Welcome to the March 8TH, 2017 Edition of THE REVENGE HUMP DAY!

This has been an interesting week around Casa Bolgeo. Last week we had to put Poppee back in the hospital but got to get him out of hock on Sunday. He's doing fine but is a little weak. We are going to get a nurse to come in once a week to check him out and to make sure that he stays health.

On another front, I am still coping with the new computer I bought. It is running Windows 10 and I am missing a program or two from the old machine. One of my favorite programs was Visual Dbase and I haven't found a shareware database program yet to replace it. If anyone out there has any ideas on this, please let me know.

Then there is LibertyCon. You see, we sold out this week and it is kind of strange. I take care of the backup database for registration and I have notice something very interesting. Approximately 30% of the attendees are new fans from all over the country. Yea, all over the world actually. The person coming to LibertyCon this year who is from farthest away is from Australia. Wow! But we have people from around 49 states. I honestly don't think we have anyone from Hawaii yet.

One worry we have taken care of is hotel rooms. We have reserved an additional 150 rooms over at the Marriott Hotel near the Chattanooga Trade Center. Now the Marriott is about 4 blocks way, but that's not really too bad because we will be running a shuttle that will orbit between the Chattanooga Choo Choo Convention Center and the front door of the Marriott. The Shuttle will start early in the morning and will be on until 3am. Also, the Chattanooga Electric Bus will also be running during the convention that will take you over to the Choo Choo from the Marriott. So, it's not really that big a deal being at the Marriott for LibertyCon.

I have been talking to Rich Groller about the programming for LibertyCon this year and he told me that it will be jam packed with interesting stuff. My biggies to look forward to is the Science Track. It will be a complete track of programming that will rival or exceed almost any other convention I have ever been to. Seriously, it will start around 3:00 pm on Friday and end around 3:00 pm on Sunday. That should may all of you science groupies happy.

As the convention gets closer, I will be letting y'all in on a lot of the behind the scenes happenings that will make LibertyCon 30 one of our best efforts in years.

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>~<!>

THE NEXT LIBERTYCON MEETING WILL BE HELD SUNDAY, MARCH 12, AT 2PM EST AT CASA SPRAKER

From: "Brandy M. Spraker" Brandy@LibertyCon.org

The next LibertyCon meeting will be Sunday, March 12 at 2pm EST at Casa Spraker. If you need directions, please let us know through the website. March is an exciting meeting for us since we will be going through each department with a fine tooth comb to begin figuring

out what's not done at this point, and it will also be the meeting that we finalize our mass mailing.

This year's mass mailing will be a little different since WE ARE SOLD OUT!! WOOHOO!!!

LibertyCon Facebook Posting:

LibertyCon - March 7, 2017

Unofficially, as of RIGHT NOW, LibertyCon 30 is a Sold Out Convention!!! We are working on disabling the registration links at the website. UPDATE: It's disabled

DO NOT PURCHASE ANYMORE MEMBERSHIPS

If you are one of the few that are OVER the 750 limit (we will go by time stamp) we will let you know and talk with you about your purchase.

THANK YOU EVERYONE WHO PURCHASED A MEMBERSHIP!

Gotta say, it is SUPER COOL to say we ara a SOLD OUT SHOW via PRE REG and it's still 4 Months to the Convention!!!

Also, we did say "Unofficially"

We will be going through ALL registrations removing duplicates and handling any roll overs we may have missed up to this point.

Soon, we will be posting Waiting List Instructions. LibertyCon 30 is so absolutely gonna rock!!!!!

YES MY CHILDREN, LIBERTYCON HAS REACHED A PREREGISTRATION MARK OF 750 PEOPLE THIS MORNING. MANY YEARS AGO WHEN I SETUP LIBERTYCON, I MODELED THE PAID ATTENDANCE ON WORLD FANTASYCON. WITH THIS NUMBERE OF PEOPLE I FIGURED THAT WE WOULD HAVE A ENOUGH MONEY TO RUN A FIRST CLASS CONVEVTION AND STILL BE SMALL ENOUGH THAT THE STAFF WOULD ENJOY RUNNING IT. SEEMS TO STILL BE WORKING. SOME OF YOU MIGHT BE TRYING TO SAY THAT IS JUST A NOMINAL FIGURE. NO CHILDREN, IT'S THE LAW ACTUALLY. WHEN I SET UP THE CHARTER FOR LIBERTYCON, I HAD IT PUT IN THE MAIN DOCUMENT THAT IS REGISTERED WITH THE STATE OF TENNESSEE. ALSO WE ARE A 501 (C)(3) ORGANIZATION RECOGNIZED BY THE IRS AS A NON-PROFIT CORPORATION. NOW TRUST ME WHEN I SAY THIS, WE ARE NOT GOING TO GO THROUGH 4 YEARS OF FIGHTING WITH THE STATE AND THE IRS JUST TO RAISE THE ATTENDING MEMBERSHIP NUMBER. SO, I AM SORRY IF YOU DIDN'T GET IN THIS YEAR AND HOPE THAT YOU WILL REMEMBER US FOR NEXT YEAR. UNCLE TIMMY

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

RENOWNED ASTROPHYSICIST ANDREW SIEMION TO PONDER 'SEARCH FOR OURSELVES AMONG STARS' OCT. 5 AT TVIW 2017 SYMPOSIUM

From: "Les Johnson, TVIW Conference Chair" les.johnson@tviw.us

HUNTSVILLE, ALABAMA -- Internationally renowned astrophysicist Dr. Andrew Siemion will be a guest speaker during the fifth Tennessee Valley Interstellar Workshop, set for Oct. 3-6 at the Embassy Suites Hotel in Huntsville, Alabama.

Siemion, who teaches and conducts research at the University of California-Berkeley, will discuss the current state of interstellar research and exploration in his address, "The Search for Ourselves Among the Stars," Oct. 5 at 7 p.m. CDT at the U.S. Space & Rocket Center in Huntsville. Highlighting recent discoveries in astrobiology which guide and motivate the search for intelligent life beyond Earth, Siemion's presentation is part of the Space & Rocket Center's "Pass the Torch" lecture series featuring high-profile scientists, engineers and space experts.

The lecture, to be held in the Space & Rocket Center's National Geographic Theater, is free and open to members of the general public as well as TVIW participants.

Siemion, who also directs the UC Berkeley Center for Search for Extraterrestrial Intelligence (SETI) Research, will take part in other technical sessions throughout the symposium. Organizers will announce additional speakers and event highlights in coming months. A full agenda is expected to be posted on the TVIW website by May: https://tviw.us

"We're honored and delighted to welcome Dr. Andrew Siemion to TVIW 2017," said TVIW president John Preston. "It's our mission to bring together as many practical, professional minds as possible to pursue the challenges of journeying beyond Earth's solar system. Dr. Siemion stands at the vanguard of those for whom this endeavor is both a passion and a pledge to see it realized in our lifetime."

The symposium's theme this year is "Step By Step: Building a Ladder to the Stars." Founded in 2011, TVIW seeks to unite aerospace technologists, communicators, psychologists, anthropologists, and other researchers and visionaries to chart the future of humanity's interstellar adventure.

Papers and presentations are still being sought for TVIW 2017. For details, visit: https://tviw.us/submissions

More about Andrew Siemion
As director of the UC Berkeley Center for SETI Research, Dr. Siemion is jointly affiliated with The Netherlands Institute for Radio Astronomy at Radboud University in Nijmegen, Netherlands, and with the SETI Institute in Mountain View, California. He is one of the leaders of the "Breakthrough Listen Initiative," a 10-year, $100-million effort sponsored by Yuri Milner's Breakthrough Prize Foundation, which is conducting the most sensitive search ever made for advanced extraterrestrial life.

Dr. Siemion was a recipient of the Josephine De Kármán Fellowship for Undergraduate Studies at UC Berkeley; the Dorothea Klumpke Roberts Prize for outstanding scholarship as a UC Berkeley undergraduate major in astrophysics; and the UC Berkeley Mary Elizabeth Uhl Dissertation Prize for his work on searches for exotic radio phenomena. He is an elected member of the International Union of Radio Science and committee secretary for the International Academy of Astronautics' SETI Permanent Committee. He serves on the Science@Cal advisory board, co-chairs the Cradle of Life Science Working Group for the forthcoming Square Kilometer Array telescope, and sits on the board of directors of the Foundation for Investing in Research on SETI Science and Technology (FIRSST). He

appears frequently on TV and radio, discussing the search for life beyond Earth and the prospects for detection.

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THIS SECRET IPHONE APP COULD SAVE YOUR LIFE

From: "Chris Cowan" cowanc1028@earthlink.net

https://www.smartertravel.com/2016/05/12/secret-iphone-app-save-life/?source=91&u=HM62RY2IYT&nltv=&nl_cs=32969127%3A%3A%3A%3A%3A%3A%3A

I don't know who might have an iPhone (says the Luddite with the flip phone) but this is interesting.

If you're an avid traveler and you own an iPhone, take note: There's a little-known feature on your smartphone's built-in Health App that might just save your life.

Available on iPhones with iOS8 or later operating system, the Medical ID feature allows you to display important medical information and emergency contacts on your phone without it being unlocked. This feature is especially important when you travel, and in particular if you're traveling alone or have a medical issue or serious allergy.

Within the Health app, you can enter information like your name, age, birthday, blood type, allergies, medical conditions, medical notes, current medication, height, and weight; you can also specify whether you're an organ donor, as well as provide the name your doctor and any other emergency contacts.

You can enter as little or as much information as you want (although if you've found yourself in an emergency situation alone, you'll probably default to "the more the better").

All of this information can be entered via the Health app.

To access the Medical ID feature in the event of an emergency, select "Emergency Call" on the unlock screen and find "Medical ID" in the bottom left hand corner. (Yes, this means that anyone who has your phone can find out your full name, birthday, and other personal information; you can turn this feature on and off by toggling the "Show When Locked" option in the Medical ID edit screen.)

I always keep this feature on while traveling. If my phone were to be lost or stolen, I can remove my personal information from the Health app by erasing it via the "Find My iPhone" feature.

The Medical ID feature gives me peace of mind that if I were ever in an emergency situation while traveling, I'd know that first responders would be able to access my basic (yet important) medical information.

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Re: Passing of Klon Newell

From: "Mike Williamson" mzmadmike@gmail.com

I know you'll understand when I say they should donate Klon's brain to science fiction.

I UNDERSTAND AND KLON WOULD HAVE GOTTEN A BIG BELLY LAUGH OUT OF THAT ONE. THAT CHEERED ME UP. THANKS. TIM

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

From: "Mike Waldrip" waldripk@gmail.com

LOVERS LANE

A State Trooper was patrolling late at night off the main highway. At nearly midnight, he sees a couple in a car, in lovers' lane, with the interior light brightly glowing. He carefully approaches the car to get a closer look. Then he sees a young man behind the wheel, reading a computer magazine. He immediately notices a young woman in the rear seat, filing her fingernails.

Puzzled by this surprising situation, The trooper walks to the car and gently raps on the driver's window.

The young man lowers his window. "Uh, yes, Officer?"

The trooper asks: "What are you doing?"

The young man says: "Well, Officer, I'm reading a magazine."

Pointing towards the young woman in the back seat the trooper says: "And, her, what is she doing?"

The young man shrugs: "Sir, I believe she's filing her fingernails."

Now, the trooper is totally confused. A young couple, alone, in a car, at night in a lover's lane and nothing is happening!

The trooper asks: "What's your age, young man?"

The young man says: "I'm 22, sir."

The trooper asks: "And her, what's her age?"

The young man looks at his watch and replies: "She'll be 18 in 11 minutes."

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

WHEN LOVE FADES

Last night I was sitting on the sofa watching TV.

When I heard my wife's voice from the kitchen ask...

"What would you like for dinner, my love? Chicken, Beef or Lamb?"

I said, "Thank you, dear, I think I'll have chicken."

She replied , "You're having soup, asshole. I was talking to the cat."

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

BEST BIRTHDAY EVER

A man was sitting on the edge of the bed, watching his wife, who was looking at herself in the mirror. Since her birthday was not far off he asked what she'd like to have for her birthday.
I'd like to be eight again, she replied, still looking in the mirror.

On the morning of her Birthday, he arose early, made her a nice big bowl of Coco Pops, and then took her to Adventure World theme park. What a day! He put her on every ride in the park; the Death Slide, the Wall of Fear, the Screaming Roller Coaster, everything there was.
Five hours later they staggered out of the theme park. Her head was reeling and her stomach felt upside down. He then took her to a McDonald's where he ordered her a Happy Meal with extra fries and a chocolate shake.

Then it was off to a movie, popcorn, a soda pop, and her favorite candy, M&M's. What a fabulous adventure! Finally she wobbled home with her husband and collapsed into bed exhausted.
He leaned over his wife with a big smile and lovingly asked, 'Well Dear, what was it like being eight again?

Her eyes slowly opened and her expression suddenly changed.

'I meant my dress size, you idiot'

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

A BRITISH TAKE ON GROWING UP IN THE '40S, '50S AND '60S

CONGRATULATIONS TO ALL MY FRIENDS AND FAMILY WHO WERE BORN IN THE 1940's, 50's, and 60's

First, we survived being born to mothers who smoked and/or drank Sherry while they carried us and lived in houses made of asbestos…

They took aspirin, ate blue cheese, bread and dripping, raw egg products, loads of bacon and processed meat, tuna from a can, and didn't get tested for diabetes or cervical cancer.

Then after that trauma, our baby cots were covered with bright coloured lead-based paints.

We had no childproof lids on medicine bottles, doors or cabinets and when we rode our bikes, we had no helmets or shoes, not to mention, the risks we took hitchhiking.

As children, we would ride in cars with no seat belts or air bags.

We drank water from the garden hose and NOT from a bottle.

Take away food was limited to fish and chips, no pizza shops, McDonalds , KFC, Subway or Nandos.

Even though all the shops closed at 6.00pm and didn't open on a Sunday, somehow we didn't starve to death!

We shared one soft drink with four friends, from one bottle and NO ONE actually died from this.

We could collect old drink bottles and cash them in at the corner store and buy Toffees, Gobstoppers and Bubble Gum.

We ate cupcakes, white bread and real butter, milk from the cow, and drank soft drinks with sugar in it, but we weren't overweight because…. WE WERE ALWAYS OUTSIDE PLAYING!!

We would leave home in the morning and play all day, as long as we were back when the streetlights came on.

No one was able to reach us all day. And we were O..K.

We would spend hours building our go-carts out of old prams and then ride down the hill, only to find out we forgot the brakes. We built tree houses and dens and played in river beds with matchbox cars.

We did not have Playstations, Nintendo Wii, X-boxes, no video games at all, no 999 channels on SKY , no video/dvd films, or colour TV, no mobile phones, no personal computers, no Internet or Internet chat rooms……..

WE HAD FRIENDS and we went outside and found them!

We fell out of trees, got cut, broke bones and teeth and there were no Lawsuits from these accidents.

Only girls had pierced ears!

We ate worms and mud pies made from dirt, and the worms did not live in us forever.

You could only buy Easter Eggs and Hot Cross Buns at Easter time….

We were given air guns and catapults for our 10th birthdays.

We rode bikes or walked to a friend's house and knocked on the door or rang the bell, or just yelled for them!

Mum didn't have to go to work to help dad make ends meet because we didn't need to keep up with the Jones's!

Not everyone made the rugby/football/cricket/netball team. Those who didn't had to learn to deal with disappointment. Imagine that!! Getting into the team was based on MERIT

Our teachers used to hit us with canes and gym shoes and throw the blackboard rubber at us if they thought we weren't concentrating.

We can string sentences together and spell and have proper conversations because of a good, solid three R's education.

Our parents would tell us to ask a stranger to help us cross the road.

The idea of a parent bailing us out if we broke the law was unheard of.

They actually sided with the law!

Our parents didn't invent stupid names for their kids like 'Kiora' and 'Blade' and 'Ridge' and 'Vanilla'

We had freedom, failure, success and responsibility, and we learned HOW TO DEAL WITH IT ALL !

And YOU are one of them! CONGRATULATIONS!

You might want to share this with others who have had the luck to grow up as kids, before the lawyers and the government regulated our lives for our own good.

And while you are at it, forward it to your kids so they will know how brave their parents were.

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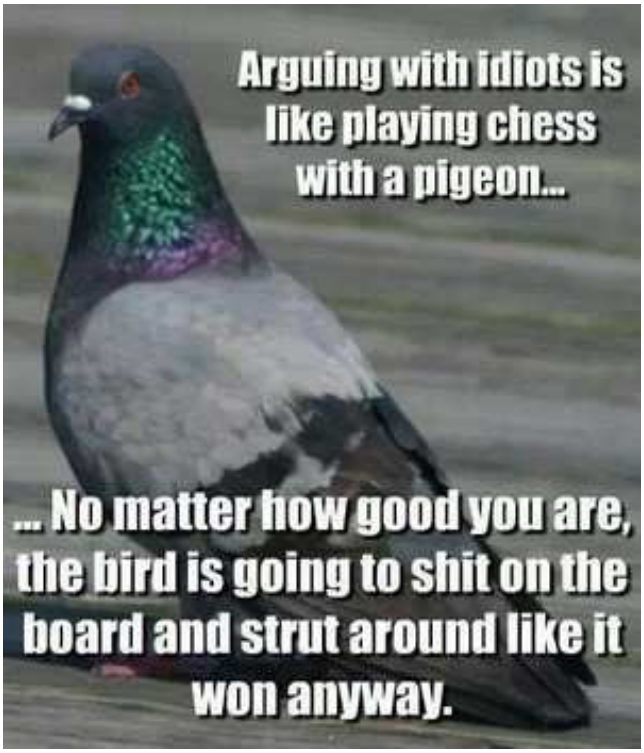

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From: "Jim Woosley" Jimwoosley@aol.com

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

BREAKING NEWS

MSNBC has uncovered that Donald Trump got a detention in the 6th grade. More as this important story unfolds.

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While taking a routine vandalism report at an elementary school, an officer was interrupted by a little boy about six years old. Looking up and down at his uniform, he asked, "Are you a cop?"

"Yes," he replied and continued writing the report.

"My mother said if I ever needed help I should ask the police. Is that right?"

"Yes, that's right," he told him.

"Well, then," he said as he extended his foot towards the officer, "would you please tie my shoe?"

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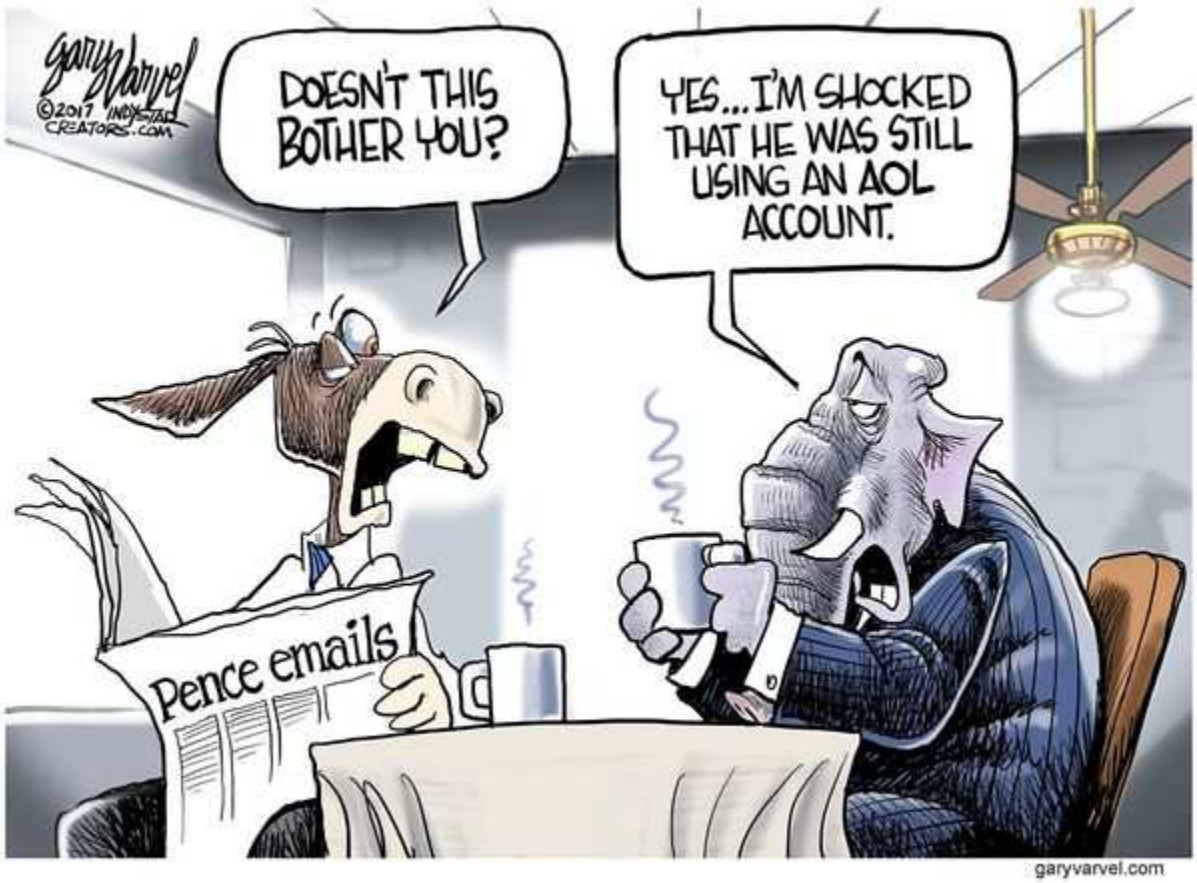
Pence emails



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From: "Randy Bovell" crbovell@epbfi.com

PECANS IN THE CEMETERY

On the outskirts of a small town, there was a big, old pecan tree just inside the cemetery fence. One day, two boys filled up a bucketful of nuts and sat down by the tree, out of sight, and began dividing the nuts.

'One for you, one for me, one for you, one for me,' said one boy. Several dropped and rolled down toward the fence.

Another boy came riding along the road on his bicycle. As he passed, he thought he heard voices from inside the cemetery. He slowed down to investigate. Sure enough, he heard, 'One for you, one for me, one for you, One for me...'

He just knew what it was. He jumped back on his bike and rode off. Just around the bend he met an old man with a cane, hobbling along.

'Come here quick,' said the boy, 'you won't believe what I heard! Satan and the Lord are down at the cemetery dividing up the souls!'

The man said, 'Beat it kid, can't you see it's hard for me to walk.' When the boy insisted though, the man hobbled slowly to the cemetery. Standing by the fence they heard, 'One for you, one for me. One for you, One for me.'

The old man whispered, 'Boy, you've been tellin' me the truth. Let's see if we can see the Lord.. Shaking with fear, they peered through the fence, yet were still unable to see anything. The old man and the boy gripped the wrought iron bars of the fence tighter and tighter as they tried to get a glimpse of the Lord.

At last they heard, 'One for you, one for me. That's all.. Now let's go get those nuts by the fence and we'll be done....

They say the old man had the lead for a good half-mile before the kid on the bike passed him.

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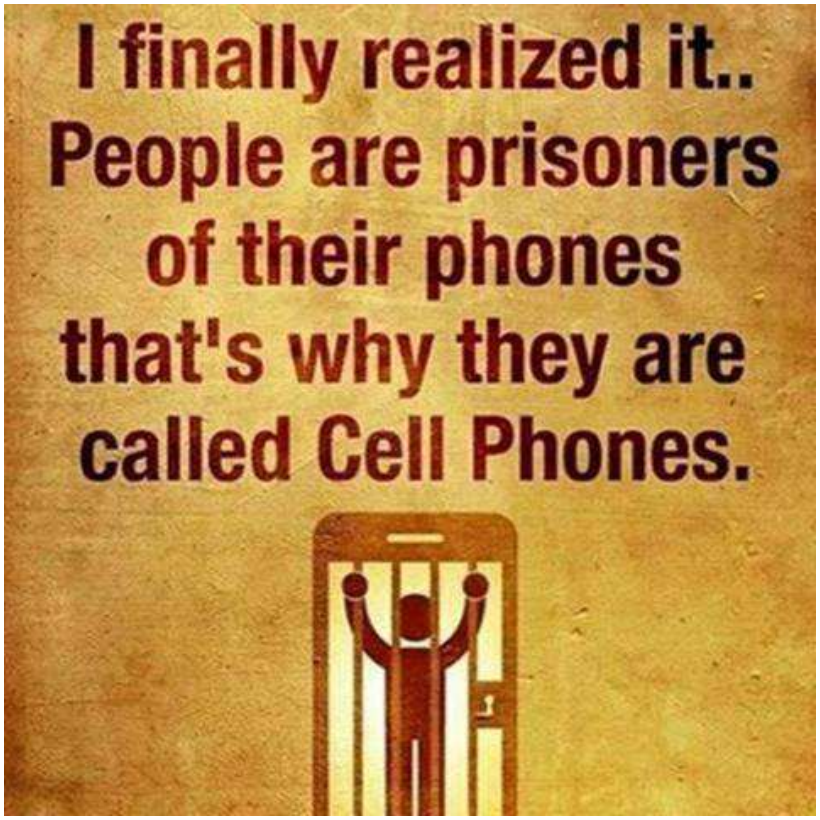
From: "Ray Beloate" beerman@rittermail.com



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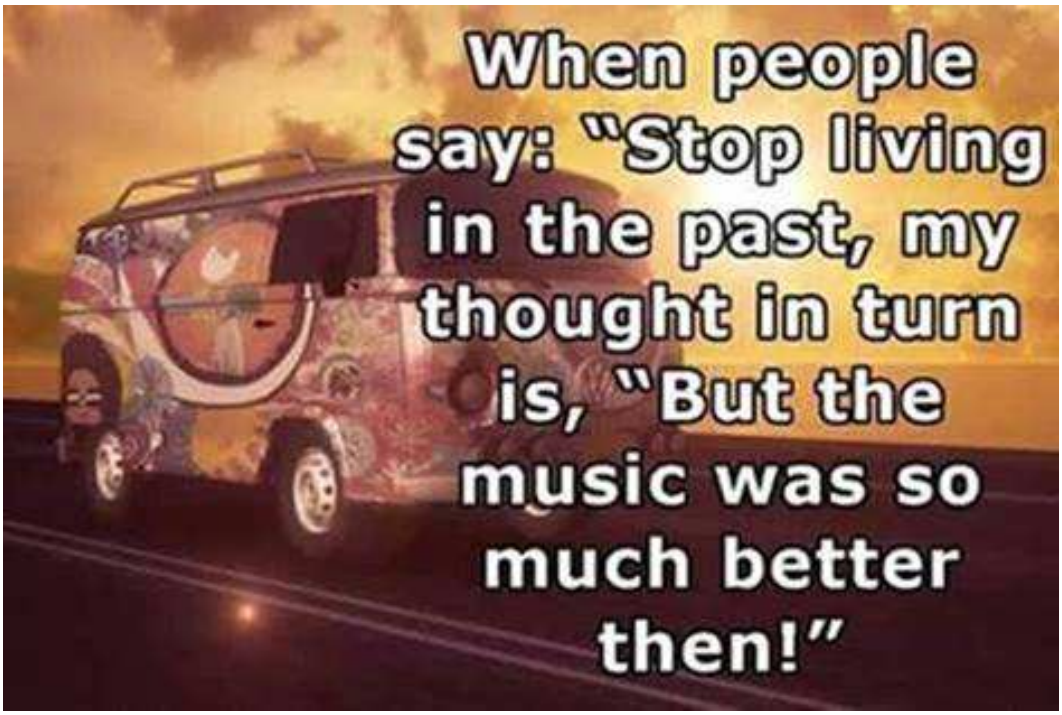

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From: "Christina Cowan" cowan1028@earthlink.net

From my friend Shannon Hurley (retired Navy Captain)

Someone named Susan Keller posted this and it's going viral…

I can't believe I'm saying this, but it looks like Trump is actually making America great again. Just look at the progress made since the election:

1. Unprecedented levels of ongoing civic engagement.

2. Millions of Americans now know who their state and federal representatives are without having to google.

3. Millions of Americans are exercising more. They're holding signs and marching every week.

4. Alec Baldwin is great again. Everyone's forgotten he's kind of a jerk.

5. The Postal Service is enjoying the influx of cash due to stamps purchased by millions of people for letter and postcard campaigns.

6. Likewise, the pharmaceutical industry is enjoying record growth in sales of anti-depressants.

7. Millions of Americans now know how to call their elected officials and know exactly what to say to be effective.

8. Footage of town hall meetings is now entertaining.

9. Tens of millions of people are now correctly spelling words like emoluments, narcissist, fascist, misogynist, holocaust and cognitive dissonance.

10. Everyone knows more about the rise of Hitler than they did last year.

11. Everyone knows more about legislation, branches of power and how checks and balances work.

12. Marginalized groups are experiencing a surge in white allies.

13. White people in record numbers have just learned that racism is not dead. (See #6)

14. White people in record numbers also finally understand that Obamacare IS the Affordable Care Act.

15. Stephen Colbert's "Late Night" finally gained the elusive #1 spot in late night talk shows, and Seth Meyers is finding his footing as today's Jon Stewart.

16. "Mike Pence" has donated millions of dollars to Planned Parenthood since Nov. 9th.

17. Trump has succeeded where thousands of history teachers failed - now everybody knows who Frederick Douglass was. ((.....& all but 1, apparently Know that he died in 1895!))

18. Melissa FREAKING McCarthy.

19. Travel ban protesters put $24 million into ACLU coffers in just 48 hours, enabling them to hire 200 more attorneys. Lawyers are now heroes.

20. As people seek veracity in their news sources, respected news outlets are happily reporting a substantial increase in subscriptions, a boon to a struggling industry vital to our democracy.

21. Live streaming court cases and congressional sessions are now as popular as the Kardashians.

22. Massive cleanup of facebook friend lists.

23. People are reading classic literature again. Sales of George Orwell's "1984" increased by 10,000% after the inauguration. (Yes, that is true. 10,000%. 9th grade Lit teachers all over the country are now rock stars.)

24. More than ever before, Americans are aware that education is important. Like, super important.

25. Now, more than anytime in history, everyone believes that anyone can be President.

.....Seriously, ANYONE.

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

Amazing what engineers can do with (too much!) time on their hands. You have to watch this one!

Click on the link below …

https://www.youtube.com/embed/%20QQ9gs-5IRKc?wmode=transparent

Magnets and Marbles ! - YouTube

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

YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Tim Bolgeo" tbolgeo@epbfi.com

OPINION: U.S. AIR FORCE OVERSPENDING ON T-1A, ITS FORGOTTEN TRAINER

Mar 3, 2017Aviation Week & Space Technology
http://aviationweek.com/defense/opinion-us-air-force-overspending-t-1a-its-forgotten-trainer?NL=AW-05&Issue=AW-05_20170306_AW-05_576&sfvc4enews=42&cl=article_1&utm_rid=CPEN1000003019593&utm_campaign=8937&utm_medium=email&elq2=61318a14f04648b28a4be4d8616eaa3b

In its effort to replace the T-38 trainer with the T-X, the U.S. Air Force is headed toward overspending billions of dollars to keep the T-1A Jayhawk in service until 2050. The 25-year-old T-1A is the service's "forgotten trainer." And it is already past its "economic life," meaning it would be cheaper to replace than to upgrade and sustain.

Last year, about half the T-1A fleet was grounded for repairs to horizontal stabilizer rib cracks and catastrophic hailstorm damage. On average, the aircraft in the fleet have racked up 10,000 hr. of an 18,000 hr. service life.

Mission-capability rates have been running about 80% or less for years and most likely will drop even more in the future. Fleet sustainment (operations and maintenance) costs are running about $400 million per year. Over the next 30 years, the Air Force projects it will have to spend $12 billion to sustain the T-1A, not including service-life extension programs or modifications/upgrades.

Finally, the Air Force wants to significantly increase the number of new pilots each year due to the current pilot shortage. Because of the T-1A aging airframe/engine issues, the Air Force could save billions of dollars by replacing the T-1A with a new, off-the-shelf business jet to meet its increasing training requirements.

The T-1A Jayhawk first entered service in 1992 as a missionized Beechcraft 400A and currently supports the specialized undergraduate pilot training of about 70% of Air Force pilots. The T-38 supports only 30% of such pilot training. The T-1A also is used for 100% of the Combat Systems Officer training.

Credit: Terry Wasson/U.S. Air Force

Last year, the Air Force secretary submitted a report on the T-1A to Congress, as required in the fiscal 2015 and 2016 National Defense Authorization Acts. The report states: "Assuming our training requirements and operational planning factors don't change," the Air Force plans to keep the T-1A in service until 2050. The service concluded that a replacement business jet was not justified based on a 30-year life-cycle cost analysis of the T-1A against a fleet of new $9 million Phenom 300s, for example.

Unfortunately, for the Air Force, the training requirements and operational planning factors changed in mid-2016 after the report went to Congress. A significant requirement change came about because of the current pilot shortage "crises" announced in July and the need to significantly increase pilot training. With the T-1A's low mission-capable rates and the need for major repairs of the grounded hail-damaged aircraft, there is little margin to increase T-1A training output. Currently, T-1As are being shuffled between bases to meet critical class schedules.

In its report to Congress, the Air Force said it had explored potential replacement aircraft for the T-1A. "There are numerous aircraft in the light bizjet category of aircraft that require only additions to avionics to meet Air Force regulatory and system requirements [Phenom 300, SyberJet SJ30, Learjet 40, and the Learjet 75]," it stated. However, the service determined the very light jet (VLJ) category of aircraft (Eclipse 550, Phenom 100, Cessna Mustang and Cessna M2) did not meet the requirements for one-engine-inoperative climb performance and sortie duration. Therefore, it discarded the VLJ category aircraft for its life-cycle cost analysis.

And using the Phenom 300 with a price of $9 million each and operating cost similar to the T-1A, the report concluded that the 30-year life-cycle replacement cost of the Phenom 300 would be more expensive than keeping the T-1A in service to 2050.

But at the annual Experimental Aircraft Association AirVenture gathering in Oshkosh, Wisconsin, last summer, it was announced that one of the VLJs the Air Force considered, the Eclipse 550, is going to be upgraded with more fuel, more powerful engines and new avionics that would make this $3.5 million VLJ able to meet the requirements of one-engine-inoperative climb performance, sortie duration and avionics equipment.

Also noteworthy for a life-cycle cost analysis is that the VLJs have engines that are significantly more fuel-efficient than the T-1A's. The sustainment cost of a fleet of VLJs would be less than half of the T-1A's cost mainly due to a 60-70% reduction in fuel consumption. Even considering the acquisition cost of 200 VLJs at $700 million, a 30-year life-cycle cost analysis shows the VLJ would generate over $5 billion in savings.

As the new administration and Congress are searching for military programs that need a fresh look and ways to be more efficient with taxpayer dollars, reevaluating a VLJ replacement for the forgotten Air Force T-1A trainer program is a good place to start.

—Lt. Gen. (ret.) Thomas G. McInerney is a former assistant vice chief of staff of the U.S. Air Force.

The views expressed are not necessarily shared by Aviation Week.

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YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Stephanie Osborn"

MUSLIMS DEMAND THAT "OFFENSIVE CROSSES" BE REMOVED FROM CATHOLIC UNIVERSITY

Jim Hoft Dec 4th, 2015 7:07 pm
http://www.thegatewaypundit.com/2015/12/muslims-demand-that-offensive-crosses-be-removed-from-catholic-university/

How is a devout Muslim supposed to study with all of those "offensive" crosses around?

Muslims complain about crosses at Catholic school.

JewsNews reported:

A complaint that says crosses at Catholic school are "offensive", and prevent Muslim prayers, has been filed against Catholic University in Washington, D.C.
It is only the latest in an endless series of demands for Sharia Law adherence by Muslims in America.

The complaint to the Washington, D.C. Office of Human Rights, filed by a leftist professor from rival George Washington University, says there are "too many crosses in every room of Catholic University" which is a "human rights violation that prevents Muslim students from praying there."

Baffled Catholic University officials say they have never received a complaint from any of the schools Muslim students, but in fact, a prior complaint from active students is ongoing.

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YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Jim Woosley" Jimwoosley@aol.com

NEW INTERIOR SECRETARY ZINKE REVERSES LAST-MINUTE OBAMA LEAD-AMMUNITION BAN

Published March 02, 2017, Associated Press
http://www.foxnews.com/politics/2017/03/02/new-interior-secretary-zinke-reverses-last-minute-obama-lead-ammunition-ban.html

In this photo provided by the Interior Department shows Interior Secretary Ryan Zinke

arriving for his first day of work at the Interior Department in Washington (Interior Department via AP)

WASHINGTON – On his first full day in office, Interior Secretary Ryan Zinke issued an order Thursday reversing a last-minute action by the Obama administration to ban lead ammunition and fish tackle used on national wildlife refuges.

Gun-rights supporters condemned the earlier order — issued a day before Obama left office Jan. 20 — as nakedly political. The order was in

Zinke, a former Montana congressman and avid hunter, said the new order would increase hunting, fishing and recreation opportunities on lands managed by Fish and Wildlife Service.

Rep. Rob Bishop, R-Utah, chairman of the House Natural Resources Committee, said Zinke's order "represents an important check on executive abuse and reverses what was a deliberate attack on Americans' fundamental rights and privileges" by the Obama administration.

The order reverses a decision by the Obama administration to phase out use of lead ammunition and fishing tackle on wildlife refuges by 2022.

Zinke, who rode to work on a horse Thursday as a sign of solidarity with U.S. Park Police, said the hunting order and another order directing agencies to identify areas where recreation and fishing can be expanded were intended to boost outdoor recreation in all its forms.

"Outdoor recreation is about both our heritage and our economy," he said in a statement. "Between hunting, fishing, motorized recreation, camping and more, the industry generates thousands of jobs and billions of dollars in economic activity."

Over the past eight years, hunting and recreation enthusiasts have seen trails closed and dramatic decreases in access to public lands across the board, Zinke said. "It worries me to think about hunting and fishing becoming activities for the land-owning elite. This package of secretarial orders will expand access for outdoor enthusiasts and also make sure the community's voice is heard."

Environmental groups slammed the new directive on lead ammunition, arguing that spent lead casings cause poisoning in 130 species of birds and other animals.

Switching to nontoxic ammunition should be "a no-brainer" to save the lives of thousands of birds and other wildlife and to "prevent hunters and their families from being exposed to toxic lead and protect our water," said Jonathan Evans, environmental health legal director at the Arizona-based Center for Biological Diversity.

Evans called it ironic that one of the first actions by Zinke — a self-described champion of hunters and anglers — "leads to poisoning of game and waterfowl eaten by those same hunting families."

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From: "Tim Bolgeo" tbolgeo@epbfi.com

SPACEX COULD BEAT NASA BACK TO THE MOON

By Sarah Lewin, Staff Writer | February 28, 2017 05:14pm ET
http://www.space.com/35861-spacex-could-beat-nasa-to-the-moon.html

SpaceX's plan to fly two private citizens around the moon would put the company ahead of NASA's planned crewed flight with its Space Launch System (SLS) megarocket.

Yesterday, SpaceX announced its intention to send passengers on a crewed Dragon spacecraft, launched with a Falcon Heavy rocket, around the moon near the end of 2018. This would follow on the heels of the company's robotic and crewed flights to the International Space Station, and an uncrewed Falcon Heavy moon trip.

NASA's own mission, which would be the first crewed flight using the SLS and its new Orion spacecraft, is scheduled for 2021. NASA recently began an investigation into whether it could put astronauts on SLS and Orion's first launch, scheduled for 2018 — but officials have said that a crewed version of that launch wouldn't fly until 2019. Assuming SpaceX is on schedule, its fly-around would come first.

SpaceX going first "might change the acceptable-risk discussions NASA has with the ASAP [Aerospace Safety Advisory Panel]," Scott Hubbard, researcher in the Stanford University Department of Aeronautics and Astronautics, told Space.com. "I could imagine that if this independent entrepreneur has done it, and successfully identified the risk factors, it would be real information, not speculation."

"Others might then ask about [the] need for SLS and Orion — but two suppliers are always better from a competition/cost POV," he added via email. Hubbard worked at NASA for 20 years and ultimately led its Ames Research Center, and he currently chairs SpaceX's independent Safety Advisory Panel for Commercial Crew, which focuses specifically on the design and risks of their program to carry astronauts to the International Space Station.

*** Elon Musk * Elon Musk ?@elonmusk**
SpaceX could not do this without NASA. Can't express enough appreciation. https://twitter.com/nasa/status/836376097491202048 …
12:10 AM - 28 Feb 2017

During Elon Musk's teleconference yesterday, the SpaceX CEO said that NASA astronauts would "take priority" if the agency wanted to be the first to fly that type of mission. NASA released a statement saying the agency would work closely with SpaceX to ensure the company met all safety requirements and continued to fulfill its space station delivery contract.

As for SpaceX's ambitious time frame, Hubbard said it should be feasible in principle, purely considering the company's transportation capabilities, but that technical questions remain.

"The key technical issue will be demonstrating life support in the Dragon for two people for the duration of the mission," he said. "With reasonable margins, the length of mission will

be longer than planned for commercial crew. The key programmatic issue is level of risk: Is it understood? Has it been mitigated sufficiently?"

If SpaceX can address those issues, it will be on track to launch a moon mission on the 50th anniversary of Apollo 8, NASA's first mission to orbit the moon. That could certainly serve to spur other commercial spaceflight companies, and NASA, into action. Hubbard pointed to when he held a workshop with The Planetary Society that said astronauts could orbit Mars by 2033, and not long after Lockheed Martin came out with a Mars Base Camp plan for 2028 and SpaceX came out with their Red Dragon Mars mission now scheduled for 2020.

This moon announcement "sets a bold new goal," Hubbard said. "There are people that are out there moving the goalposts with some significant technical credibility behind them, and this goal of two paying customers and an Apollo 8 loop around the moon in 2018 could well stimulate others to join in."

"The more groups you have trying this, the better off we are as a spacefaring nation or a spacefaring species," he added.

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VIDEO: SPACEX FALCON HEAVY TO BE REUSABLE, ANIMATION REVEALS

By Steve Spaleta | January 27, 2015 02:26pm ET

Slated to be the world's most powerful rocket when it flies, Falcon Heavy will attempt to return it's core stage and boosters for rapid refurbishment and reuse. SpaceX is confident its accuracy will be sufficient to park the booster elements on land near the process and re-launch site. SpaceX's Huge Falcon Heavy Rocket: How It Works (Infographic)

http://www.space.com/28384-spacex-falcon-heavy-to-be-reusable-animation-reveals.html

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NEW VIRGIN ORBIT FORMED TO LEAD SMALLSAT LAUNCH VEHICLE

Smallsat launch vehicle production site ramps up as Virgin Orbit forms to lead the rocket venture

Mar 2, 2017Guy Norris | Aviation Week & Space Technology
http://aviationweek.com/space/new-virgin-orbit-formed-lead-smallsat-launch-vehicle

Small satellites are fast becoming big business, and to bolster its growing investment in the burgeoning sector Virgin is forming a dedicated new company, Virgin Orbit, to spearhead the development, testing and operation of its LauncherOne low-cost smallsat launch vehicle.

Led by newly appointed Dan Hart, the former vice president of Boeing's Government Satellite Systems unit, Long Beach, California-based Virgin Orbit will form the third leg of Virgin's new triumvirate of emerging space companies. These now include Virgin Galactic, the human spaceflight unit that up until now has led LauncherOne development, and The

Spaceship Co., a wholly owned Virgin Galactic division set up to manufacture the SpaceShipTwo suborbital spaceplane and WhiteKnightTwo carrier aircraft.

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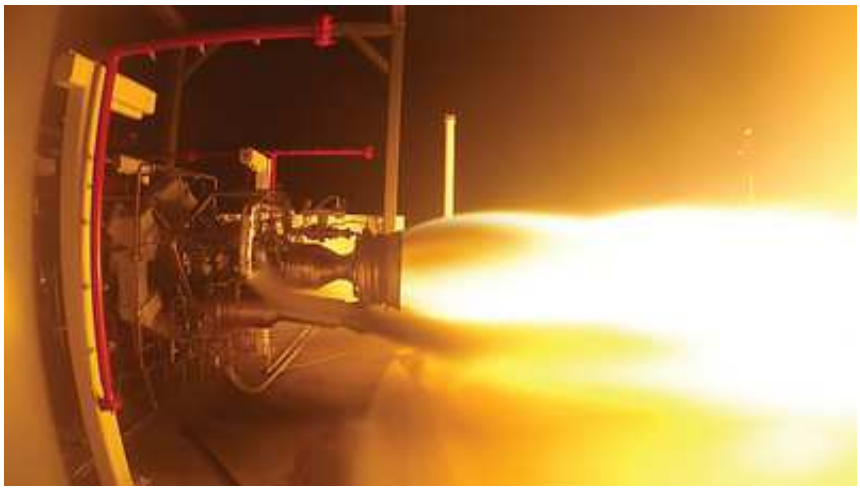
"We feel that the LauncherOne business has made it to the point where we should form a new company," says George Whitesides, CEO of Galactic Ventures, the joint Virgin Group and Aabar Investments-owned overseer of the group's commercial space portfolio. With NASA, OneWeb, and Sky and Space Global among the announced early customer group, he says, the division required a separate identity. "We are dealing with a different customer base. Virgin Galactic's business is focused on individuals and research, and Virgin Orbit's business is focused on corporations and governments."

Virgin Orbit's air-launched rocket development program and operational service will benefit from "intermixing" of expertise and resources within Ventures. "But differentiation will drive the two businesses, and both have the shared goal to open space up," says Whitesides. The rollout of Virgin Orbit is "happening at exactly the right time. A dedicated air launch service will be well-received by both the commercial and government sides of the market," he adds.

Hart oversaw Boeing's government satellite programs and has been involved in launching human space missions, satellites and missile defense. He also helped develop the Delta IV, and in the Strategic Defense Initiative era worked on the fast-paced Delta 183 "Delta Star" spacecraft that gathered signature information for developing interceptors.

The emergence of a functioning new rocket assembly facility in Southern California comes less than two years after Virgin Galactic occupied an empty warehouse built over former Douglas Aircraft factory space. Now, with the first shipsets of structural components for four LauncherOne launch vehicles already built, the 180,000-ft.2 facility is bustling with a growing workforce of 250, assembling body sections, fuel tanks, avionics and rocket engines.

Factory space is vanishing fast, says LauncherOne program development senior vice president Tim Buzza. However, the rapid buildup was always part of the plan. "We came in with the idea that we needed to be in production at the end of the initial development. We wanted to drive right into our production manifest, and so part of that is building a factory that from the outset has all proper tooling and equipment that meets rate," he adds.



Firing of LauncherOne's Newton Three liquid-oxygen/kerosene first-stage engine on Virgin's test stand in Mojave, California. Credit: Virgin Orbit

Last September-December the factory was "turned on" and run at a rate equivalent to making one rocket per month. The test proved the facility could meet one-a-month rate demand with a

single shift and produce sufficient units to conduct a "pathfinder" ground test, first test flight and two follow-on vehicles. Under a similar production model to that adopted by nearby SpaceX, the Virgin Orbit factory is highly vertically integrated, with virtually everything produced in-house, "except for the turbopump and some other complex moving parts," says Buzza.

The "run-at-rate" evaluation was also a key milestone for associated production of two of the biggest innovations in the LauncherOne design: composite cryogenic oxidizer tanks and the rocket's pump-fed, liquid-fueled Newton engines. Composite-skinned primary structure and tanks are becoming more frequently used in launchers. "It is what people aspire to do, but the hard part is the composite cryogenic tanks, and I think it is one area we have excelled at," says Buzza.

The filament-wound tanks are cured in an autoclave and subjected to extensive proof testing, says Kevin Sagis, LauncherOne chief engineer. "A big part of this is proving it can handle thermal and pressure cycles independently. That is hard to do because we had to fill the tank, pressurize it, drain it, equalize the temperature again and repeat the process. That is a big time investment." Initial testing was conducted on half-scale units at Virgin Galactic's Mojave, California, test site, and targeted an integrity over 100 cycles. Follow-on structural tests have taken place at Long Beach. "The whole plan is to qualify the major components of the vehicle, then perform acceptance tests after that," he adds.

Sagis says the Virgin tank design also avoids the issues SpaceX encountered when suspected buckling of a composite-wrapped helium pressurization tank inside the upper-stage liquid oxygen tank caused the Sept. 1 loss of a Falcon 9 in a spectacular explosion on the pad at Cape Canaveral. "There are lots of lessons to be learned from the SpaceX event," Sagis says. "But it is my belief that the concerns there are not present in our vehicle because of our different operating pressures and temperatures. We are taking a more conservative approach and not going as cold as they are. I think our design is very tolerant. As we get smarter and fly more and learn more about the system, then we may be able to increase performance as we go. It is a crawl, walk, run approach."

LauncherOne will be released from a pylon under the port wing of a modified, ex-Virgin Atlantic Boeing 747-400. Credit: Guy Norris/AW&ST.

The structures are insulated with spray-on foam. "This keeps the tanks cold yet protects the composite from getting too hot, so that the epoxy does not soften and threaten structural integrity," says Sagis. "During the captive-carry phase [before launch], this keeps the liquid oxygen cold, and then in the ascent phase it keeps the composites from getting too hot," he adds.
The first stage, with an outer diameter of 72 in., comprises seven primary structural parts including the interstage. Connected to the boost stage by a frangible joint/separation plane, the second stage is made up of fuel and liquid oxygen tanks, a transition structure and

payload adaptor. With a 50-in. outer diameter, the second stage supports a payload envelope with an internal length of 3.63 m (12 ft.). About two-thirds of this is 1.36 m wide, while the area inside the nose cone of the payload fairing can house cubesat-size spacecraft up to 0.57 m wide.

The fairing is provisioned for four main payload options, including a single satellite; a small primary satellite and multiple cubesats; multiple similar primary satellites for axial release; and an alternate layout for lateral release of multiple smaller satellites.

Testing of the two derivatives of the same baseline, liquid oxygen/kerosene-fueled Newton rocket continues at Mojave, using Virgin's Necker test stands. The site is in the process of propellant infrastructure upgrades to allow full-duty cycle testing by midyear. The first-stage Newton Three (N3) engine is rated at 73,500 lb. thrust with the current expansion ratio, while the second-stage Newton Four (N4) will have a vacuum thrust of 5,000 lb. The N3 and N4 are derived from earlier, lower-thrust, pressure-fed Newton One and Two engines that were rated at 3,500 lb. and 47,500 lb. thrust, respectively.

"We cut our teeth as an engineering organization on the Newton One when we did a pressure-fed, regeneratively cooled upper stage originally for [DARPA's Airborne Launch Assist Space Access] program," says Virgin Orbit head of propulsion Robyn Ringuette. "The boost stage of that same vehicle, Newton Two, was also going to be pressure-fed and bigger. The idea was to make a small pressure-fed engine, then a larger one, and then add turbopumps to it. So we went from N1 to N2 to N3. That is the technology road map we are on."

The N3 has evolved from 60,000-lb. thrust to the current higher rating through upgrades to the main combustion chamber injector and to the turbopump. The decision to adopt a turbopump for the smaller upper-stage N4 was unusual, acknowledges Ringuette. "We chose to use a turbopump because we now want to build an arsenal of engines and keep them common," he says. "Every engine is not just a design point, it is also an opportunity to advance the technology without biting off too much."

Test rig tilts the underwing pylon that carries the LauncherOne to test release at pitch angles ranging from ?5 to +30 deg. Credit: Virgin Orbit

The larger N3 is configured with a single gas generator and two turbopumps, one for the liquid oxygen and another for the rocket propellant. "Some engine designs of this thrust class are single-shaft with pumps back to back, and you have one turbine providing energy to both pumps. Obviously that is less mass, but the disadvantage is that if you have an issue, it is harder to work out. With two, we can tailor how much power goes to this turbopump separately from how much flow goes to the pump end," Ringuette explains.

The focus for the upper-stage engine is reducing mass to improve performance. The use of a turbopump helps by allowing much higher propellant pressures at similar or smaller sizes than pressure-fed engines. "Also, this engine has a single-shaft turbopump with a pump on each end and a common turbine," Ringuette says. "We know how to do a single-shaft, and we are not afraid to do it. We still have a gas generator that feeds turbine and discharges into the manifold."

Using additive manufacturing, Virgin Orbit has also developed a complex multirole fuel, hot-gas and heat-exchanger manifold for the N4 that significantly reduces weight and improves efficiency, says Ringuette. "It is a combination of three different manifolds," he explains. "Fuel comes into one inlet and crosses over and feeds holes in the combustion chamber, and on the outside we take the discharge from the turbopump and collect that into another manifold. Then the third manifold wraps around the hot-gas manifold, which acts like a heat exchanger."

For more extensive additive manufacturing in the future, Virgin has partnered with machine-maker DMG MORI on a combined additive and subtractive device large enough to make a first-stage engine. The hybrid 3D printer combines traditional subtractive techniques, such as milling, with additive deposition. "You leave the additively built-up part in the machine and the device grabs a different machining head and begins the subtractive process," says Ringuette. An additively made, regeneratively cooled 10-in. nozzle skirt is scheduled for testing on the N3 at Mojave in coming weeks.

Air-launched rockets have the advantage of operating in much lower atmospheric back-pressure, with a resulting increase in the expansion of gas from the main combustion chamber. However, the much larger nozzles required for these expansion ratios make ground testing challenging, if not impossible.

"For the first stage, we have tested a full nozzle skirt because we are at an expansion ratio where we can test on the ground—barely," says Ringuette. "However, in the case of the upper-stage engine, the N4, you cannot do ground testing because it is way too big, but we can do testing with a truncated nozzle. But even with that we have to have a whole diffuser behind the engine to handle the back-pressure, so it is complicated."

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SCIENTISTS FIND EVIDENCE OF LOST CONTINENT UNDER MAURITIUS

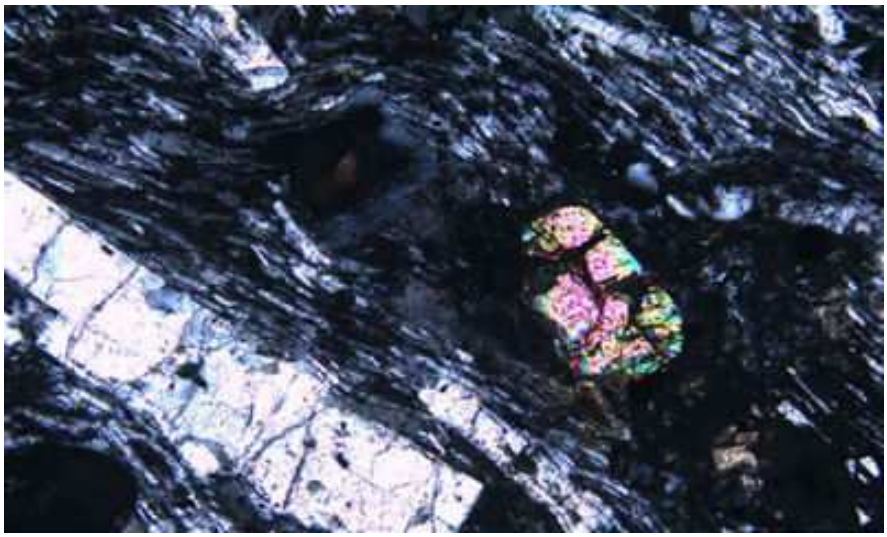
By: Nidhi Goyal | February 27th, 2017
http://www.industrytap.com/scientists-find-evidence-lost-continent-mauritius/41075?utm_source=Industry+Tap&utm_campaign=acb15b56e5-Industry_Tap_Volume_3953_2_2017&utm_medium=email&utm_term=0_05d6224fe0-acb15b56e5-44124953

A group of geoscientists from German and South African research institutions have discovered evidence of an ancient "lost continent" hidden beneath the Indian Ocean and the island of Mauritius. Geoscientists believe this lost continent to be a remnant of the supercontinent Gondwana that existed about 200 million years ago.

The researchers found samples of the volcanic rock zircon of up to 3 billion years old in Mauritius. However, Mauritius is an island which is only a few million years old, and there is no rock older than nine million years old on this island.

Image courtesy flickr.com

Professor Lewis Ashwal of the University of the Witwatersrand, who is the lead author on a paper published by Nature, said, "The fact that we have found zircons of this age proves that there are much older crustal materials under Mauritius that could only have originated from a continent."



This finding suggests that the samples found were part of an ancient continent which broke off when Africa, India, Australia, and Antarctica split up and formed the Indian Ocean.

Ashwal said, "We are studying the break-up process of the continents in order to understand the geological history of the planet. Archaean zircons in Miocene oceanic hotspot rocks establish ancient continental crust beneath Mauritius."

One of the zircon crystals. Image courtesy (University of the Witwatersrand)

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MARS ASTRONAUT RADIATION SHIELD SET FOR MOON MISSION TRIAL-DEVELOPER

By Ori Lewis and Rinat Harash, Reuters, March 3, 2017
https://www.yahoo.com/news/mars-astronaut-radiation-shield-set-moon-mission-trial-102722609--finance.html

A sculpture of a man wearing Stemrad's new protective vest, Astrorad, is seen at an exhibit at Madatech, National Museum of Science Technology and Space in Haifa, Israel February 23, 2017. REUTERS/Amir Cohen
More

HAIFA, Israel (Reuters) - A vest designed to shield astronauts from deadly solar particles in deep space is set for trials on a lunar mission ready for deployment on any manned mission to Mars, its Israeli developers said.

The AstroRad Radiation Shield has been devised by Tel Aviv-based StemRad, which has already produced and marketed a belt to protect rescue workers from harmful gamma ray radiation emitted in nuclear disasters, such as Chernobyl and Fukushima.

The vest will protect vital human tissue, particularly stem cells, which could be devastated by solar radiation in deep space or on Mars, whose sparse atmosphere offers no protection, StemRad's CEO Oren Milstein said.

U.S. space agency NASA has said it hopes to send astronauts to Mars in the mid-2030s.

The vest is made of layers that look like a contoured map and will be tailor-made for each astronaut. Non-metallic protective materials will be positioned on each shield to cover the organs of each astronaut.

"This product will enable human deep space exploration. Our breakthrough has come in creating the architecture of the multi-layered shield to accurately cover the most important organs," Milstein said.

StemRad say it has proven the concept in the laboratory and in simulations, but testing will also take place on the Orion spacecraft, a joint project of Lockheed Martin, NASA and the European Space Agency.

Orion is set to orbit the moon unmanned during the debut flight of NASA's heavy-lift Space Launch System rocket, scheduled for late 2018 but it is also assessing the feasibility of flying two astronauts on that mission.

During the lunar flyby mission, the vest will be strapped to a "phantom" torso dummy, a device used to monitor radiation absorption. Another phantom will fly unprotected and the two will be analyzed after they return to Earth.

NASA had no immediate comment on how the test could be affected if the agency decided to put astronauts on Orion.

Stemrad's chief technologist, Gideon Waterman, said the vest needed to combine density with flexibility to protect astronauts while enabling them to move about as freely as possible.

Mock-ups have been made, and the first protective vest is expected to be produced by the end of the year, Milstein said.

"Based on our simulations, we're sure it works but to be 100 percent sure, we're sending it up on EM-1," he said, referring to NASA's Exploration Mission-1, the first flight of the combined Space Launch System rocket and the Orion capsule.

The Orion will have its own small shelter for solar storms or flares that have dangerous bursts of radiation, and the vest, Milstein said, will offer the same degree of protection so astronauts can keep safe in other parts of the spacecraft.

Astronauts in Earth's orbit, such as those on the International Space Station, do not face the same risk because they are protected by the planet's magnetic field which acts as a shield, he added.

(Additional reporting by Irene Klotz in Cape Canaveral, Fla.; Writing by Ori Lewis; Editing by Jeffrey Heller and Alison Williams)

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BIGELOW AEROSPACE OFFERS PLAN FOR AN EXPANDABLE SPACE STATION ORBITING THE MOON BY 2020

http://www.nextbigfuture.com/2017/03/bigelow-aerospace-offers-plan-for.html

Bigelow Aerospace founder Robert Bigelow's company makes in-space habitats. One (the BEAM adds 16 cubic meters of living area to the ISS) is now attached to the International Space Station and he and his company are developing permanent, stand-alone habitats to serve as private space stations in orbit around the Earth, ready to house private astronauts.

Bigelow has talked with United Launch Alliance Chief Executive Tory Bruno about using the company's Atlas V 552 rocket, which has an extra-wide payload fairing, to deliver the B330 into orbit.

United Launch Alliance is developing an advanced upper-stage vehicle, ACES, to provide in-space propulsion.

Two ACES in tandem could be used to move the B330 into a low lunar orbit. They orbit within 75 kilometers of the lunar surface

Bigelow has spoken SpaceX President Gwynne Shotwell about using the company's Dragon 2 spacecraft to transport astronauts to the B330 in deep space.

By 2020, NASA and commercial astronauts ould be living and working in lunar orbit inside a functional space station.

1 Mar Robert Bigelow @RobertTBigelow
What if the @SpaceX V2 and/or the @LockheedMartin Orion were engaged as the transportation vehicles to and from the lunar depot?

Robert Bigelow @RobertTBigelow
If initiated soon, a lunar depot could be in operation by the end of 2020. pic.twitter.com/dl5s3Gvf5i
12:24 PM - 1 Mar 2017

What if the @SpaceX V2 and/or the @LockheedMartin Orion were engaged as the transportation vehicles to and from the lunar depot?

The only accommodating launch vehicle and fairing for this large B330 spacecraft is the @ulalaunch Atlas 552, stretched fairing

Robert Bigelow? @RobertTBigelow Feb 28

The B330 is designed to be a standalone space station capable of operating in LEO or beyond.

SOURCES- Twitter - Robert T Bigelow, Orlando Rising, Ars Technica

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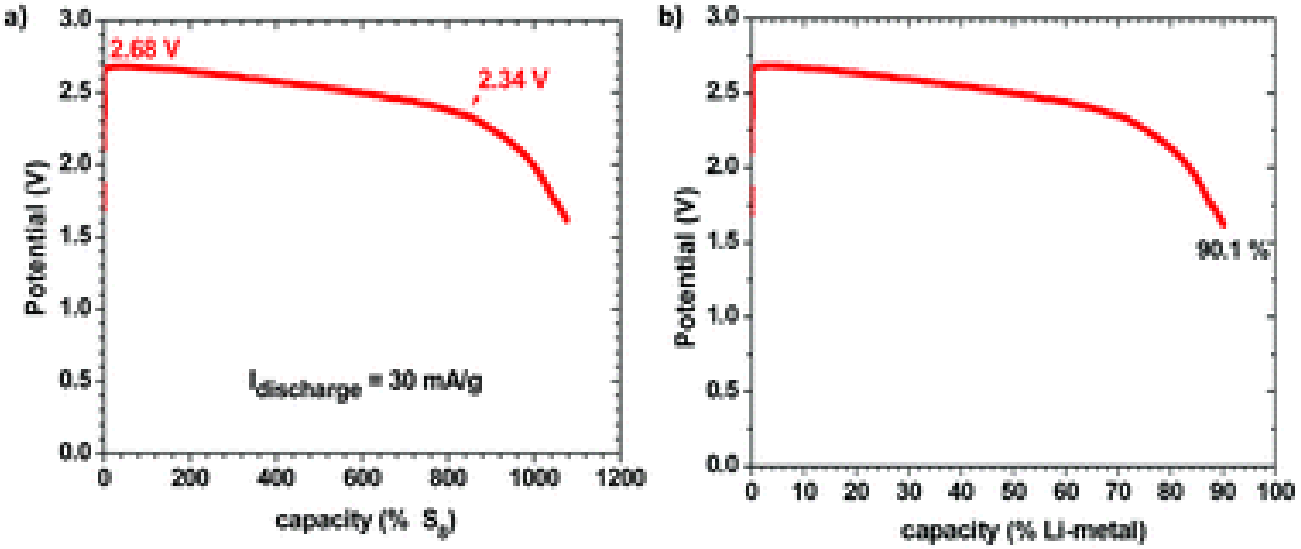
LITHIUM-ION BATTERY INVENTOR INTRODUCES NEW TECHNOLOGY FOR IMPROVED FAST-CHARGING, NONCOMBUSTIBLE SOLID STATE BATTERIES

March 02, 2017
http://www.nextbigfuture.com/2017/03/lithium-ion-battery-inventor-introduces.html

A team of engineers led by 94-year-old John Goodenough, professor in the Cockrell School of Engineering at The University of Texas at Austin and co-inventor of the lithium-ion battery, has developed the first all-solid-state battery cells that could lead to safer, faster-charging, longer-lasting rechargeable batteries for handheld mobile devices, electric cars and stationary energy storage.

Goodenough's latest breakthrough, completed with Cockrell School senior research fellow Maria Helena Braga, is a low-cost all-solid-state battery that is noncombustible and has a long cycle life (battery life) with a high volumetric energy density and fast rates of charge and discharge. The engineers describe their new technology in a recent paper published in the journal Energy & Environmental Science.

"Cost, safety, energy density, rates of charge and discharge and cycle life are critical for battery-driven cars to be more widely adopted. We believe our discovery solves many of the problems that are inherent in today's batteries," Goodenough said.



Energy and Environmental Science - Alternative strategy for a safe rechargeable battery

The researchers demonstrated that their new battery cells have at least three times as much energy density as today's lithium-ion batteries. A battery cell's energy density gives an electric vehicle its driving range, so a higher energy density means that a car can drive more miles between charges. The UT Austin battery formulation also allows for a greater number of charging and discharging cycles, which equates to longer-lasting batteries, as well as a faster rate of recharge (minutes rather than hours).

Today's lithium-ion batteries use liquid electrolytes to transport the lithium ions between the anode (the negative side of the battery) and the cathode (the positive side of the battery). If a battery cell is charged too quickly, it can cause dendrites or "metal whiskers" to form and cross through the liquid electrolytes, causing a short circuit that can lead to explosions and fires. Instead of liquid electrolytes, the researchers rely on glass electrolytes that enable the use of an alkali-metal anode without the formation of dendrites.

The use of an alkali-metal anode (lithium, sodium or potassium) — which isn't possible with conventional batteries — increases the energy density of a cathode and delivers a long cycle life. In experiments, the researchers' cells have demonstrated more than 1,200 cycles with low cell resistance.

Additionally, because the solid-glass electrolytes can operate, or have high conductivity, at -20 degrees Celsius, this type of battery in a car could perform well in subzero degree weather. This is the first all-solid-state battery cell that can operate under 60 degree Celsius.

Braga began developing solid-glass electrolytes with colleagues while she was at the University of Porto in Portugal. About two years ago, she began collaborating with Goodenough and researcher Andrew J. Murchison at UT Austin. Braga said that Goodenough brought an understanding of the composition and properties of the solid-glass electrolytes that resulted in a new version of the electrolytes that is now patented through the UT Austin Office of Technology Commercialization.

The engineers' glass electrolytes allow them to plate and strip alkali metals on both the cathode and the anode side without dendrites, which simplifies battery cell fabrication.

Another advantage is that the battery cells can be made from earth-friendly materials.

"The glass electrolytes allow for the substitution of low-cost sodium for lithium. Sodium is extracted from seawater that is widely available," Braga said.

Goodenough and Braga are continuing to advance their battery-related research and are working on several patents. In the short term, they hope to work with battery makers to develop and test their new materials in electric vehicles and energy storage devices.

Abstract

The advent of a Li+ or Na+ glass electrolyte with a cation conductivity ?i over 10?2 S cm?1 at 25 °C and a motional enthalpy ?Hm = 0.06 eV that is wet by a metallic lithium or sodium anode is used to develop a new strategy for an all-solid-state, rechargeable, metal-plating battery. During discharge, a cell plates the metal of an anode of high-energy Fermi level such as lithium or sodium onto a cathode current collector with a low-energy Fermi level; the voltage of the cell may be determined by a cathode redox center having an energy between the Fermi levels of the anode and that of the cathode current collector. This

strategy is demonstrated with a solid electrolyte that not only is wet by the metallic anode, but also has a dielectric constant capable of creating a large electric-double-layer capacitance at the two electrode/electrolyte interfaces. The result is a safe, low-cost, lithium or sodium rechargeable battery of high energy density and long cycle life.

SOURCES- Energy and Environmental Science, University of Texas

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SPONGE CAN SOAK UP AND RELEASE SPILLED OIL HUNDREDS OF TIMES

By Carolyn Wilke
https://www.newscientist.com/article/2123391-sponge-can-soak-up-and-release-spilled-oil-hundreds-of-times/?cmpid=SOC%7CNSNS%7C2017-FBvideo-OILSPONGE&utm_medium=SOC&utm_source=NSNS&utm_campaign=FBvideo&utm_content=OILSPONGE

A new material can absorb up to 90 times its own weight in spilled oil and then be squeezed out like a sponge and reused, raising hopes for easier clean-up of oil spill sites.

This contrasts with most commercial products for soaking up oil, called "sorbents". These are generally only good for a single use, acting like a paper towel used to mop up a kitchen mess and then tossed away. The discarded sorbents and oil are then normally incinerated.

But what if the oil could be recovered and the sorbent reused? The new material, created by Seth Darling and his colleagues at Argonne National Laboratory in Illinois, seems to allow for both of these processes, cutting waste.

The oil sponge consists of a simple foam made of polyurethane or polyimide plastics and coated with "oil-loving" silane molecules with a sweet spot for capturing oil. Too little chemical attraction would render the sponge useless as an absorber, whereas too much would mean the oil could not be released.

In laboratory tests, the researchers found that when engineered with just the right amount of silane, their foam could repeatedly soak up and release oil with no significant changes in capacity.
But to determine whether this material could help sort out a big spill in marine waters, they needed to perform a special large-scale test.

RECREATING A SPILL

To do this, the team made an array of square pads of the sponge material measuring around 6 square metres. "We made a lot of the foam, and then these pieces of foam were placed inside mesh bags – basically laundry bags, with sewn channels to house the foam," Darling says.

The researchers suspended their sponge-filled bags from a bridge over a large pool specially designed for practising emergency responses to oil spills.

They then dragged the sponges behind a pipe spewing crude oil to test the material's capability to remove oil from the water. They next sent the sponges through a wringer to remove the oil and then repeated the process, carrying out many tests over multiple days.

This so-far unpublished test was conducted in early December at the National Oil Spill Response Research & Renewable Energy Test Facility in Leonardo, New Jersey.

"Our treated foams did way better than either the untreated foam that we brought or the commercial sorbent," says Darling.

The team does not yet know, however, whether this material can perform well under the high pressures of the deep sea.

Even so, this material could be used for spills near shores, where clean-up is particularly difficult. "I see it as a major advance in cleaning small spills and spills close to coastlines where dispersants cannot be used easily," says Vijay John at Tulane University in New Orleans, Louisiana.

"In an ideal world, you would have warehoused collections of this foam sitting near wherever there are offshore operations… or where there's a lot of shipping traffic, or right on rigs… ready to go when the spill happens," says Darling.

The next challenge for the team is to optimise the process for scale-up.

Journal reference: Journal of Materials Chemistry A, DOI: 10.1039/C6TA09014A

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NASA PROPOSES A MAGNETIC SHIELD TO PROTECT MARS' ATMOSPHERE

March 3, 2017 by Matt Williams, Universe Today
https://phys.org/news/2017-03-nasa-magnetic-shield-mars-atmosphere.html

Artist's conception of a terraformed Mars. Credit: Ittiz/Wikimedia Commons

NASA proposes a magnetic shield to protect Mars' atmosphere

This week, NASA's Planetary Science Division (PSD) hosted a community workshop at their headquarters in Washington, DC. Known as the "Planetary Science Vision 2050 Workshop", this event ran from February 27th to March 1st, and saw scientists and researchers from all over the world descend on the capitol to attend panel discussions, presentations, and talks about the future of space exploration.

One of the more intriguing presentations took place on Wednesday, March 1st, where the exploration of Mars by human astronauts was discussed. In the course of the talk, which was titled "A Future Mars Environment for Science and Exploration", Director Jim Green discussed how deploying a magnetic shield could enhance Mars' atmosphere and facilitate crewed missions there in the future.

The current scientific consensus is that, like Earth, Mars once had a magnetic field that protected its atmosphere. Roughly 4.2 billion years ago, this planet's magnetic field suddenly disappeared, which caused Mars' atmosphere to slowly be lost to space. Over the course of the next 500 million years, Mars went from being a warmer, wetter environment to the cold, uninhabitable place we know today.

Artist's rendering of a solar storm hitting Mars and stripping ions from the planet's upper atmosphere. Credits: NASA/GSFC

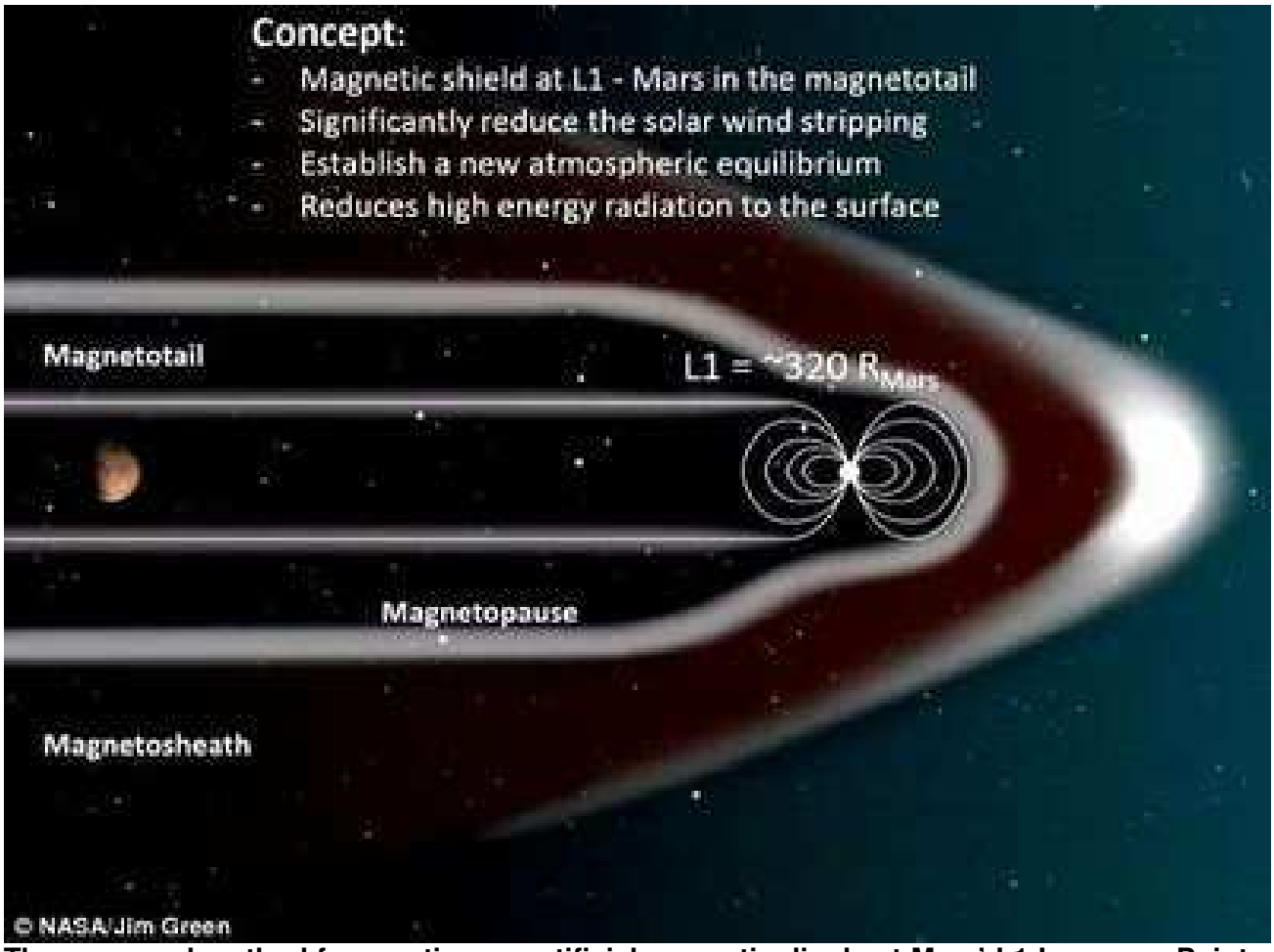
This theory has been confirmed in recent years by orbiters like the ESA's Mars Express and NASA's Mars Atmosphere and Volatile EvolutioN Mission (MAVEN), which have been studying the Martian atmosphere since 2004 and 2014, respectively. In addition to determining that solar wind was responsible for depleting Mars' atmosphere, these probes have also been measuring the rate at which it is still being lost today.

Without this atmosphere, Mars will continue to be a cold, dry place where life cannot flourish. In addition to that, future crewed mission – which NASA hopes to mount by the 2030s – will also have to deal with some severe hazards. Foremost among these will be exposure to radiation and the danger of asphyxiation, which will pose an even greater danger to colonists (should any attempts at colonization be made).

In answer to this challenge, Dr. Jim Green – the Director of NASA's Planetary Science Division – and a panel of researchers presented an ambitious idea. In essence, they

suggested that by positioning a magnetic dipole shield at the Mars L1 Lagrange Point, an artificial magnetosphere could be formed that would encompass the entire planet, thus shielding it from solar wind and radiation.

Naturally, Green and his colleagues acknowledged that the idea might sounds a bit "fanciful". However, they were quick to emphasize how new research into miniature magnetospheres (for the sake of protecting crews and spacecraft) supports this concept:



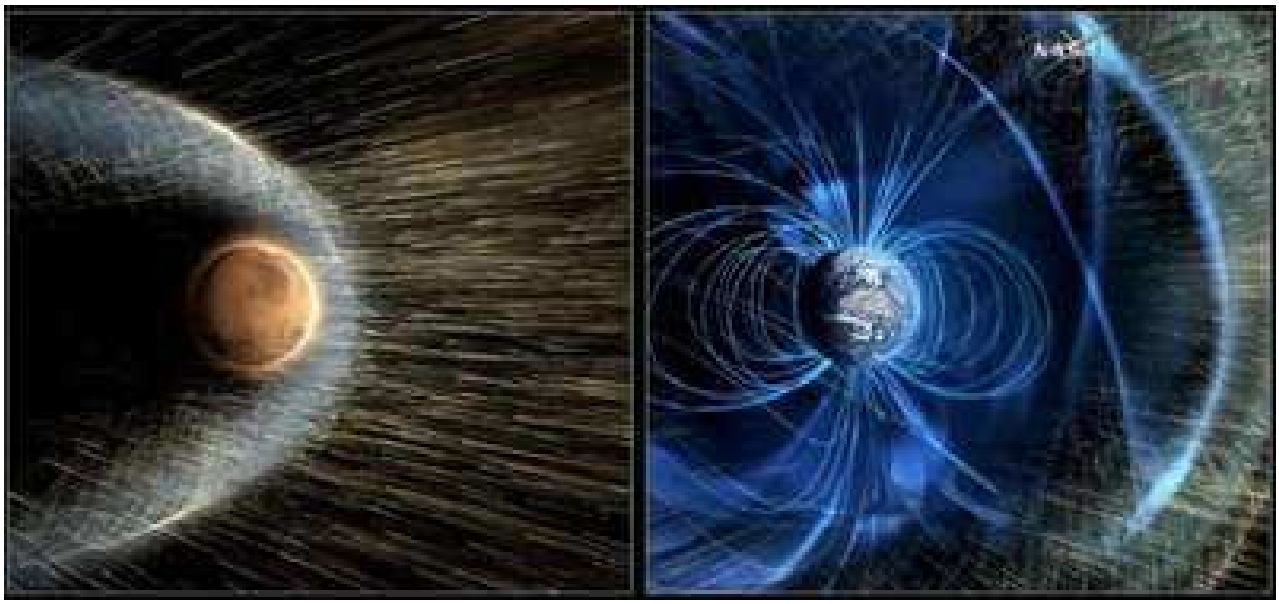
The proposed method for creating an artificial magnetic dipole at Mars' L1 Lagrange Point. Credit: NASA/J.Green

"This new research is coming about due to the application of full plasma physics codes and laboratory experiments. In the future it is quite possible that an inflatable structure(s) can generate a magnetic dipole field at a level of perhaps 1 or 2 Tesla (or 10,000 to 20,000 Gauss) as an active shield against the solar wind."

In addition, the positioning of this magnetic shield would ensure that the two regions where most of Mars' atmosphere is lost would be shielded. In the course of the presentation, Green and the panel indicated that these the major escape channels are located, "over the northern polar cap involving higher energy ionospheric material, and 2) in the equatorial zone involving a seasonal low energy component with as much as 0.1 kg/s escape of oxygen ions."

To test this idea, the research team – which included scientists from Ames Research Center, the Goddard Space Flight Center, the University of Colorado, Princeton University, and the Rutherford Appleton Laboratory – conducted a series of simulations using their proposed artificial magnetosphere. These were run at the Coordinated Community Modeling Center (CCMC), which specializes in space weather research, to see what the net effect would be.

What they found was that a dipole field positioned at Mars L1 Lagrange Point would be able to counteract solar wind, such that Mars' atmosphere would achieve a new balance. At present, atmospheric loss on Mars is balanced to some degree by volcanic outpassing from Mars interior and crust. This contributes to a surface atmosphere that is about 6 mbar in air pressure (less than 1% that at sea level on Earth).



At one time, Mars had a magnetic field similar to Earth, which prevented its atmosphere from being stripped away. Credit: NASA

As a result, Mars atmosphere would naturally thicken over time, which lead to many new possibilities for human exploration and colonization. According to Green and his colleagues, these would include an average increase of about 4 °C (~7 °F), which would be enough to melt the carbon dioxide ice in the northern polar ice cap. This would trigger a greenhouse effect, warming the atmosphere further and causing the water ice in the polar caps to melt.

By their calculations, Green and his colleagues estimated that this could lead to 1/7th of Mars' oceans – the ones that covered it billions of years ago – to be restored. If this is beginning to sound a bit like a lecture on how to terraform Mars, it is probably because these same ideas have been raised by people who advocating that very thing. But in the meantime, these changes would facilitate human exploration between now and mid-century.

"A greatly enhanced Martian atmosphere, in both pressure and temperature, that would be enough to allow significant surface liquid water would also have a number of benefits for science and human exploration in the 2040s and beyond," said Green. "Much like Earth, an

enhanced atmosphere would: allow larger landed mass of equipment to the surface, shield against most cosmic and solar particle radiation, extend the ability for oxygen extraction, and provide "open air" greenhouses to exist for plant production, just to name a few."

These conditions, said Green and his colleagues, would also allow for human explorers to study the planet in much greater detail. It would also help them to determine the habitability of the planet, since many of the signs that pointed towards it being habitable in the past (i.e. liquid water) would slowly seep back into the landscape. And if this could be achieved within the space of few decades, it would certainly help pave the way for colonization.

In the meantime, Green and his colleagues plan to review the results of these simulations so they can produce a more accurate assessment of how long these projected changes would take. It also might not hurt to conduct some cost-assessments of this magnetic shield. While it might seem like something out of science fiction, it doesn't hurt to crunch the numbers!

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From: "Christina Cowan" cowand1028@earthlink.net

THIS BATTERY RUNS ON THE HIDDEN POWER OF ESTUARIES

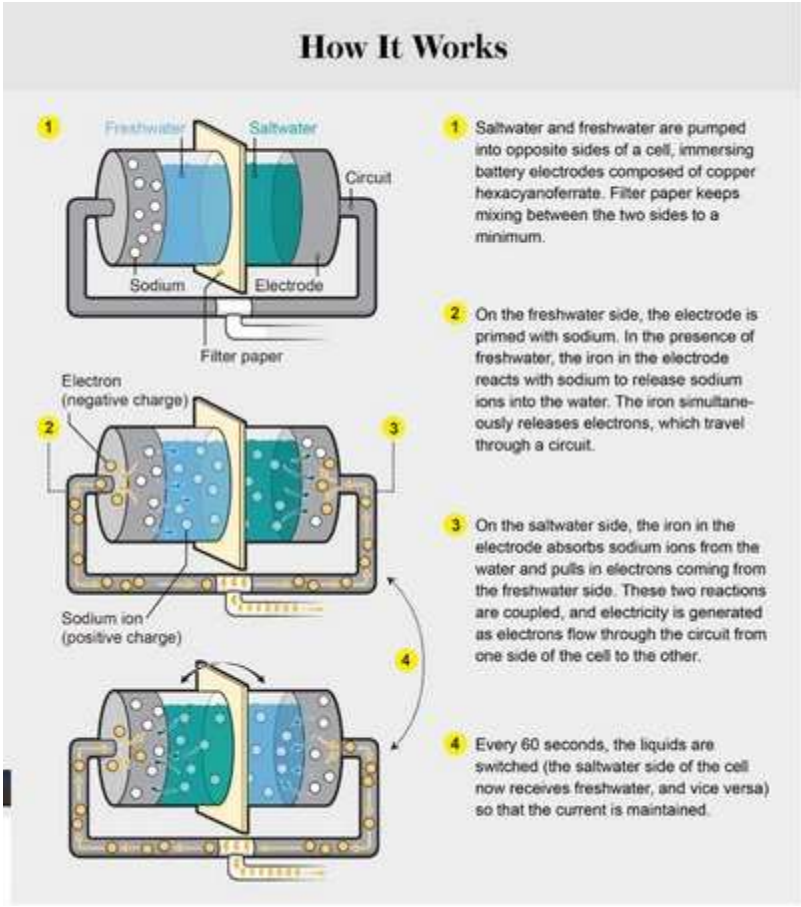
Freshwater-saltwater ecosystems could provide bountiful renewable energy

By Annie Sneed | Scientific American March 2017 Issue
https://www.scientificamerican.com/article/this-battery-runs-on-the-hidden-power-of-estuaries/?WT.mc_id=SA_DD_20170301

There is great opportunity where rivers and oceans meet: the salinity gradient that forms at these freshwater-saltwater boundaries holds a substantial amount of potential energy. Estuaries, for instance, could cover an estimated 40 percent of global electricity generation.

So far Gorski and his team have tested only a cell-phone-sized prototype in the laboratory. As reported in Environmental Science & Technology, it produced 0.4 watt per square meter—twice the power density achieved in previous capacitive mixing studies. The researchers still need to boost output and determine if the system is cost-

effective and scalable (the power plant would be the size of a small warehouse in a real-world setting). They also need to investigate the potential for ecosystem disruption because the "river battery" requires the passage of large amounts of estuary water.



Scientists have been working for decades to turn this potential into a usable power source and have developed a number of techniques. One of the latest comes from Pennsylvania State University, where Chris Gorski, an assistant professor of civil engineering, and his colleagues say they have come up with a way to generate electricity from freshwater-saltwater ecosystems that is potentially more efficient and cheaper than previous attempts. The system, a variation on a process called capacitive mixing, works a little like a battery. It employs battery electrodes and relies on an electrochemical gradient—but unlike a battery, it is an open system (graphic below).

Yale University chemical and environmental engineering researcher Anthony Straub and other scientists are skeptical about the possibility of building an efficient system on a river-ocean junction—and say technologies like Gorski's may ultimately only work in places with relatively extreme salt gradients, such as hypersaline lakes, geothermal wells or wastewater facilities. But if it proves viable and safe, such a system may one day join solar and wind power as a form of renewable energy.

Schooner Bay, Point Reyes National Seashore, California Credit: Rolf Schulten Getty Images

Credit: Illustration by Brown Bird Design; Source: "Harvesting Energy from Salinity Differences Using Battery Electrodes in a Concentration Flow Cell," by Taeyoung Kim et al., in Environmental Science and Technology, Vol. 50, No. 17; September 6, 2016

This article was originally published with the title "It's Electric--With the Right Mix"

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FOUND: THOUSANDS OF MAN-MADE MINERALS—ANOTHER ARGUMENT FOR THE ANTHROPOCENE

Future geologists will find thousands of human-made minerals in the ruins of our civilization

By Shannon Hall on March 1, 2017
https://www.scientificamerican.com/article/found-thousands-of-man-made-minerals-mdash-another-argument-for-the-anthropocene/?WT.mc_id=send-to-friend

Simonkolleite [Zn5(OH)8Cl2·H2O] found on a copper mining artifact in Rowley mine, Maricopa County, Ariz. Credit: RRUFF

Humans have dramatically changed Earth's surface. Satellite images show New York City's sparkling lights at night and the Great Wall of China during the day. But we have also produced signatures in the strata beneath our feat that can't be seen so readily, like the plastic that litters the ocean floor and a strong radiation signal produced by atomic bomb tests. For many scientists, this kind of evidence is enough to formally declare a new geologic epoch—one that will be visible in the layers of sediment millions of years from now. And new research, published March 1 in American Mineralogist, adds another layer to the argument for the so-called Anthropocene: man-made minerals.

Robert Hazen, a mineralogist at the Carnegie Institution for Science, and his colleagues tallied up the number of minerals on Earth only to discover that a large number have been created, thanks to human activities. Although minerals, by definition, must form via natural processes, Hazen's team discovered 208 minerals mediated by humans—they did form naturally but in places such as man-made mines, where unnatural humidity or fires from mining operations created new minerals along the mine walls. Other examples might be even harder to find, unless you are a deep-sea diver; when bronze or brass artifacts sink in a shipwreck, for example, they interact with the seafloor to create novel, man-mediated minerals.

Perhaps more striking are mineral-like compounds—substances that would be characterized as minerals if they were not completely man-made (rather than human-mediated). Hazen's team created a long list of these as well—everything from synthetic rubies and diamonds to ceramics, brick, cement, batteries and certain components of cell phones—and they suspect there are hundreds of thousands of varieties, too many for them to count.

To put that number in perspective: Roughly 2.4 billion years ago a great deal of oxygen arose in our atmosphere, causing the number of minerals to skyrocket from around 2,000 to 5,000 with the addition of so many oxide versions. Hazen's work now shows human events trump that so-called Great Oxidation Event, which was previously the largest known increase in minerals (taking the broad sense of the term). "There are so many things that we produce that are mineral-like that we have really changed the sedimentary horizon in which we are now living," Hazen says.

Not only have humans greatly increased the diversity of minerals—again using the term to mean naturally occurring, human-mediated and man-made—they have done so rapidly. It took some two billion years to create thousands of minerals during the Great Oxidation Event, but the latest increase of hundreds of thousands has mostly occurred since the industrial revolution. It is the fastest rate of new mineral production in Earth's history, Hazen says. And that is key: "The Anthropocene isn't simply saying that humans have influenced strata," adds Jan Zalasiewicz, a geologist at the University of Leicester and chair of the Anthropocene Working Group, who was not involved in the study. "It's a symbol of the scale, variety and trajectory of those changes." Just think of any graph that shows the steep climb of atmospheric carbon dioxide levels over the past few decades, the blink of an eye geologically speaking. It is that kind of growth (be it of carbon dioxide or another signature) that defines the Anthropocene, Zalasiewicz says. "One of the most distinctive vertical lines on the graph is the growth of mineral species," he says. "It's one of the most striking changes."

Such dramatic changes will not go unnoticed if a future geologist finds herself digging up layers of sediment from an ancient city. "These are the real global marker of our age," Hazen says. Not only because a city's infrastructure contains many of these man-made minerals but because it also contains natural minerals that were quarried in locations across the world, creating concentrations that would not be found naturally. Even if sea levels rise 300 feet and cover coastal cities, those minerals will still be visible in the sedimentary record. That's because landmarks like the Washington Monument and the Smithsonian will collapse into piles of rubble—signatures that are later preserved as highly unusual lens-shaped pockets underground, distinct from their surroundings in both shape and minerals. The Washington Monument, for example, will eventually be a lens-shaped pocket composed of limestone where no other limestone is found. And the pocket that was once the Smithsonian will contain so many rare minerals that they could not possibly have formed so close together in nature. To boot, they will be surrounded by the vast array of the man-made minerals we use every day. "There is nothing at all like this in the geology of the past 4.5 billion years on Earth," Zalasiewicz says. "It is tragically different."

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From: "Mike Williamson" mzmadmike@gmail.com

REAL TIME ANIMATION OF TITANIC SINKING

http://video.dailymail.co.uk/video/mol/2016/08/17/3782772689452810727/640x360_MP4_3782772689452810727.mp4

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

From: "Tim Bolgeo" tbolgeo@epbfi.com

VIDEO: LEVIN DELIVERS DEVASTATING CASE AGAINST OBAMA ADMIN'S WIRE SCANDAL WITH PROOF THE PRESS WON'T SHOW

March 5, 2017 | Carmine Sabia
http://www.bizpacreview.com/2017/03/05/levin-delivers-devastating-case-obama-admins-wire-scandal-proof-press-wont-show-455667?utm_source=BizPac+Review+Email+Newsletter&utm_campaign=e828a32c0c-EMAIL_CAMPAIGN_2017_03_06&utm_medium=email&utm_term=0_fbf9323fb3-e828a32c0c-32881293

Conservative radio host Mark Levin made the case that former President Obama and his operatives have actively worked to spy on, and undermine, President Donald Trump and his administration.
Levin spoke to "Fox & Friends" on Sunday and used liberal news sources to essentially prove that the Obama administration was behind spying on President Trump and others in his campaign during the election season.

Six agencies, including the FBI, CIA, NSA, DOJ, Treasury Department Financial Crimes Enforcement Network and representatives of the director of national intelligence, were involved in investigating the Trump campaign.

"Are you telling me Barack Obama didn't know what was going on in six agencies?" Levin asked.

And with the case Levin made, all with publicly available information, it's tough to believe

GO AN CHECK OUT THE VIDEO, IT IS DEFINITELY INTERESTING. UT

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From: "Chris Cowan" cowanc1028@earthlink.net

SEXIST POLITICAL CRITICISM FINDS A NEW TARGET: KELLYANNE CONWAY

By SUSAN CHIRAMARCH 5, 2017
https://www.nytimes.com/2017/03/05/us/kellyanne-conway-sexist-political-criticism.html?emc=edit_th_20170306&nl=todaysheadlines&nlid=16257369&_r=0

What powerful political woman is mocked for her clothes, is the target of pictures on Twitter depicting her as haggard and is routinely called a witch and a bitch?

If you guessed Hillary Clinton, you're right.

But if you guessed Kellyanne Conway, you're right, too.

Misogyny, it seems, remains a bipartisan exercise. Whatever legitimate criticisms can be leveled at each woman, it's striking how often that anger is expressed using the same sexist themes, from women as well as men.

Mrs. Clinton "repeats her tacky outfits," one Twitter critic sniped. The Inauguration Day

Kellyanne Conway, a senior adviser to President Trump, at the White House briefing room last month. Credit Stephen Crowley/The New York Times

outfit of Ms. Conway, a counselor to President Trump, looked like "a night terror of an android majorette."

Mrs. Clinton's hair has drawn relentless derision; one Twitter user recently asked: "Why does Kellyanne Conway always look like she's still drunk & wearing make up from last night's bender?" ?? — Ashley Akramoff (@ashleyakramoff) Feb. 28, 2017

And both women have been repeatedly compared to witches from "The Wizard of Oz," most recently in pictures shared on Twitter tying Ms. Conway to the witch killed under Dorothy's house.

[The picture, of those famous legs in red and white striped socks, won't copy but the website link did https://twitter.com/psmeisels/status/833885521755652097/photo/1]

The two women are at opposite ideological poles, but they stir up the same lingering cultural discomfort with ambitious, assertive women.

"These sexist memes are not the purview of one party," said Karen Finney, a senior adviser to the Clinton campaign. "We fear strong women and women with power. These attacks are meant to delegitimize that power."

Ms. Conway has drawn scorn, and been disinvited from some news programs, for her references to a "Bowling Green massacre" that never took place and her defense of claims about the size of the crowd at Mr. Trump's inauguration as "alternative facts." Yet some of the criticisms have taken on a distinctly sexualized tone.

Witness the furor over her sitting on her knees on a couch in the Oval Office during a reception for presidents of historically black colleges. While she drew fire for disrespect, some of the criticisms included digs about her spreading her legs and raunchy allusions to oral sex, Monica Lewinsky and Bill Clinton. Representative Cedric L. Richmond, Democrat

of Louisiana, told a now-notorious joke that hers was a "familiar" position in the Oval Office of the 1990s, drawing a rebuke from none other than Chelsea Clinton. (Mr. Richmond apologized Sunday evening.)

Chelsea Clinton ? @ChelseaClinton
Despicable. I hope @KellyannePolls receives the apology she deserves-certainly never thought I'd write that & I mean every word. https://twitter.com/lissandravilla/status/837418645793959937 …
11:08 AM - 3 Mar 2017

A "Saturday Night Live" skit riffed on Ms. Conway as a "Fatal Attraction" stalker, breaking into the CNN correspondent Jake Tapper's house to seduce him into having her on his show.

"There seems to be great resentment of both as power hungry and wanting to control men," said Marjorie J. Spruill, the author of "Divided We Stand: The Battle Over Women's Rights and Family Values That Polarized American Politics." "Whereas Hillary is called castrating or shrewish, Conway is often called a slut. The implication is that she is using femininity to control men."

Ms. Spruill noted that Ms. Conway had leaned back to take pictures as a favor to the participants, but that some critics had cast the pose as a sexual come-on.

Ironies abound. Ms. Conway is loathed by many Clinton aides as the architect of a presidential campaign that they felt used overtly and implicitly sexist messages. Mr. Trump repeatedly denigrated women for their appearance and, after taking office, directed his female staff members to "dress like women."

Many conservative women, from Sarah Palin to Ann Coulter, have emphasized their femininity to distance themselves from feminists, whom they accuse of hating men. In a recent interview at the Conservative Political Action Conference, Ms. Conway said she supported many feminist principles but said she would not call herself one because feminism is anti-male, pro-abortion and identified with the left.

"I think some of the reticence that might be coming across in not a huge chorus of defense of Kellyanne Conway in the face of these sexist comments is the feeling that she doesn't have our back," said Gillian Thomas, a senior staff lawyer of the Women's Rights Project of the American Civil Liberties Union.

[MY comment - where was the huge chorus when Nancy Pelosi was the target? Non-existent, too]

"It's a shame," Ms. Thomas continued. "If women were more united and speaking up at this behavior, including when it's perpetrated by the left, we'd all be a lot better off."

Ms. Conway suggested in an interview with The Daily Caller that there would have been more outrage at the comments if she had been a liberal woman, adding, "And it is not just if I were a liberal woman, but if I were a pro-abortion one." Ms. Conway did not respond to a message left with her assistant requesting comment for this article.

Still, Ms. Conway has spirited defenders on the right on social media who say she should be championed as an example of a groundbreaking woman in politics instead of mocked in sexist terms, and some liberal women in Facebook comments chided others for sexism.

"Ladies & Gents, I disagree with her as much as anyone," wrote someone identified as Melissa Mae. "It would be nice to see comments sticking to valid points instead of ALWAYS going after women on the basis of 'looks.'"

Mirya R. Holman, an assistant professor of political science at Tulane University who studies gender and politics, said, "This does mimic what conservative women have said in the past: 'You liberals think you're so enlightened, but we still get people saying vile things about us.'"

Jennifer Palmieri, the director of communications for the Clinton campaign, who memorably clashed with Ms. Conway at a postelection forum at Harvard, also sees echoes of the sexism that dogged her candidate in the attacks on Ms. Conway.
She said she believed Ms. Conway should be held accountable for her actions. But she noted that while Stephen K. Bannon, Mr. Trump's chief strategist, is portrayed as an "evil genius" who cannily promotes images of an America at risk from immigrants and foreign competitors, Ms. Conway is depicted as "crazy" for devising and promoting similar messages.

"What I find really disturbing is because he's a man, that's really smart and strategic," Ms. Palmieri said. "Why is there not a theory behind what Kellyanne does?"

Whether the attacks come from the right or the left, they show a persistent anger toward women who step outside conventional roles. Social media has long enabled a thriving subculture of the violent disparagement of women, such as the GamerGate threats toward those who challenged the male bastion of video games. Much as latent racism surfaced during the presidency of Barack Obama, this election exposed a vitriol toward powerful women that continues to erupt, beyond the confines of Twitter or Reddit.

"To me, the 2016 election was hopefully an opportunity to be reminded that we're not in some kind of postgender society," Professor Holman said. "There's a smaller set of acceptable behaviors for women."

Ms. Finney, a longtime Clinton aide, has watched those issues play out for more than 20 years in public life as Mrs. Clinton served as a stand-in for debates about women's roles. She said she and conservative women would sit in green rooms awaiting television appearances and trade stories about how they were attacked.

"There is this sense: 'Are you kidding me?'" she said. "'Are we going back to this?' Maybe we have to go back to go forward."

Correction: March 5, 2017

An earlier version of this article misstated part of the name of the organization that employs Gillian Thomas. It is the American Civil Liberties Union, not the American Civil Liberties Association.

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!"
