judgment.
10. If you're ridin' ahead of the herd, take a look back every now and then to make sure it's still there.
11. Lettin' the cat outta the bag is a whole lot easier'n puttin' it back.
12. After eating an entire bull, a mountain lion felt so good he started roaring. He kept it up until a hunter came along and shot him.
The moral: When you're full of bull, keep your mouth shut.

ABOUT GROWING OLDER...

First ~ Eventually you will reach a point when you stop lying about your age and start bragging about it.

Second ~ The older we get, the fewer things seem worth waiting in line for.

Third ~ Some people try to turn back their odometers. Not me; I want people to know 'why' I look this way. I've traveled a long way, and some of the roads weren't paved.

Fourth ~ When you are dissatisfied and would like to go back to youth, think of Algebra.

Fifth ~ You know you are getting old when everything either dries up or leaks.

Sixth ~ I don't know how I got over the hill without getting to the top.

Seventh ~ One of the many things no one tells you about aging is that it's such a nice change from being young.

Eighth ~ One must wait until evening to see how splendid the day has been.

Ninth ~ Being young is beautiful, but being old is comfortable.

Tenth ~ Long ago, when men cursed and beat the ground with sticks, it was called witchcraft. Today it's called golf.

And, finally ~ If you don't learn to laugh at trouble, you won't have anything to laugh at when you're old.

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FLORIDA WOMAN STOPS ALLIGATOR ATTACK USING A SMALL BERETTA PISTOL

This is a story of self-control and marksmanship by a brave, cool-headed woman with a small pistol against a fierce predator.

What's the smallest caliber that you would trust to protect yourself? A Beretta Jetfire.

Here's her story in her own words:

"While out walking along the edge of a pond just outside my house in The Villages with my soon to be ex-husband discussing property settlement and other divorce issues, we were surprised by a huge 12-ft. alligator which suddenly emerged from the murky water and began charging us with its large jaws wide open. She must have been protecting her nest because she was extremely aggressive.

If I had not had my little Beretta Jetfire .25 caliber pistol with me, I would not be here today!"

"Just one shot to my estranged husband's knee cap was all it took. The 'gator got him easily and I was able to escape by just walking away at a brisk pace.

It's one of the best pistols in my collection, plus the amount I saved in lawyer's fees was really incredible. His life insurance was a big bonus.

<J>~<O>~<K>~<E>~<S>

FORTUNE TELLER

In a dark and hazy room, peering into a crystal ball, the fortune teller delivered grave news:

"There's no easy way to tell you this, so I'll just be blunt. Prepare yourself to be a widow. Your husband will die a violent and horrible death this year."

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Visibly shaken, the woman stared back at the old woman's lined face, then at the single flickering candle, then down at her shaking hands.

She took a few deep breaths to compose herself. Her mind raced. A question forced its way out... she simply had to know.. She met the Fortune Teller's gaze, tried to steady her voice and asked, "Will I be acquitted?"

<J>~<O>~<K>~<E>~<S>~<of>~<the>~<W>~<E>~<E>~<K>

From: "Jim Woosley" Jimwoosley@aol.com



SGT AWESOME

Saves the Day
One Kitten at a Time

<J>~<O>~<K>~<E>~<S>



<J>~<O>~<K>~<E>~<S>~<of>~<the>~<W>~<E>~<E>~<K>

From: "Bob Bolgeo" bbolgeo@aol.com

A heartwarming story! Not all emails have to be crude. Now and then it is good to have one that is just cute and sweet.

Story of a little girl and her dead goldfish.



<J>~<O>~<K>~<E>~<S>

THE NEW APPLE iTIT

Apple computer announced today that it has developed a computer chip that can store and play stereo music in women's breast implants.

The iTit, will cost between \$499 and \$699, depending on 'speaker size'.

This is considered to be a major breakthrough because women have always complained about men staring at their breasts and not listening to them.



<YOU>~<>~<JUST>~<>~<CAN'T>~<>~<MAKE>~<>~<THIS>~<>~<STUFF>~<>~<UP!>

YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Tim Bolgeo" tbolgeo@epbfi.com

WITCHES UNITE TO CAST 'BINDING SPELL' ON TRUMP AND FOLLOWERS

by THOMAS D. WILLIAMS, PH.D. 24 Feb 2017 5,635

<http://www.breitbart.com/big-government/2017/02/24/witches-unite-cast-binding-spell-trump-followers/>

Getty

A group of witches is attempting to use black magic to neutralize U.S. President Donald Trump by casting a "binding spell" to prevent him from governing.

The "mass spell to bind Donald Trump" will be performed at midnight on every waning crescent moon beginning Friday, February 24, "until Donald Trump is removed from office," the group's website states.



The mass ritual will allegedly be repeated again March 26, April 24, May 23, June 21 (the summer solstice), July 21, and August 19.

The spell also invokes evil on “those who abet” Trump, which would seem to appear to cover his staff and political nominees, and perhaps the millions who voted for him as well.



The spell involves such items as an unflattering photo of Trump, a tower tarot card, a tiny stub of an orange candle, a pin or small nail, water, salt, a feather and an ashtray

“This binding spell is open source, and may be modified to fit your preferred spiritual practice or magical system,” the site explains. What is critical is “the simultaneity of the working” as well as “the mass energy of participants.”

“Some lodges/covens are doing a variation of this as a group working, while a number of solitary practitioners are planning to connect and livestream via Facebook, Twitter, and other social media,” the site explains.

In reaction, a number of Christian groups and individuals have promised to pray for Mr. Trump, asking God’s blessings on his work and on the nation.

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From: “Tim Bolgeo” tbolgeo@epbfi.com

3D PRINTING MARTIAN HABITATS FROM THE GROUND UP

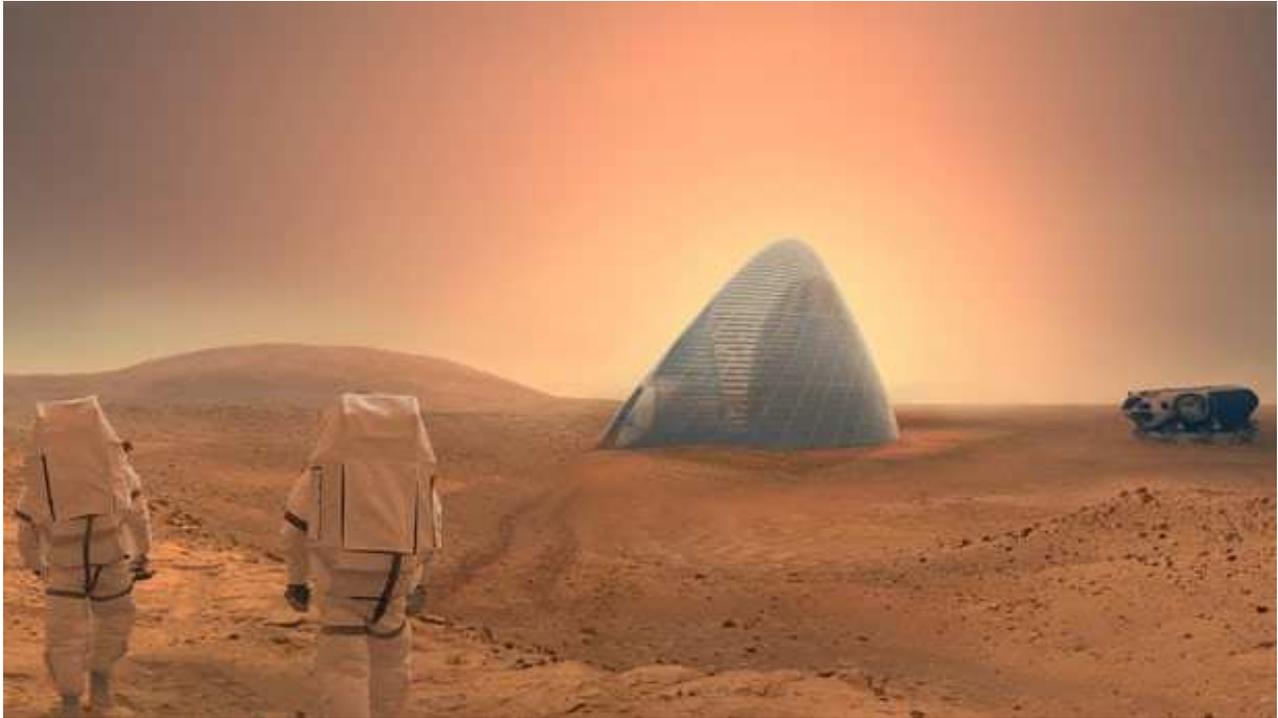
Michael Irving, February 21st, 2017

<http://newatlas.com/3d-printed-mars-habitat-extracted-metal/48017/>

Habitats for the first astronauts to Mars could be 3D printed, by extracting and refining metals from the soil(Credit: Team Space Exploration Architecture and Clouds Architecture Office)

Given the cost of transporting goods to Mars, the first human colonists of the Red Planet will need to pack lightly – but it’s going to take a lot of equipment to get that settlement set

up. Building habitats, tools and parts out of local resources on arrival would be an ideal solution, but Mars is a pretty barren place. So researchers from NASA and the University of Central Florida (UCF) are investigating how metals could be extracted from the Martian soil, refined, and used as "ink" to 3D print vital components.



NASA has already outlined its roadmap to getting humans to Mars, which involves studying what kind of resources that the first settlers could harvest from the planet. The less we need to cart from Earth, the better, with the agency saying that finding ways to live off the land could save over US\$100,000 per kilogram (2.2 lb) per launch. It's known as in situ resource utilization, and that's the goal of this new project.

With that in mind, the NASA and UCF team plans to study a process called molten regolith electrolysis as a way to build structures locally. Regolith – the loose Martian soil – could be placed inside a chamber and heated to almost 1,650° C (3,000° F), before electrolysis melts down the metals and, as a bonus, produces much-needed oxygen as well. That molten metal can then be used in a 3D printer to create parts or pieces of shelter on demand, like the Sfero igloo concept.

"It's essentially using additive-manufacturing techniques to make constructible blocks," says Sudipta Seal, director of UCF's Advanced Materials Processing & Analysis Center. "UCF is collaborating with NASA to understand the science behind it."

Using 3D printers to construct liveable housing isn't as outlandish a concept as it seems: the world's first 3D printed office building has gone up in Dubai (where else?) and a Chinese firm used the technique to build 10 houses in a single day. Replicating that success with local Martian materials is a new challenge of course, but that's the point of the new project.

Source: University of Central Florida

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HOW TO GET BACK TO THE MOON IN 4 YEARS--THIS TIME TO STAY

The answer is pretty straightforward: turn to private industry

By Howard Bloom on February 22, 2017

https://blogs.scientificamerican.com/quest-blog/how-to-get-back-to-the-moon-in-4-years-this-time-to-stay/?WT.mc_id=SA_SPC_20170223



Artist's rendering of the Space X Falcon Heavy rocket. Credit: Space X Flickr

According to the Washington Post, Donald Trump wants to make a splash in space. And he apparently wants to make that splash by orbiting the Moon.

Orbiting the Moon? Merely circling it? What a comedown from America's past high...landing twelve humans on the lunar surface. But there is a way to outdo America's past achievements. And to accomplish this in a shorter time with a smaller budget than the Trump team imagines.

It's a way to get to the Moon and to stay there permanently. A way to begin this process immediately and to achieve moon landings in less than four years.

How?

Turn to private industry. Turn to two companies in particular—Elon Musk’s SpaceX and Robert Bigelow’s Bigelow Aerospace. Why? Because the approach that NASA’s acting administrator Robert Lightfoot is pushing won’t allow a Moon landing.

Lightfoot’s problem lies in the two pieces of NASA equipment he wants to work with: a rocket that’s too expensive to fly and is years from completion—the Space Launch System; and a capsule that’s far from ready to carry humans—the Orion. Neither the SLS nor the Orion are able to land on the Moon. Let me repeat that. Once these pieces of super-expensive equipment reach the moon’s vicinity, they cannot land.

Who is able to land on the lunar surface? Elon Musk and Robert Bigelow. Musk’s rockets—the Falcon and the soon-to-be-launched Falcon Heavy—are built to take off and land. So far their landing capabilities have been used to ease them down on earth. But the same technology, with a few tweaks, gives them the ability to land payloads on the surface of the Moon. Including humans. What’s more, SpaceX’s upcoming seven-passenger Dragon 2 capsule has already demonstrated its ability to gently itself down to earth’s surface. In other words, with a few modifications and equipment additions, Falcon rockets and Dragon capsules could be made Moon-ready.

There’s more. Within the space community, there is a wide disenchantment with “flags and footprints” missions. Flags and footprints missions are those like the Apollo landings in which astronauts land, plant a flag, hit a golf ball, then disappear for 45 years. Major segments of the space community want every future landing to add to a permanent infrastructure in the sky. And that’s within our grasp thanks to Robert Bigelow.

In 2000, Bigelow purchased a technology that Congress had ordered NASA to abandon: inflatable habitats. For the last sixteen years Bigelow and his company, Bigelow Aerospace, have been advancing inflatable habitat technology. Inflatable technology lets you squeeze a housing unit into a small package, carry it by rocket to a space destination, then blow it up like a balloon. Since the spring of 2016, Bigelow, a real estate developer and founder of the Budget Suites of America hotel chain, has had an inflatable habitat acting as a spare room at the International Space Station 220 miles above your head and mine. And Bigelow’s been developing something far more ambitious—an inflatable Moon Base, that would use three of his 330-cubic-meter B330 modules. What’s more, Bigelow has been developing a landing vehicle to bring his modules gently down to the Moon’s surface.

Then there’s a wild card—Jeff Bezos. Bezos’ Blue Origin rockets already have a well-tested capacity to take off, land, then take off again. Which means that in the next few years Bezos’ rockets, too, could land cargoes and passengers on the Moon.

If NASA ditched the Space Launch System and the Orion, it would free up three billion dollars a year. That budget could speed the Moon-readiness of Bigelow’s landing vehicles, not to mention SpaceX’s Falcon rockets and could pay for lunar enhancements to manned Dragon 2 capsules. In fact, three billion dollars a year is far greater than what Bigelow and Musk would need. That budget would also allow NASA to bring Jeff Bezos into the race.

And it would let NASA refocus its energy on earth-orbit and lunar-surface refueling stations...plus rovers, lunar construction equipment, and devices to turn lunar ice into

rocket fuel, drinkable water, and breathable oxygen. Not to mention machines to turn lunar dust and rock into building materials.

This new Moon program could be achieved within NASA's current budget. In fact, members of the group I run—the Space Development Steering Committee—estimate the total cost of what I've described (Moon landings plus a permanent moon base) at ten billion dollars. That's just three years' worth of the money currently being funneled into the SLS and the Orion.

Also speaking in the Washington Post, President Trump says he wants to send “a clear signal to the Chinese that the U.S. intends to retain dominance in space.” Looping the loop around the moon without touching down would demonstrate only one thing: America's fecklessness. But landing Americans on the lunar surface for long stays at an American base would send a message of a dramatically different kind.

If NASA deep-sixed the Space Launch System and the Orion, then bought Moon-landing services from SpaceX, Bigelow, and, possibly, Blue Origin, America could land its citizens on the Moon in less than four years. But this time, thanks to Bigelow's Moon Base, Americans be there to stay.

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A TASTY TROVE OF EXOPLANETS AT TRAPPIST-1

By Lydia Chain, Lee Billings, Michael Lemonick on February 22, 2017

https://www.scientificamerican.com/video/a-tasty-trove-of-exoplanets-at-trappist-1/?WT.mc_id=SA_SPC_20170223

Stumble Upon

A baker's half-dozen of Earth-size worlds is orbiting a (relatively) nearby star—and some could be habitable

There's big news this week from 40 light years away, a star system called TRAPPIST-1. There's something happening there that no one has ever seen before.

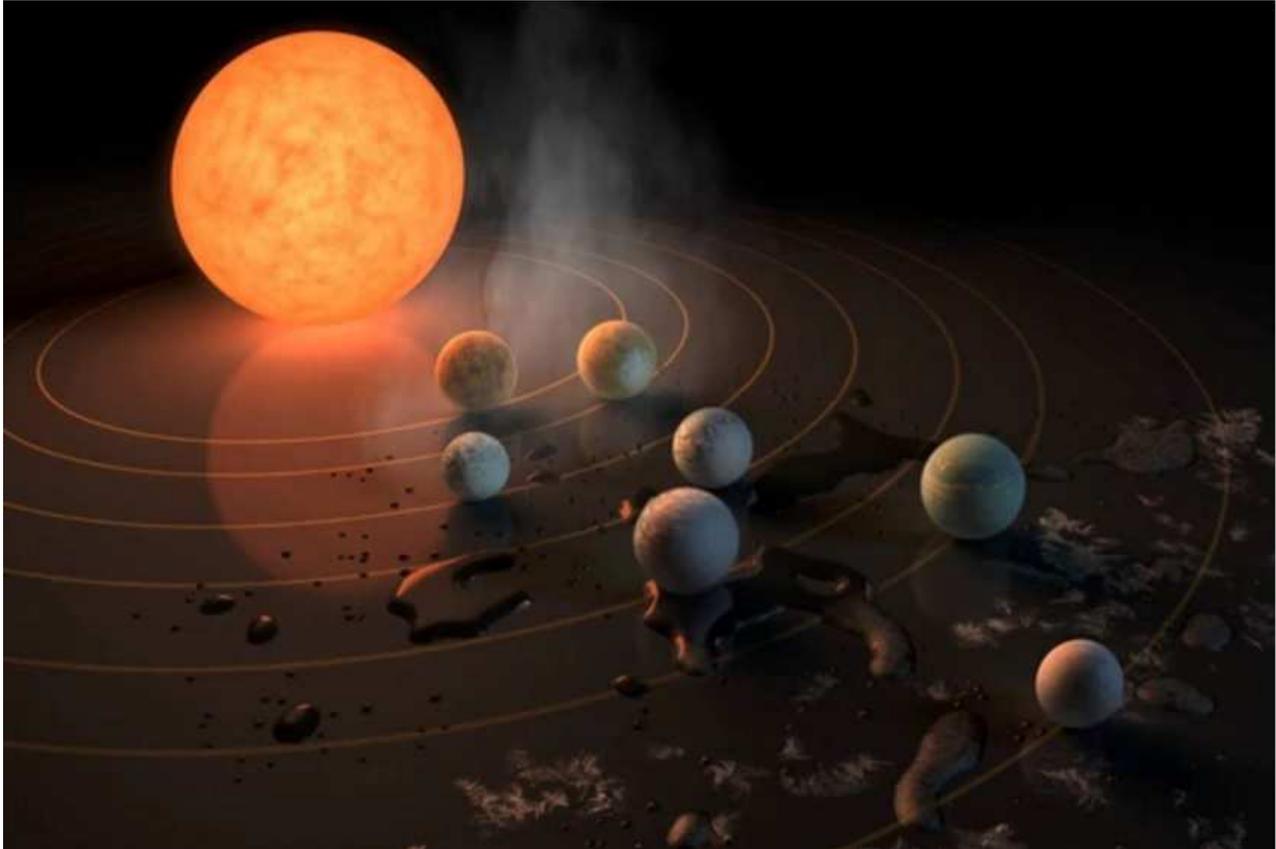
I'm Mike Lemonick. And I'm Lee Billings. And we're here to talk about exoplanets, one of our favorite subjects. So when exoplanets were first discovered 20 years ago, they were mostly gaseous giants like Jupiter, which is interesting but it's not a place where you could have life. There's just no solid surface to stand on. We've been looking and looking for solid rocky planets like Earth ever since, and we've found a lot of them but there's a new announcement that is probably the most exciting one we've heard yet.

Very exciting. We've found a couple, haven't we?

There's not just one Earth-like planet that we're talking about. Earth-sized planet. Not two. Not three. Not five. Seven orbiting one single star, all of them about the size of Earth. That's pretty yummy.

That's pretty yummy. You can put them down. So Lee, tell us how they found these planets.

Yeah, so it's pretty interesting. What they did to actually find them was something called the transit technique, and what that means is as seen from Earth, they essentially cross the face of their star in their orbit. And that casts a shadow towards us here that we can see as a little dimming of the star. We measure the dimming of the star, the size of the shadow, and thus the size of the planet.



Ok, but size alone is, I mean size matters, but size alone is not the only thing. You want to know that density, you want to know if it's rocky like the Earth. I understand that they have determined that all of these planets are probably rocky. To find that out, you have to know their density. Right? And so we find that out by looking at them as they orbit the star. And as they do that their gravity pulls on each other. Their orbits speed up and slow down. And by measuring that we can tell how much mass each of them has. And if you have the mass and you've got the volume, you can calculate the density. And it looks like the density is probably very similar to Earth. These are probably made of rock.

Which is pretty nifty.

It's pretty nifty. But it's not enough to show that they are habitable. They also have to be at the right distance from this small cool star to allow water to be in liquid form. And again, it's pretty amazing because,

Well, three of them are in this habitable zone, and that's kind of like Venus, Earth, and Mars are in the habitable zone here in our solar system, of course only one of those planets is

habitable, ours. And here there's also three planets in this habitable zone around this star that's about 40 light years away. It's a much smaller star than the Sun. It's a little tiny red dwarf, it's called. And again, they are all huddled around it like a campfire.

Right, but in order to know whether there's actually the right conditions for life, it doesn't just have to be the right temperature, you have to know what gasses are in the atmosphere. And we actually have a way that we'll soon be able to do that.

That's right. In 2018, just next year folks, let's hope, NASA is going to be launching its James Webb Space Telescope, a giant piece of kit that's going to be about one and a half million kilometers out there beyond the orbit of the moon, and it's going to be able to look at these planets as they transit across the face of the star.

Yeah, and so what happens is if you look at the glaze on this little donut hole, that little thin glaze, the telescope will be able to watch the star light penetrating through the atmosphere, that thin atmosphere, and actually measure the gasses that are inside. So we don't have long to wait before we find out possibly whether these things are actually habitable.

And even though they may not be habitable, they are certainly edible.

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**HEART FAILURE BREAKTHROUGH: STEM CELLS TRIAL OFFERS HOPE TO MILLIONS
A METHOD OF REPAIRING DAMAGED HEART MUSCLES HAS BEEN CALLED THE
"BIGGEST BREAKTHROUGH SINCE TRANSPLANTS".**

By LUCY JOHNSTON, EXCLUSIVE

PUBLISHED: 00:01, Sun, Feb 26, 2017 | UPDATED: 08:36, Sun, Feb 26, 2017

A high-level meeting has paved the way for global trials to begin on hundreds of patients.

British scientists have found a way to use stem cells to repair damaged tissue which could help millions living with heart failure, the UK's leading cause of death.

Scarring due to disease or heart attacks affects more than two million people in Britain.

Initial trials involving more than 100 patients are being planned for the autumn at two London hospitals.

World renowned cardiac surgeon Professor Steve Westaby, who helped pioneer the revolutionary technique, said it had been thought that repairing heart damage was impossible.

But results from a long-term trial that began in Greece five years ago have shown that this is not the case.

Preliminary data from this trial showed the engineered stem cells, known as Heartcel, can reverse scarring by up to 79 per cent.

The data, presented at the European Society of Cell and Gene Therapy in Florence, showed an average of 40 per cent reduction in heart damage in those on the treatment.

Last month researchers finalised talks with European and US regulators to discuss the timetable for global trials next year involving 500 people.



GETTY Stem cells can repair damaged heart tissue, researchers believe

Professor Westaby, from the John Radcliffe Hospital, Oxford, said: “I am very excited at the prospect of a trial which will hopefully lead to the availability of this stem cell treatment to thousands of patients annually in the UK.”

Other scientists have tried in vain to repair damaged heart muscle using stem cells over the past few decades.

This is the first time scarring has been shown to be reversible. It could herald an end to transplants and lead to a treatment for heart failure within three to five years.

Stem cells can reverse scarring by up to 79 per cent

Professor Westaby said: “This would be the biggest breakthrough since the first transplants three decades ago.”



Professor Westaby has been working on the technique for more than a decade and is carrying out the study with Professor Kim Fox, head of the National Heart and Lung Institute, at Imperial College London.

The implanted stem cells were created by medical outfit Celixir, co-founded by Nobel laureate Professor Martin Evans, the first scientist to culture mice embryonic stem cells in a laboratory.

Professor Westaby was inspired to work on the breakthrough in 1999 after a four-month-old baby girl's heart healed itself after he carried out a major life-saving operation. Kirsty Collier, from Swindon, was dying of a serious and rare heart defect. In a last ditch effort Professor Westaby cut away a third of her badly damaged heart. Surprisingly it began to beat. Fourteen years later a scan has shown that the heart had healed itself.

Now Kirsty, 18, has a normal one. Professor Westaby said: "She was essentially dead and was only resurrected by what I regarded at the time as a completely bizarre operation. "The fact there was no sign of heart damage told me there were foetal stem cells in babies' hearts that could remove scarring of heart muscle. That never happens in adults.

"It's all down to the clues we got from Kirsty's operation."

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LOCKHEED MARTIN SUPERSONIC JET HITS THE WIND TUNNEL – IN MODEL FORM

David Szondy, February 24th, 2017

<http://newatlas.com/lockheed-martin-quesst-wind-tunnel/48103/>



Artist's concept of Lockheed Martin's Quiet Supersonic Technology (QueSST) X-plane(Credit:Lockheed Martin)

The March 1st, 2017 Edition of THE REVENGE HUMPH DAY!

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Last March, NASA announced that as part of its New Aviation Horizons initiative, Lockheed Martin had been chosen to develop a manned demonstrator aircraft called the Quiet Supersonic Technology (QueSST) X-plane. It would be used to test technologies that would make commercial supersonic aircraft quiet enough to fly over land. Eleven months later, Lockheed and the agency are ready to take the next step as a nine-percent scale model starts wind tunnel tests at the Glenn Research Center in Cleveland.



NASA says that the bespoke metal model will spend the next eight weeks in the 8 x 6 ft (2.4 x 1.8 m) Supersonic Wind Tunnel, which is capable of subjecting the QueSST to wind speeds from Mach 0.3 to Mach 1.6 (about 150 to 950 mph, 241 to 1,530 km/h) as the engineers learn more about the aircraft's aerodynamics and propulsion system.

According to aerospace engineer Ray Castner, the tests will include measurements of QueSST's lift, drag, and side forces as well as how the air moves around the engine

nacelles. The idea is to subject the model to all the conditions from takeoff to supersonic cruising to landing, using the variability of Glenn's tunnel.

The purpose of QueSST, which is still in the early stages of design, is to create a supersonic airplane that is able to spread out its shock wave in such a way that when it reaches the ground it's heard as a soft thump rather than an ear-shattering boom.

The wind tunnel tests are scheduled to continue until the middle of this year. If successful and the funding is available, the mature design will then go on to final design, fabrication, and testing.

"Our unique aircraft design is shaped to separate the shocks and expansions associated with supersonic flight, dramatically reducing the aircraft's loudness," says Peter Losifidis, QueSST program manager at Lockheed Martin Skunk Works. "Our design reduces the airplane's noise signature to more of a 'heartbeat' instead of the traditional sonic boom that's associated with current supersonic aircraft in flight today."

The video AT THE WEBSITE shows the wind tunnel model being assembled.

Source: NASA

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NASA WILL CONSIDER ADDING CREW TO NEXT-GEN ROCKET'S DEBUT LAUNCH

By Irene Klotz, Space.com Contributor | February 24, 2017 08:30pm ET

<http://www.space.com/35831-massive-nasa-rocket-first-launch-crew.html>



An artist's impression of the Orion capsule in space. Credit: NASA

CAPE CANAVERAL, Fla. — NASA will take about a month to assess how much extra time, money and risk would be added to the debut flight of the Space

Launch System (SLS) rocket if a two-member crew was aboard, officials said today.

The launch, called Exploration Mission 1 (EM-1), is currently scheduled to be the first test flight of the SLS booster, which will send an uncrewed Orion capsule into deep space.

Under the existing plan, a crew would fly aboard the Orion/SLS system on the EM-2 mission in 2021.

The Trump administration has asked NASA to look at either adding crewmembers to the EM-1 flight or advancing the launch of EM-2, Bill Gerstenmaier, NASA's associate administrator for human exploration and operations, told reporters during a news conference today (Feb. 24).

Moving up the date of EM-2 is not feasible because of changes that have to be made to the SLS launch platform to accommodate a taller upper-stage motor that NASA plans to have in place for that mission, NASA officials said during the news conference.

Gerstenmaier said he also directed his team to look only at options that would take about one year or less to implement, so that a crewed EM-1 flight could launch in 2019.

"I felt that if we went much beyond 2019, then we might as well fly EM-2 and actually do the (plan) we're on," Gerstenmaier said.

The Orion spacecraft has not been fully upgraded to support human passengers since its first test flight in December 2014 (atop a United Launch Alliance Delta IV Heavy rocket). Gerstenmaier said he has no estimate on the additional costs of adding life support, an abort system and other hardware that would be needed for EM-1 to fly with a crew.

"This study will determine how much additional time is needed ... to add crew to EM-1," Gerstenmaier said. "We will definitely have a [later launch date]. We also recognize we'll need to add some additional funding."

The prospective mission would have a two-member crew fly in an Orion capsule on an eight- to nine-day mission around the moon, similar to the flight of Apollo 8 in 1968.

NASA's independent Aerospace Safety Advisory Panel said in a meeting Thursday (Feb. 23) that the reasons for having astronauts fly on EM-1 must be compelling enough to override the additional cost, schedule and safety risks.

"We are not proposing what the outcome of NASA's assessment should be," Patricia Sanders, chairwoman of the Aerospace Safety Advisory Panel, said during the meeting. "But in the assessment, we strongly advise that NASA carefully and cautiously weigh the value proposition for flying crew on EM-1."

Flying astronauts on a rocket's debut flight would be a departure from NASA precedence. Only one previous spacecraft, the space shuttle, made its first flight with crew aboard, and that was launched using the well-tested Saturn V rocket.

"The space shuttle really wasn't built to be flown unmanned, and we would have had to do an awful lot to make that happen," former astronaut Bob Crippen, the pilot on the first shuttle flight, said in an interview with Space.com.

As a winged vehicle re-entering the atmosphere at 25 times the speed of sound, the space shuttle was a far bigger technological leap than the Orion capsule, Gerstenmaier noted.

"This is still pushing the envelope in some areas, but it's not as big a step technology-wise as what we actually did in the case of the shuttle," he said. "We will be very cautious about what we go do. We will do the right thing."

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FIBER-REINFORCED HYDROGEL IS 5 TIMES STRONGER THAN STEEL

David Szondy, February 26, 2017

<http://newatlas.com/fiber-hydrogel-tougher-steel/48108/>

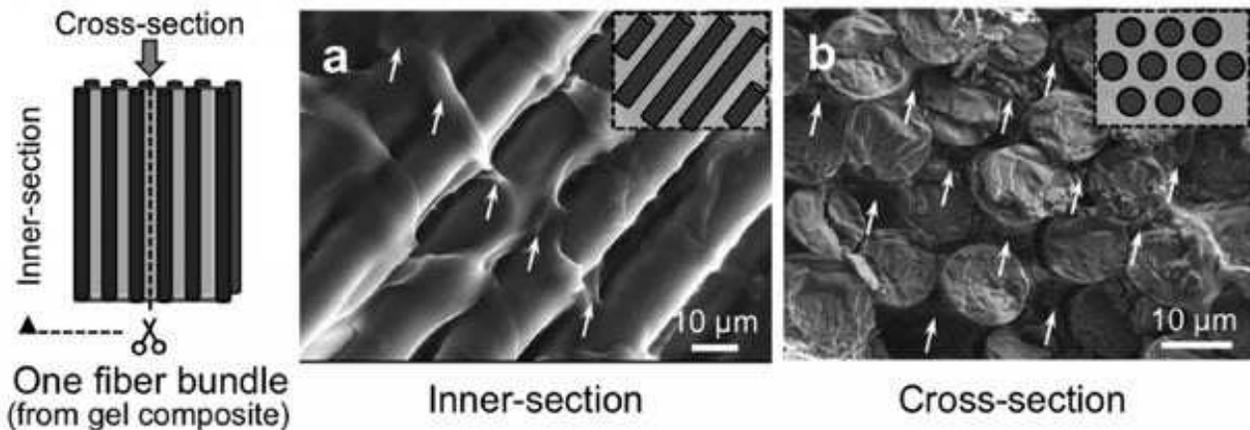


The newly developed fiber-reinforced hydrogel consists of polyampholyte gels and glass fiber fabric(Credit: Hokkaido University)

Hydrogels have shown significant potential in everything from wound dressings to soft robots, but their applications have been limited from their lack of toughness – until now. A team of scientists at Hokkaido University have developed a new set of hydrogel composites or "fiber-reinforced soft composites" that combine hydrogels with woven fiber fabric to create a material that is five times stronger than carbon steel.

Composite materials have been around for millennia and the principle is very simple. A very soft substance like mud can be made strong enough to make bricks by adding straw as a tempering material. The same applies to adding crushed pottery to brick, seashells fragments to ceramic, or glass fiber to plastic.

The latter is very similar to the fiber-reinforced hydrogel. Hydrogels are made of hydrophilic polymer chains that absorb up to 90 percent water. They aren't very strong or durable, but by adding glass tiny fibers the researchers created a tough, bendable, stretchable material.



Scanning Electron Microscopy (SEM) images of the fiber-reinforced hydrogels (Credit: Hokkaido University)

According to the team, the composite hydrogel is remarkably strong, probably due to dynamic ionic bonds between the fiber and hydrogels, and within the hydrogels. In tests using polyampholyte gels and a single glass fiber measuring 10 μ m in diameter, the material turned out to be 25 times tougher than glass fiber fabric, 100 times tougher than hydrogels, and five times as strong as carbon steel, based on the amount of energy needed to destroy them.

"The fiber-reinforced hydrogels, with a 40 percent water level, are environmentally friendly," says Dr Jian Ping Gong, "The material has multiple potential applications because of its reliability, durability and flexibility. For example, in addition to fashion and manufacturing uses, it could be used as artificial ligaments and tendons, which are subject to strong load-bearing tensions."

The research was published in *Advanced Functional Materials*.

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SPACE X SAYS IT CAN BEAT NASA TO MOON

Feb 27, 2017 [Frank Moring, Jr.](#) | Aerospace Daily & Defense Report

http://aviationweek.com/space/spacex-says-it-can-beat-nasa-moon?NL=AW-05&Issue=AW-05_20170228_AW-05_217d&sfvc4enews=42&cl=article_2&utm_rid=CPEN1000003019593&utm_campaign=8865&utm_medium=email&elq2=1cdb636a3b8646239aec3794676bd2ba

[SpaceX](#) has two paying customers for a lunar flyaround, and will try to send them on their way before the end of 2018, founder Elon Musk said Feb. 27.

If the ambitious schedule is met, it would beat an accelerated mission [NASA](#) is studying to send two astronauts on an [eight-day flight around the Moon](#) on a heavy-lift Space Launch System (SLS)/Orion capsule combination before the end of 2019 (DAILY, Feb. 15). President Donald Trump's [NASA](#) transition team has asked for the study to see if the agency can carry out the space spectacular before the next presidential election in 2020.



Artist's concept of Dragon 2 in space: SpaceX

Musk said his company will give NASA priority if it decides to send its own astronauts on the Moon mission on a Falcon Heavy/Dragon 2 vehicle stack. He believes the U.S. space agency will have human-rated its vehicles for flights to the International Space Station (ISS) under its \$6.8 billion commercial crew program before SpaceX sends them

deeper into space.

“We’re expecting to fly a human-rated Dragon 2 on a Falcon 9 at the end of this year, but without people on board, just a test flight to the space station,” Musk said in a press teleconference. “Then about six months later we would fly with a NASA crew to the space station on Falcon 9/Dragon 2, and then about six months after that—assuming the schedule holds—by the end of next year is when we would do the lunar orbit mission.”

Musk’s announcement sets up a potential race between the government space program and Musk’s ambitious private goals. The competition already is underway in the blogosphere, where so-called “new space” partisans argue that the NASA program is using money that could be better spent buying commercial services.

Musk declined to name the two individuals who approached SpaceX looking for a ride around the Moon, saying only that they have made a “substantial deposit” on a space-tourist flight that would cost more than NASA will be paying for flights to the ISS.

Instead, he said SpaceX hopes to conduct more of the commercial lunar flights, and predicted that eventually they could account for 20% of company revenues. The roughly five-day lunar missions would require the Falcon Heavy—essentially three Falcon 9 first stages mounted in tandem below a single upper stage—and a Falcon 2 modified to handle deep-space communications.

“The heat shield is quite massively overdesigned,” he said of the capsule’s ability to withstand re-entry at lunar-return velocities. “It’s actually designed for multiple Earth-orbit re-entry missions, so that you could actually do up to 10 Earth-orbit re-entry missions with the same heat shield. So that means it can do at least one, conceivably even two lunar entry velocity missions.”

Like NASA’s planned first human mission with SLS/Orion, currently targeted for 2021 after an unmanned flight late next year, the SpaceX plan would send the human-rated Dragon on a direct-return trajectory around the Moon. Musk said the exact trajectory is still in development.

Despite his optimism about human-rating the Dragon 2, Musk’s plan has its skeptics. The [Government Accountability Office](#) reported earlier this month that both SpaceX

and [Boeing](#), NASA's other commercial-crew contractor, may not be able to fly their capsules until 2019. Because NASA may have waited too late to order more seats on Russia's Soyuz vehicles, the agency also is studying contingency plans for continuing to get its astronauts to the ISS.

Also to be determined is the fueling sequence for the Falcon 9. The Aerospace Safety Advisory Panel warned in its 2016 annual report that the current "load-and-go" sequence, which pumps propellants into the launcher after the payload is in place, may be too dangerous for human crews. The warning came before an on-pad Falcon 9 explosion during fueling last year destroyed an Israeli communications satellite.

"Since propellant load occurs right about in the last half hour or so, they will be on board the Dragon spacecraft when propellant is loaded," Musk said Feb. 27. "But we cannot consider this to be a risk down the road. So we don't think that this is a risky situation, and there will be many, many flights where this is done."

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COMMON CATALYST SUCKS OUT SULFUR FOR CLEANER DIESEL

[Michael Irving](#), February 27, 2017

<http://newatlas.com/potassium-catalyst-cleans-up-diesel/48149/>



Electric vehicles powered by renewable energy sources are hitting the roads in greater numbers every year, but the transition away from gas guzzlers is going to take a while. In the meantime, scientists are working on ways to clean up existing fossil fuels, and a new

refining process developed at Caltech uses a potassium catalyst to reduce the amount of sulfur in gasoline and diesel to a fraction of their current levels.

Sulfur is naturally present in crude oil, and although the refining process reduces its levels, some of it still ends up in the resulting fuel. When that fuel is burned, sulfur dioxide (SO₂) is released into the atmosphere, where it's considered an indirect greenhouse gas. Companies like [Boeing](#) and [Audi](#) are working on cleaning up their act by developing their own alternative "green diesel" fuels.

The US Environmental Protection Agency (EPA) has implemented regulations over the years to reduce the amount of sulfur permissible in gasoline and diesel fuels, with the [latest rules](#), which came into force at the start of this year, capping the average annual amount of sulfur at 10 parts per million (ppm). Doing so helps make existing vehicles significantly more environmentally friendly.

"Using lower-sulfur gasoline in cars currently on the road will reduce as much pollution as taking 33 million cars off the road," Paul G. Billings, senior vice president of the American Lung Association, [said in 2013](#). "This pollution triggers asthma attacks, worsens lung and heart health and can even lead to early death."

The Caltech team boasts that its new process can reduce sulfur levels down to just 2 ppm, well under the EPA-enforced cap. Better yet, it works using elements that are cheap and abundant, as opposed to other catalysts that require rare-Earth metals like platinum.

The original discovery was made a few years ago, while the team was using platinum as a catalyst to break carbon-oxygen bonds. Running a control test without the catalyst, the researchers were surprised to find that the required chemical reactions were somehow still occurring. After a few more tests, the team realized that a potassium salt called potassium tert-butoxide was responsible.

Building on this discovery, the new process is called the KOSi method, named for the elemental symbols of the catalyst's ingredients: potassium (K), oxygen (O) and silicon (Si). All of these elements are easy and inexpensive to obtain, and the end result is highly effective at removing sulfur from carbon compounds in diesel fuel.

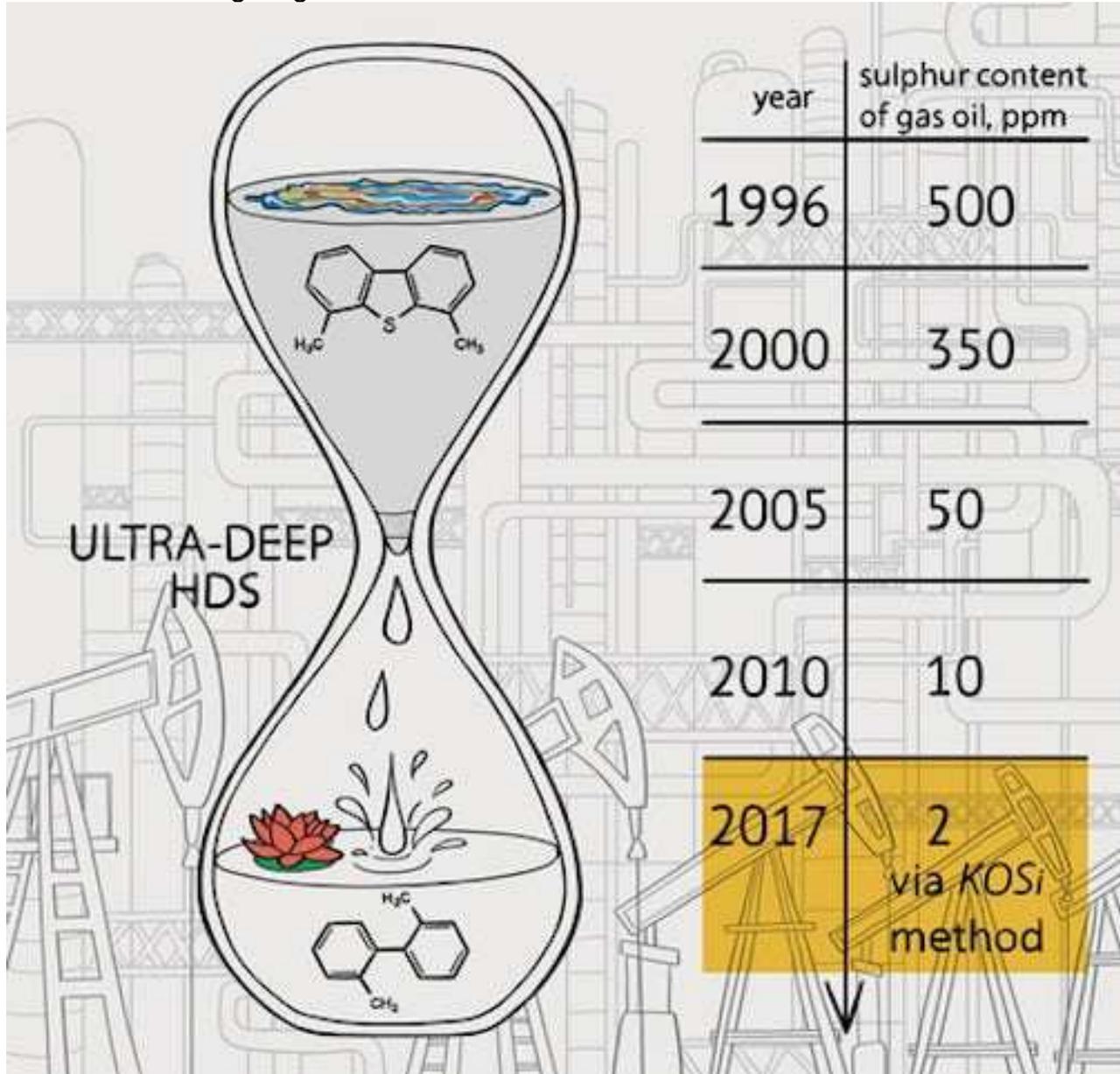
"We were really surprised how well the potassium salt worked," says Anton Toutov, lead author of the study. "The sulfur is contained in small organic molecules, and this process just rips it right out."

The team tested the process on refined diesel samples provided by BP, a mix considered to be high quality commercially-available fuel, containing sulfur levels of 8 ppm. The KOSi method reduced the sulfur content to an even cleaner 2 ppm. When tested on diesel with a far higher amount of sulfur, the process still managed to bring the levels down to these record lows.

"We simulated a high-sulfur oil and eliminated almost all of the sulfur through a simple chemical process," says Toutov. "The next step is figuring out how to streamline the process and make it work on an industrial scale."

The team is currently getting to work on that goal, and apparently have "a number of ideas in mind" about how to achieve that, such as sourcing and recycling waste products from

other industries. Toutov is co-founding a new company called Fuzionaire to bring the technique to market, which could become a standard step in the oil refinery process to remove the last lingering traces of sulfur from fuel.



The research was published in the journal [Nature Energy](#).

Source: [Caltech](#)

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From: "Jim Woosley" Jimwoosley@aol.com

A FORGOTTEN WAR TECHNOLOGY COULD SAFELY POWER EARTH FOR MILLIONS OF YEARS. HERE'S WHY WE AREN'T USING IT

Dave Mosher, Feb. 25, 2017, 9:21 AM

<http://www.businessinsider.com/thorium-molten-salt-reactors-sorensen-lftr-2017-2>



A view of city lights on Earth at night from space. Don Pettit/NASA JSC/Flickr (CC BY-NC-SA 2.0)

* Humanity may face an energy crisis as the world's population rapidly grows.

* Nuclear power plants can generate bountiful, carbon-free electricity, but their solid fuel is problematic, and aging reactors are being shut down.

* A Cold War-era liquid-fueled reactor design could transform thorium — a radioactive waste from mining — into a practically limitless energy source.

* US engineers proved such a system works during the 1960s. However, the military canceled the project and it was nearly forgotten.

* Companies and governments are now trying to revive and evolve the design, but development costs, regulations, and nuclear-weapons concerns all pose hurdles.

The lifeblood of modern civilization is affordable, free-flowing energy.

It gives us the power to heat our homes. Grow and refrigerate food. Purify water. Manufacture products. Perform organ transplants. Drive a car. Go to work. Or procrastinate from work by reading a story about the future of energy.

Today's cheap, bountiful supplies make it hard to see humanity's looming energy crisis, but it's possibly coming within our lifetimes. Our numbers will grow from 7.36 billion people today to 9 billion in 2040, an increase of 22%. Rapidly developing nations, however, will supercharge global energy consumption at more than twice that rate.

Fossil fuels could quench the planet's deep thirst for energy, but they'd be a temporary fix at best. Known reserves may dry up within a century or two. And burning up that carbon-based fuel would accelerate climate change, which is already on track to disrupt and jeopardize countless lives.

Meanwhile, renewable energy sources like wind and solar, though key parts of a solution, are not silver bullets — especially if the world is to meet a 2050 deadline set by the Paris Agreement. Energy from fusion is promising, but it's not yet proved to work, let alone on a commercial and competitive scale.

Nuclear reactors, on the other hand, fit the bill: They're dense, reliable, emit no carbon, and — contrary to bitter popular sentiment — are among the safest energy sources on earth. Today, they supply about 20% of America's energy, though by the 2040s, this share may drop to 10% as companies shut down decades-old reactors, according to a July 2016 report released by Idaho National Laboratory (INL).

The good news is that a proven solution is at hand — if we want it badly enough.

Manhattan Project chemist Glenn Seaborg sits at the controls of the Molten Salt Reactor Experiment in 1968. Frank Hoffman/Oak Ridge National Laboratory; Flickr (public domain)



Called a molten-salt reactor, the technology was conceived during the Cold War and forgoes solid nuclear fuel for a liquid one, which it can "burn" with far greater efficiency than any power technology in existence. It also generates a small fraction of the radioactive waste that today's commercial reactors — which all rely on solid fuel — do.

And, in theory, molten-salt reactors can never melt down.

"It's reliable, it's clean, it basically does everything fossil fuel does today," Kirk Sorensen, the chief technology officer of nuclear-energy startup Flibe Energy, told Business Insider. Sorensen was speaking during an episode of Business Insider's podcast Codebreaker, which is produced with National Public Radio's "Marketplace."

"And it does a whole bunch of things it doesn't do today, like make energy without emitting carbon," he added.

A sample of thorium metal in a glass vial. W. Oelen/Wikipedia (CC-BY-SA 3.0)

What's more, feeding a molten-salt reactor a radioactive waste from mining, called thorium (which is three to four times more abundant than uranium), can "breed" as much nuclear fuel as it burns up.

Manhattan Project scientist Alvin Weinberg calculated in 1959 that if we



could somehow harvest all the thorium in the Earth's crust and use it in this way, we could power civilization for tens of billions of years.

"The technology is viable, the science has been demonstrated," Hans Gougar, a nuclear physicist at INL, told Business Insider.

Demonstrated, because government scientists built two complementary prototypes during the 1950s and '60s.

They weren't good for making nuclear weapons, though, so bureaucrats pulled funding for the revolutionary energy technology. The last working molten-salt reactor shut down in 1969.

Today, entrepreneurs such as Sorensen are working tirelessly to revive and modernize the technology. So are foreign governments like India and China.

China now spends more than \$350 million a year developing its variation of the Cold War-era design.

The story of how we got here is neither short nor simple, but it explains why Sorensen and others are betting big on humanity's coming "Thorium Age" — and why the US continues to stumble at its dawn.

The argument for nuclear energy

The Three Mile Island Nuclear Plant in Middletown, Pennsylvania. Jeff Fusco/Getty Images

Its brutalist architecture may not be sexy, but nuclear energy unlocks a truly incredible source of carbon-free fuel. Ounce per ounce, uranium provides roughly 16,000 times more energy than coal and creates millions of times less pollution.



The argument to support growth in nuclear energy is so clear to James Hansen, a seasoned climatologist and outspoken environmentalist, that he passionately advocates for the use and development of the technology.

"To solve the climate problem, policy must be based on facts and not on prejudice. The climate system cares about greenhouse gas emissions — not about whether energy comes from renewable power or abundant nuclear power," Hansen and three other well-known scientists — Ken Caldeira, Kerry Emanuel, and Tom Wigley — wrote in an editorial for The Guardian in 2015.

"Nuclear energy can power whole civilisations, and produce waste streams that are trivial compared to the waste produced by fossil fuel combustion," they wrote. "Nuclear will make the difference between the world missing crucial climate targets or achieving them." Climate science aside, the economics of nuclear energy are enough of a draw to make the technology worthwhile.

Today, the industry is already profitable, albeit well subsidized. Still, if you level the energy playing field against other power sources by taking into account government subsidies and tax breaks, capital costs, fuel costs, and other factors that affect the price-per-megawatt-hour of a power plant, nuclear energy remains a financial win in the long run.

Nuclear power's 2016 levelized costs make it about twice as cheap as natural gas "peaking" plants (which fire up to meet sudden peaks in energy demand). Nuclear also beats the overall cost of many coal-fired power plants. And that's before you account for the extraordinary hidden costs of fossil fuels against public health and the environment, including particulate pollution (which kills tens of thousands of people a year) and exacerbating climate change.

Nuclear also wins financially against solar rooftops, many fuel-cell energy schemes, and some geothermal and bioenergy plants.

That isn't to say that current nuclear power plants are flawless. However, they're irrefutably amazing power sources, currently meeting one-fifth of the US's energy needs with just 61 power plants. They're also incredibly reliable, always-on sources of baseload electricity, heat, and medically useful radioisotopes.

Yet great titans fall hard, and the reasons why are key to the continued delay of the Thorium Age.

<SNIP>

THERE IS PLENTY MORE OF THIS ARTICLE TO EDUCATE YOU ON THE POSIBILITIES FOR ADVANCED NUCLEAR POWER OPTIONS. PLEASE TAKE THE TIME TO READ THE REMAINDER OF THE ARTICLE AND ASK QUESTIONS IF IT WILL HELP. UT

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NASA SCIENTISTS HOPE TO MAKE PLUTO A PLANET AGAIN

BY CHRISTOPHER BRENNAN

NEW YORK DAILY NEWS, Tuesday, February 21, 2017, 7:10 PM

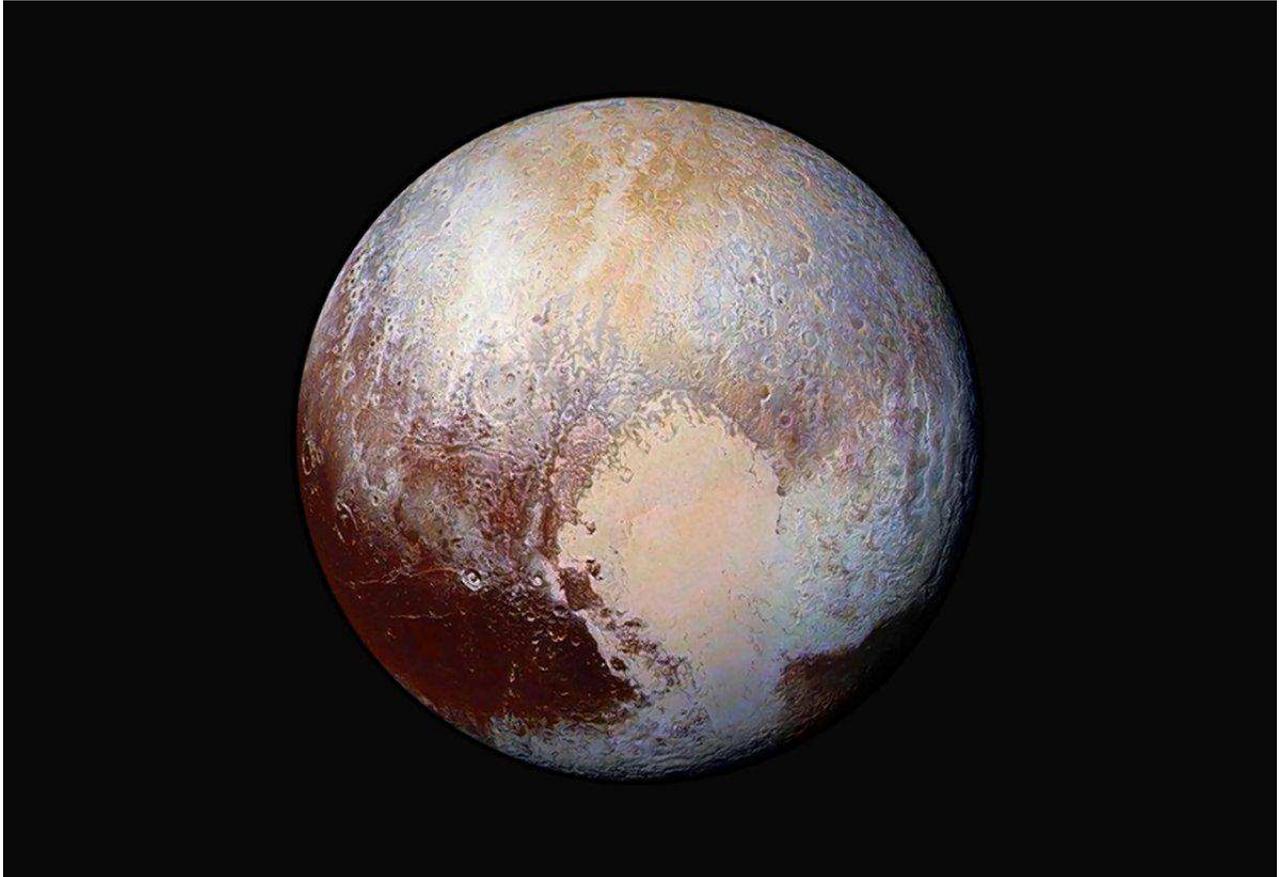
<http://www.nydailynews.com/news/world/nasa-scientists-hope-pluto-planet-article-1.2978743?cid=bitly>

Make Pluto great again?

A team of scientists wants to redefine the term "planet" to bring the title back to the icy world at the edge of the solar system "demoted" in 2006.

The discovery of other similarly sized objects beyond Neptune led the International Astronomical Union to declare Pluto, which at 6.4 million square miles has a land area less than Russia, as a “dwarf planet.”

Among those opposed is a group of NASA scientists who have studied Pluto, though their objections don't stem from losing the useful mnemonic “My Very Educated Mother Just Served Us Nine Pizzas.”



Is Pluto a planet? (UNCREDITED/AP)

The New Horizons mission has broadcast stunning pictures of the would-be planet back to Earth, but a proposal to the IAU says “many members of the public, in our experience, assume that alleged ‘non-planets’ cease to be interesting enough to warrant scientific exploration.”

Scientists such as New Horizons leaders Kirby Runyon and Alan Stern say the term “planets” should roughly mean “round objects in space that are smaller than stars.”

The new definition would simplify the one thought up in 2006, which disqualified Pluto based on its size and the fact that it is not alone in its orbit, but enmeshed in the Kuiper Belt at the edge of the solar system.

The March 1st, 2017 Edition of THE REVENGE HUMPH DAY!

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However, the recent proposal would not just save Pluto from its current state of embarrassment, but create an entire new crop of non-asteroid “planets” including the Moon.

Runyon and Stern’s paper says there would be at least 110 planets in the solar system, including the Moon, the moons of planets such as Jupiter and “dwarf planets” such as Ceres and Eris.



Alan Stern, principal investigator of NASA's New Horizons mission team, believes Pluto should be called a planet. (WIN MCNAMEE/GETTY IMAGES)

Under the new proposal, teachers would not require their students to learn all of the planets, but pick a small number, such as nine, to have pupils memorize.

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ABSOLUTELY & TOTALLY POLITICALLY INCORRECT & AS FAR TO THE LEFT AS YOU CAN GO!

From: "Jim Woosley" Jimwoosley@aol.com

Dakota Pipeline Protesters Love The Environment SO MUCH, They Burned Down Their Campsite



If you would like to unsubscribe From: THE REVENGE OF HUMP DAY, please send an email message to Tim Bolgeo tbolgeo@epbfi.com and say, "QUIT SENDING ME THIS STUPID RAG!"
