

Welcome to the 2017 New Yeas Edition of the THE REVENGE HUMP DAY!

Yipee, I survived another Christmas and I had a great time being with my family and friends over the past week and enjoying the munchkins getting into Christmas. Alexander the Grape is getting older and is not as enthusiastic as he used to be, but he was busy with his lovely lady, Kyla, throughout the family feast. But I did think it was funny that he was complaining that Kyla got more presents from his family than he did. ;^) As for Beth, Destroyer of Worlds, she was in seventh heaven because she is heavy into makeup and received a ton of it. Honestly, I think that girl has a future in professional cosmetology when she graduates from high school. I keep kidding with her about her heading to the nearest Ulta store when she turns 16 to get a job. As for Tristan, Bubba Bear, he got tons of toys. SHE WHO MUST BE OBEYED and Abee (Aunt Brandy, aka Empress of the Known Universe) made sure that he had a massive amount of toys to open and play with. It was a great Christmas for the kids.

And it was a great Christmas for me just getting to watch them. I am at the time of my life that I pretty much have everything I want and I try to concentrate on the other things that are important to me. Like getting to take the time to talk to the whole family at the Christmas Feast at Casa Spraker. Like getting to see my great grand nephews (Jean Luca is 2 and Joah is 4) from Memphis running around the house having a great time. Like kidding their father Joseph, my nephew, about him complaining about getting older and me telling him that if he thought that was bad just look at his Uncle Timmy looking at him and he has grey in his hair. Like having Chance, one of my adopted great grandchildren, sitting up on the couch next to me, his Big Papa. Those are the things I think about and love about Christmas.

New Years Eve is just around the corner and I am really looking forward to our annual Rummy Royal Game. Rummy Royal is a card game that is played with pennies and is what my family used to play back when I was a child. It always brings back old memories and keeps me grounded. The house will be filled with family and friends for the evening and it is a great way to bring in a New Years.

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

## *Uncle Timmy*

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

THE LIBERAL REDNECK MANIFESTO: DRAGGIN' DIXIE OUTTA THE DARK

From: "Mel Boros" [boros@pobox.com](mailto:boros@pobox.com)

Hi Y'All,

It's amazing what a little "book learning" (education) can accomplish. On a public radio interview, I came across an interesting personality from the rural South (Eastern Tennessee, to be, precise) who speaks very thick, but highly understandable southernees. He also has an MBA which provided him a decent income for six years, until he felt confident enough to persue, full time, his love for stand up comedy.

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Trae Crowder is an American comedian and co-writer of The Liberal Redneck Manifesto: Draggin' Dixie Outta the Dark.[1]

He calls a spade a shovel and has an interesting insight to what's going on in this world. A Forbes article provides an interesting insight to this personality:

<http://www.forbes.com/sites/maddieberg/2016/10/14/the-liberal-redneck-how-left-wing-politics-and-a-southern-twang-helped-trae-crowder-go-viral/#11ed50ca49b6>

But, the proof is in the pudding. So check out a few of his YouTube postings. Go to this link for info and videos:

<https://q.co/kqs/5RxBsX>

He sounds like Bother Dave Garner speaking like Mort Saul; if your mature (old) enough to know of them.

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

Re: Merry Christmas

From: "Larry Southard" [lsouthard@gmail.com](mailto:lsouthard@gmail.com)

Merry Christmas, Uncle Timmy.

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

Re: Merry Christmas

From: "Lin "Otter" Daniel" [lindaniel@usa.net](mailto:lindaniel@usa.net)

Merry Christmas, Uncle Timmy

I love you and I'm glad you and I are adopted family.

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

From: "Tim Bolgeo" [tbolgeo@epbf.com](mailto:tbolgeo@epbf.com)

Bob Gorrell - Friday,  
December 23, 2016

<http://townhall.com/political-cartoons/2016/12/23/147264>

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

From: "Jim Woosley" [Jimwoosley@aol.com](mailto:Jimwoosley@aol.com)

#SaveTheSnowflakes

MUST WATCH VIDEO

It's just sad what these poor little pathetic #Snowflakes are going through.

<https://twitter.com/bfraser747/status/811021815493509120?s=02>

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

Friends... Please be careful this holiday season.

Last Saturday I went to a Christmas party. I had a few beers, followed by a few cocktails, followed by a few shots....

I still had the sense to know that I was over the limit. That's when I decided to do what I have never done before: I took a cab home.

Sure enough, there was a police DUI check point on the way home, and since it was a cab, they waved it past. I arrived home safely without incident. This came as a great relief and a surprise because I had never driven a cab before. I don't even know where I got it from and, now that it is in my garage, I don't know what to do with it.

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

MOOCHER HALL OF FAME

<https://danieljmittell.wordpress.com/the-moocher-hall-of-fame/>

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The Moocher Hall of Fame calls attention to the individuals who best exemplify the culture of loafing, laziness, and dependency that is being subsidized by our vote-buying political class.

\* Let's start with Olga, a Greek woman who earned membership in the Hall of Fame because she protested against the notion that she should be responsible for her own life since she might have to – gasp! – work more than one job and live at home.

\* Another proud member of the Hall of Fame is Stanley, who was a shoo-in for the honor after it was learned that this 30-year old man has been scamming disability checks from the government so he can fulfill his fetish of wearing diapers and being an “adult baby.”

\* Looking across the ocean, we have Christina, who thinks the government should be buying her a gym membership and giving her extra handouts if she loses weight.

\* A Minnesota couple collected welfare payments from two states to help finance their \$1.2 million yacht.

\* Leroy entered the Hall of Fame after it was reported that he won \$2 million from the lottery, but somehow is still collecting food stamps.

\* A welfare mother with 11 kids in the United Kingdom was invited into the Hall of Fame after one of her sons was arrested for looting and she said “the riots are because the government does “f\*\*\* all” for children.”

\* Denmark is represented by “Lazy Robert,” who proudly doesn't work, but at least was honest enough to state that “Luckily, I am born and live in Denmark, where the government is willing to support my life.”

\* If the Hall of Fame had an award for going above and beyond the call of loafing, then Hans from Austria would be an obvious choice. He cut off his own foot to ensure continued handouts.

\* We also have a husband-wife team in the Hall of Fame. Alicia and Matthew were unanimous inductees after it was revealed that they tried to impregnate a 12-year old girl to increase their welfare payments.

\* Speaking of husband-wife duos, let's not forget Danny and Gina, who bragged that it didn't make sense for them to work when the government was providing them with enough loot to enjoy an apartment, a big flat-screen TV, and 40 daily cigarettes.

\* This Sisarova family won a contest with the Toma family to determine which household displayed the special qualities needed to enter the Moocher Hall of Fame.

\* Last but not least, we have Natalijia, a Lithuanian woman who is now enjoying foreign holidays and designer clothes thanks to the generosity of British taxpayers, but nonetheless complained that she wasn't getting a taxpayer-financed nanny.

The Terror Wing of the Moocher Hall of Fame is reserved for deadbeats who want to kill taxpayers.

\* Abdul from Australia is an esteemed member of the Hall of Fame's terror wing, having received 19 years of welfare while plotting to kill the people who were paying for his life of leisure.

\* Keeping with that theme, let's also recognize Anjem, who got elected to the Hall of Fame for collecting about \$40,000-per year in handouts while spewing hate and recruiting other "fanatics to copy him by going on benefits."

\* The Tsarnaev brothers are most infamous for the Boston Marathon bombing, but let's also revile them for being scroungers who thought it was okay to live off the work of others.

\* Jihadi John, the ISIS dirtbag who is infamous for beheading innocent people, grew up with a family that sponged off British taxpayers for two decades.

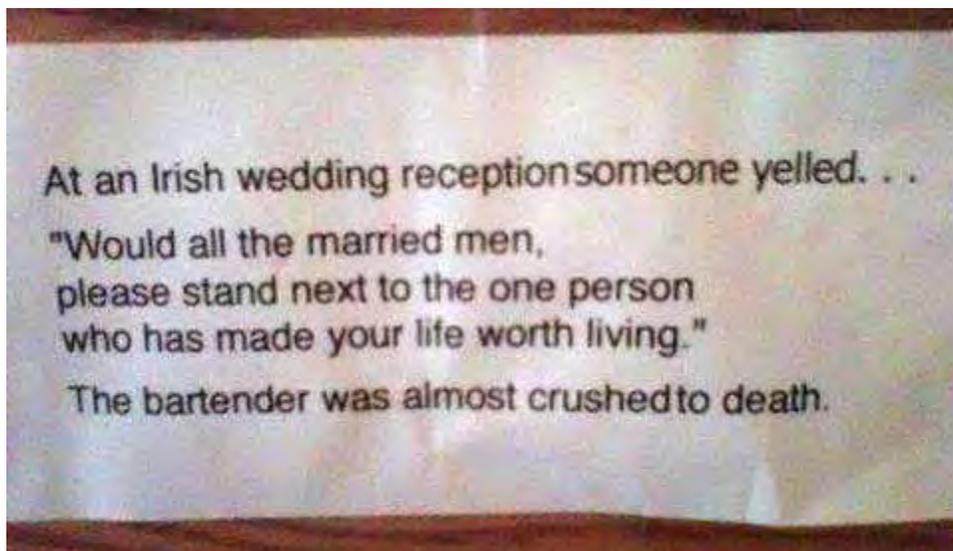
<J>~<O>~<K>~<E>~<S>

#### THOUGHT FOR THE DAY

Forget delusions of grandeur. I am satisfied with delusions of relevance.

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

From: "Mike Waldrip" [waldripk@gmail.com](mailto:waldripk@gmail.com)



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

#### EXPENSIVE DENTIST

One day, a man walks into a dentist's office and asks how much it will cost to extract wisdom teeth.

"Eighty dollars," the dentist says.

"That's a ridiculous amount," the man says.

"Isn't there a cheaper way?"

"Well," the dentist says, "if you don't use an anesthetic, I can knock the price down to \$60."

"That's still too expensive," replies the man.

"Okay," says the dentist. "If I save on anesthesia and simply rip the teeth out with a pair of pliers, I can knock the price down to \$20."

"Nope," moans the man, "it's still too much."

"Well," says the dentist, scratching his head, "if I let one of my students do it, I suppose I can knock the price down to \$10."

"Marvelous," says the man. "Book my wife in for next Tuesday!"

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

#### CHEESE FACTORY

A fella goes into his local bank and says to the manager, "I'd like to borrow £100,000 to open a cheese factory in Cheshire. It's gonna be be called Cheshire cheese.

"Wow, hold on a minute", says the bank manager. "There's already a company called Cheshire Cheese - you're gonna have to come up with something better than that."

The guy comes back next week, and says, "Right I've got it. I want to borrow £200,000 to open a cheese factory in France. It's gonna be called Brie Cheese."

"I'm afraid that one's already there too," says the bank manager. "Brie Cheese is world famous, so I can't lend you the money for that."

In a last ditch attempt, the man comes back in the following week. "Right", says the man, "I've got it. I want to borrow £500,000 to open a cheese factory in Israel."

"Oh, now we're talking," says the bank manager. "What are you going to call it?"

The man says, "Cheeses of Nazareth."

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

From: "Ray Beloate" [beerman@rittermail.com](mailto:beerman@rittermail.com)

#### PILLS

Anyhow, I had the Vet come and have a look at him. He said the bull was very healthy, but possibly just a little young, so he gave me some pills to feed him once per day.

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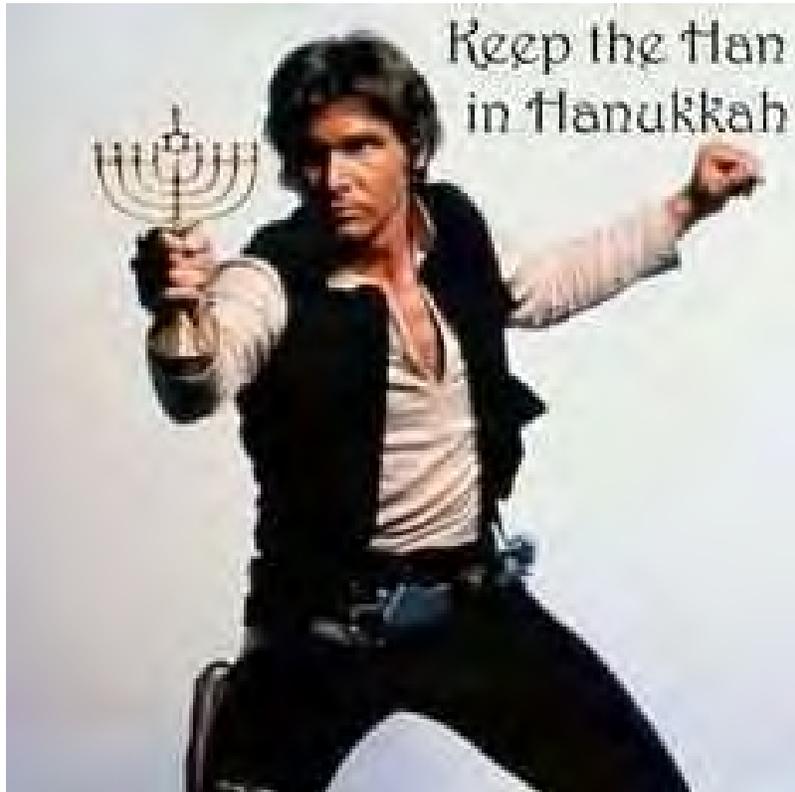
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The bull started to service the cows within two days, all my cows! He even broke through the fence and bred with all of my neighbor's cows! He's like a machine!

I don't know what was in the pills the Vet gave him .. but they kind of taste like peppermint.

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

From: "Mel Boros" [boros@pobox.com](mailto:boros@pobox.com)



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

YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Tim Bolgeo" [tbolgeo@epbf.com](mailto:tbolgeo@epbf.com)

**CALIFORNIA MAN FIGHTS DUI CHARGE FOR DRIVING UNDER INFLUENCE OF CAFFEINE**

Attorney for Joseph Schawb, charged with driving under the influence of a drug when his blood test showed only caffeine, calls the charge unheard of

Julia Carrie Wongin San Francisco, Saturday 24 December 2016

<https://www.theguardian.com/us-news/2016/dec/24/california-dui-caffeine-lawsuit-solano-county>



**'There are no studies that demonstrate that driving is impaired by caffeine, because no one cares about caffeine,' said a forensic toxicologist. Photograph: Dimitri Vervitsiotis/Getty Images**

**Caffeine may be the “nootropic” brain drug of choice in Silicon Valley, but an hour’s drive north in Solano County, California, the stimulant could get you charged with driving under the influence.**

**That is according to defense attorney Stacey Barrett, speaking on behalf of her client, Joseph Schwab.**

**After being pulled over on 5 August 2015, Schwab was charged by the Solano County district attorney with misdemeanor driving under the influence of a drug.**

**Almost 18 months later, Schwab is preparing to go to trial. The only evidence the DA has provided of his intoxication is a blood test showing the presence of caffeine.**

**Shcwab was driving home from work when he was pulled over by an agent from the California department of alcoholic beverage control, who was driving an unmarked vehicle. The agent said Schwab had cut her off and was driving erratically.**

**The 36-year-old union glazier was given a breathalyzer test which showed a 0.00% blood alcohol level, his attorney said. He was booked into county jail and had his blood drawn, but the resulting toxicology report came back negative for benzodiazepines, cocaine, opiates, THC, carisoprodol (a muscle relaxant), methamphetamine/MDMA, oxycodone, and zolpidem.**

The sample was screened a second time by a laboratory in Pennsylvania, according to documents provided to the Guardian, where the sole positive result was for caffeine – a substance likely coursing through the veins of many drivers on the road at any given time.

“I’ve never seen this before,” said Barrett. “I’ve never even heard of it.”

Barrett has filed a motion for the case to be dismissed because the charges were not brought until June 2016 – nearly 10 months after incident. If that motion is denied, Schwab will take his case to a jury on 11 January.

Sharon Henry, chief deputy district attorney for Solano County, said in a statement that her office was “conducting further investigation in this matter”.

“The charge of driving under the influence is not based upon the presence of caffeine in his system,” she added.

Barrett counters that if the prosecution has evidence of a different drug in her client’s system, it should have to provided that to her, based on the rules governing criminal proceedings.

“I have not been provided with any evidence to support a theory of prosecution for a substance other than caffeine at this time,” she said. “Nor I have received any statements, reports, etc documenting any ongoing investigation since the [toxicology report] dated 18 November 2015.”

Henry declined to comment further, citing the right to a fair trial.

“It’s really stupid,” said Jeffrey Zehnder, a forensic toxicologist who frequently testifies in court cases. Over 41 years, Zehnder said, he had never seen a prosecution for driving under the influence of caffeine.

“If that’s the case, then they better come and arrest me,” he joked.

Zehnder was informed about the case by Barrett, but has not been contracted to testify on either side.

California vehicle code defines a “drug” as any substance besides alcohol that could affect a person in a manner that would “impair, to an appreciable degree” his ability to drive normally.

Making that case with caffeine would be difficult, Zehnder said, because the prosecutor would have to show that impaired driving was specifically caused by the caffeine and not any other circumstances.

“There are no studies that demonstrate that driving is impaired by caffeine, and they don’t do the studies, because no one cares about caffeine,” he said.

As for Schwab, he just wants this ordeal to be over. In a statement provided to the Guardian by his attorney, he said his reputation had been damaged.

“No one believed me that I only had caffeine in my system until I showed them the lab results,” he said. “I want the charges to be dismissed and my name to be cleared.”

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

YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Jim Woosley" [Jimwoosley@aol.com](mailto:Jimwoosley@aol.com)

**CRAZED LEFTIST SHOTS, THEN RUNS OVER UPS DRIVER THINKING HE'S TRUMP**

December 21, 2016 By Robert Gehl 2 Comments

<http://thefederalistpapers.org/us/crazed-leftist-shoots-then-runs-over-ups-driver-thinking-hes-trump>

38-year-old Justin Barkley is accused of murdering William Schumacher outside Ithaca Walmart. We're LIVE in DRYDEN at 5pm with new details.

Leftist Trump hysteria has reached new and frightening new levels.

A man in upstate New York shot and killed a UPS driver in an Ithaca Wal-Mart parking lot, then ran over his body – all because he believed he was killing President-Elect Donald Trump.

The suspect, who was identified as 38-year-old Justin Barkley managed to get away for a short distance before he was found by police and stopped.



At 1:52 a.m. early Thursday, officers responded to a report of a shooting outside the Walmart on Fairgrounds Memorial Parkway. The victim, later identified as William Scumacher of Candor, N.Y., was a 52-year-old UPS driver. He was found dead in the parking lot and Barkley fled the scene.

“The officers merged behind the vehicle and attempted to stop it on Route 13 near the intersection of Route 366. The vehicle refused to stop and continued for approximately another 1/4 mile and pulled into a driveway. The suspect exited the vehicle with a long gun and shot at police officers as he fled towards the area believed to be his residence,” according to the Ithaca Police Department.

After hours of trying to communicate with the suspect, police said around 10 a.m. that Justin Barkley, 38, was taken into custody after he surrendered.

Police received the smiling mugshot of the attempted murderer:

38-year-old Justin Barkley is accused of murdering William Schumacher outside Ithaca Walmart. We're LIVE in DRYDEN at 5pm with new details.

Apparently completely mentally deranged, when brought into court, he still believed he killed the future president:

Justin Barkley, 38, stood before Judge John Rowley and said he knew where President-elect Donald Trump would be on Dec 8. He then waited for him outside of a Walmart where he said he allegedly killed him, according to the Ithaca Voice.

“I shot and killed Donald Trump purposely, intentionally and very proudly,” Barkley said during his arraignment.

Barkley was indicted for second-degree murder and menacing a police officer.

Barkley also told the court that he recognized the difference between mistaking a person for Trump and saying that he killed him. Asked whether any evidence could suggest that he killed a person that was not Trump, he answered, “I hope not.”

He tried to enter a guilty plea, but Judge Rowley denied it after he made the Trump allegations.

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

**LOCKED AND LOADED: TAKE A SHOT AT OUR FIREARMS QUIZ**

**A.J. PHILLIPS/EYEEM/GETTY IMAGES**

<http://science.howstuffworks.com/firearms-quiz.htm>

Cannons, howitzers and other artillery pieces produce more bang for the buck, but they're not so easy to carry in a holster. That's why armies need firearms -- portable weapons that infantrymen can carry easily at their side. The first firearms were small cannons. The concept evolved though, leading to a diverse array of rifles, pistols and revolvers. Now it's time to see if you're a firearms fanatic or a fizzling dud.

**JIM GOT 29 AND I SCORED 26. IT'S DEFINITELY SCARY THAT I DID SO WELL ON THE QUIZ. UT**

<S>~<C>~<I>~<E>~<N>~<C>~<E>~<S>~<T>~<A>~<R>~<T>~<S>~<H>~<E>~<R>~<E>

From: “Tim Bolgeo” [tbolgeo@epbfi.com](mailto:tbolgeo@epbfi.com)

**ARTIFICIAL LEAF COPIES NATURE TO MANUFACTURE MEDICINE**

**By Ben Hirschler, Reuters, December 21, 2016**

<https://www.yahoo.com/news/artificial-leaf-copies-nature-manufacture-medicine-121046155--finance.html>

(Reuters) - Dutch scientists have developed an artificial leaf that can act as a mini-factory for producing drugs, an advance that could allow medicines to be produced anywhere there is sunlight.

The work taps into the ability of plants to use sunlight to feed themselves through photosynthesis, something industrial chemists have struggled to replicate because sunshine usually generates too little energy to fuel chemical reactions.

The leaf-inspired micro factory mimics nature's efficiency at harvesting solar radiation by using new materials called luminescent solar concentrators with very thin channels through which liquid is pumped, exposing molecules to sunlight.

"Theoretically, you could use this device to make drug compounds with solar energy anywhere you want," said lead researcher Timothy Noel at Eindhoven University of Technology.

By doing away with the need for a power grid, it may be possible one day to make malaria drugs in the jungle or even medicines on Mars in some future space colony, he believes.

The device, made from silicone rubber, can operate even when there is diffuse light, which means it will work under cloudy skies. However, there is still a way to go to scale up the process to make it commercially viable.

Noel and his colleagues, who published their research in the science journal *Angewandte Chemie* on Wednesday, are now trying to improve energy efficiency further and increase output.

Because the artificial leaf relies on micro-channels to bring chemicals into direct contact with sunlight, each unit needs to be small - but they could be easily linked together to increase production.

"You can make a whole tree with many, many different leaves placed in parallel," Noel told Reuters. "These are very cheap things to make, so there is a lot of potential." He thinks the process could start to become broadly available to chemical engineers within five to 10 years.

It is not the first time that scientists have drawn inspiration from plants when considering novel ways to manufacture pharmaceuticals.

In 2012, the U.S. Food and Drug Administration approved a drug called Eyleyo from Pfizer and Protalix Biotherapeutics for Gaucher disease, a rare genetic condition, made with genetically modified carrot cells.

Other researchers are also cultivating crops that have been specially bred to produce useful medicines and vaccines in their leaves.

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## **JAPAN SUCCESSFULLY LAUNCHES SOLID FUEL ROCKET**

Reporting by James Daniels; editing by Ralph Boulton, December 20, 2016

<http://www.oann.com/japan-successfully-launches-solid-fuel-rocket/>



Japan Aerospace Exploration Agency's Epsilon rocket carrying the satellite named Exploration of energization and Radiation in Geospace (ERG) set off from the Uchinoura Space Center in Kagoshima prefecture, Japan in this photo taken by Kyodo December 20, 2016. Kyodo/via REUTERS

TOKYO (Reuters) – Japan's space agency said on Tuesday it had successfully launched a solid fuel rocket named Epsilon-2, the latest in Tokyo's effort to stay

competitive in an industry that has robust growth potential and strong security implications.

The 26-meter-long rocket, launched at about 8 p.m. (1100 GMT) from the Uchinoura Space Center in southern Japan, released a satellite for studying radiation belts around the earth soon after the lift-off, Japan Aerospace Exploration Agency (JAXA) said.

The Epsilon-2 three-stage rocket is part of a new generation of solid propellant rockets and makes it possible for launch costs to be reduced up to one third, according to JAXA.

Curbing costs for rocket launches is important as more emerging economies aim to put communication and weather satellites in space and Japan faces stiff competition with U.S. and European rivals such as Arianespace.

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### 'MARS ICE HOME': TEAM CHIPS AWAY AT OFF-EARTH HOUSE'S DESIGN

By Leonard David, Space.com's Space Insider Columnist | December 21, 2016 07:30am ET  
<http://www.space.com/35101-mars-ice-home-design.html>

The first pioneers on Mars may build their homes using the ice beneath their feet.

In November, a University of Texas research team reported that Mars' Utopia Planitia region contains about as much water, in the form of buried ice, as Lake Superior does here on Earth.

This ice layer, which spans a greater area than the state of New Mexico, lies in Mars' mid-northern latitudes and is covered by just 3 feet to 33 feet (1 to 10 meters) of soil, the scientists determined.

The presence of accessible ice on the Red Planet warms the heart of a collaborative group at the NASA Langley Engineering Design Studio in Hampton, Virginia — an expert team that is chipping away at designing a "Mars Ice Home."

"Ice Home is more than just a habitat, since what we really need is a new home on Mars," said Ice Home principal investigator Kevin Kempton, of NASA's Langley Research Center. "Our team is confident Ice Home is currently the best solution out there for an early Mars outpost."



Artist's illustration showing crewmembers arriving at their pre-deployed Mars Ice Home.  
Credit: SEArch/Clouds AO

### **THE ADVANTAGES OF ICE**

Ice Home is a deployable Mars habitat concept based on an inflatable structure that makes use of water ice on the Red Planet. Ice Home could provide a large, flexible and cost-effective workspace that can be used for many of the key activities that are essential for the long-term success of a human outpost on Mars, Kempton said.

Much of the cost-effectiveness comes from the incorporation of Martian resources into the Ice Home, which means not as much material would need to be launched from Earth, he added.

An added biological bonus, according to Ice Home advocates, is that water ice serves as shielding from galactic cosmic rays (GCRs), which have been flagged as potentially dangerous to human health on long-duration Mars surface missions. An Ice Home could significantly reduce astronauts' GCR dosages compared with habitats based on an aluminum structure, Kempton said.



The Ice Home in the Martian evening. Credit: SEArch/Clouds AO

Current habitat concepts do not address the GCR issue, or they require burial beneath several meters of Martian dirt (known as regolith), added Kempton, who leads a design group that consists of the Clouds Architecture Office (Clouds AO)/Space Exploration Architecture (SEArch) team and individuals who had previously won a NASA Centennial Challenge on 3D-printed habitats with their Ice Home concept.

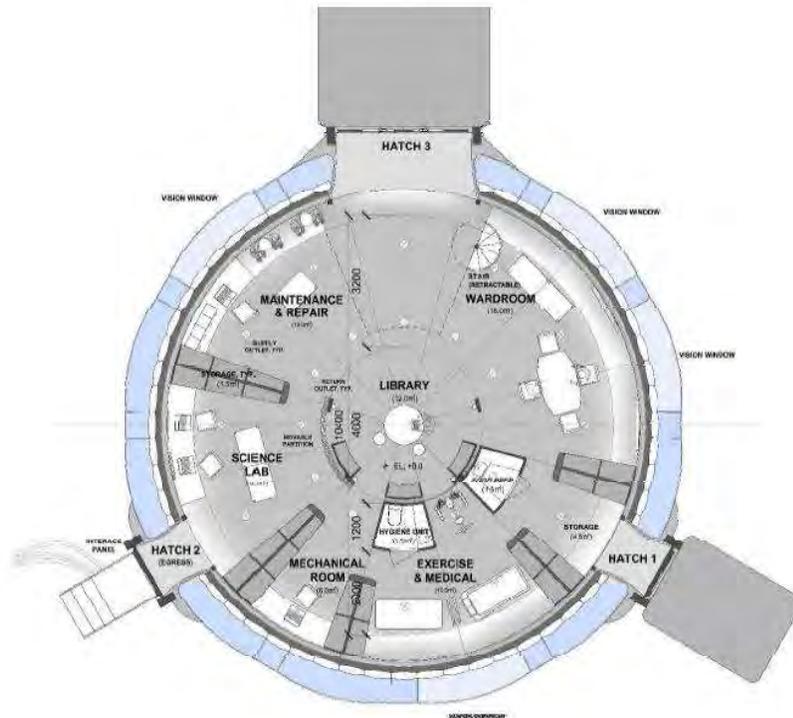
The Ice Home would offer other benefits to Mars astronauts as well, Kempton said.

"When we go to Mars, we will stay there for a long time," he told Space.com. "We will need a place to service the robotic equipment that will be out there working for us in very difficult environments."

Fixing things in a pressure suit out on the Martian surface is a problem, Kempton said: "Doing work while wearing pressurized gloves is a lot like wearing clown gloves, and simple things are hard to do and your hands get tired real quickly."

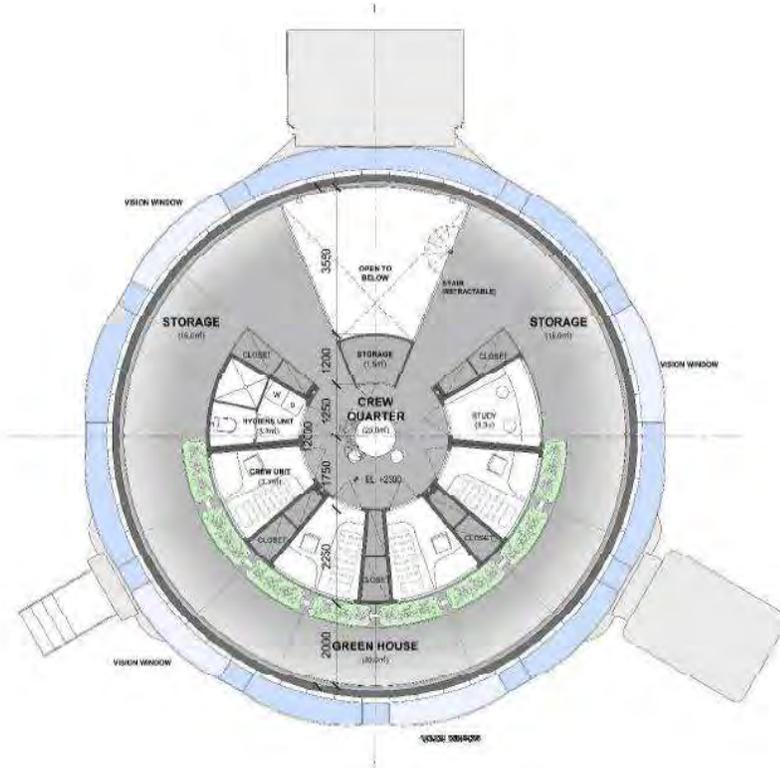
The solution, Kempton said, is to have a large pressurized work space where all you need is an environmental suit so you don't breathe in the potentially toxic dust that's on the equipment you are servicing.

Mars Ice Home fits the bill, he said.



The notional Mars Ice Home's first-floor layout. Credit: SEARCh/Clouds AO

"Many of the 3D-printed structures made from regolith look great, but they would not hold pressure very well," Kempton said. "Mars is close to vacuum, and the required internal pressure loads will literally blow these things up without a heavy restraint layer. You will not be able to get around the fact that, on Mars, you will be living in a pressure vessel, and the shapes they take [are] pretty limiting for designers."



The second-floor layout of the notional Mars Ice Home. Credit: SEArch/Clouds AO

### COMFY QUARTERS

As currently envisioned, Mars Ice Home would provide work space for a crew of four. The concept incorporates a sleep area, a food-production area, a logistics area, a recreation area and a work area.

An inside look at the makeup of the Mars Ice Home.  
Credit: SEArch/Clouds AO

The pressure inside the habitation area would be 14.7 lbs. per square inch, and it would feature a comfy internal temperature of 72 degrees Fahrenheit (22 degrees Celsius), Kempton said.

Mars Ice Home would also be connected to one or more additional habitation areas, Kempton said.

Pure water ice acts as the fill material for Ice Home's shielding and structure. The primary insulation layer between the water cells and the ice cells would be a carbon dioxide gas cell layer, which would use gas from the Martian atmosphere.

And Ice Home dwellers wouldn't feel trapped in a dark, cramped space, Kempton said.

"All of the materials we've selected are translucent, so some outside daylight can pass through and make it feel like you're in a home and not a cave," he said.

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## **MOMENTUM BUILDS FOR INTERNATIONAL MOON BASE**

**Dec 14, 2016 Frank Moring, Jr. | Aviation Week & Space Technology**

**[http://aviationweek.com/space/momentum-builds-international-moon-base?NL=AW-05&Issue=AW-05\\_20161221\\_AW-05\\_909&sfvc4enews=42&cl=article\\_5\\_5&NL=AW-05&Issue=AW-05\\_20161222\\_AW-05\\_922&sfvc4enews=42&cl=article\\_5\\_6&utm\\_rid=CPEN1000001477803&utm\\_campaign=8004&utm\\_medium=email&elq2=68646b51581b4099a7dcabd9361f7c74](http://aviationweek.com/space/momentum-builds-international-moon-base?NL=AW-05&Issue=AW-05_20161221_AW-05_909&sfvc4enews=42&cl=article_5_5&NL=AW-05&Issue=AW-05_20161222_AW-05_922&sfvc4enews=42&cl=article_5_6&utm_rid=CPEN1000001477803&utm_campaign=8004&utm_medium=email&elq2=68646b51581b4099a7dcabd9361f7c74)**

Technical and political developments have given Jan Woerner's "lunar village" a boost this year, to the point that the ambitious European Space Agency (ESA) chief sees its development already underway. The member-states' science ministers endorsed Woerner's "Space 4.0" concept this month to underpin the idea; three teams in the \$30 million Google Lunar X-Prize competition secured launch contracts to keep the robotic space race alive, and Donald Trump's election as the next U.S. president raises the chances that NASA will refocus its relatively deep pockets on Earth's natural satellite.

"Somebody was asking me, 'When do you do it, and how much money do you need?'" Woerner told the Space Transportation Association (STA) in a Capitol Hill year-ender on Dec. 9. "I said it's already progressing, as a village on Earth. The village starts with the first actor, and we have several actors right now, so it's already on its way."

Three Lunar X-Prize teams have rides to the Moon's surface, meeting an end-of-year deadline set by Google to keep the contest going. A fourth, Pittsburgh-based Astrobotic, has signed deals with Europe's Airbus Defense and Space to help engineer its robotic lander, and with DHL to handle logistics services for commercial customers.

Mexican space agency AEM has bought a ride from Astrobotic for a payload developed by that nation's scientists, as a "sovereign customer" that cannot afford to build its own lander but wants to get in on the game. That is right up Woerner's alley.

"I call it Moon village," he says. "It is free and open access through the different players. It is not a limited plan."

NASA is supporting robotic lunar landings through its Lunar Cargo Transportation and Landing by Soft Touchdown (Lunar Catalyst) effort, which provides technical assistance via unfunded Space Act agreements with Astrobotic, Masten Space Systems and Moon Express (one of the X-Prize contenders). But it has no plans to build a lander for astronauts, preferring to focus its lunar human spaceflight efforts on a year-long shakedown cruise in cislunar space for the long-duration habitat that would be needed to take crews to Mars.

Trump's election could change that. Paul Spudis, a lunar scientist with strong Republican connections, published a book earlier this year making a case for mining water on the Moon to support exploration there and deeper into space. That could play into the increased emphasis on public-private partnerships that is emerging as a centerpiece in the nascent Trump space policy.

Two members of Trump's NASA transition team—Greg Autry, an assistant professor of clinical entrepreneurship at the University of Southern California's (USC) Marshall School

of Business; and Jack Burns, a professor of astrophysics and planetary sciences at the University of Colorado-Boulder—have interests that could add to Woerner’s Moon village.

Autry researches the government’s role in shaping “New Space” enterprises, according to his USC profile. Burns has focused on the use of radio telescopes to conduct astrophysics from the Moon, serving as director of the Lunar University Network for Astrophysics Research, which is funded in part by NASA’s Lunar Science Institute.

Astrophysicists have long wanted to study the 21-cm (8.3-in.) radio wavelength for clues to the cosmic “dark ages,” when the early universe was dominated by hydrogen gas that had not coalesced under the influence of gravity into visible stars. But the long wavelength generated by hydrogen is obscured by radio interference from Earth, making the Moon’s radio-silent far side an ideal position for radio telescopes to do the job.

Engineers at the U.S. Naval Research Laboratory have proposed using robots to unroll vast antennas there (see illustration). That could be another task for Woerner’s lunar villagers.

“What we can do over there is Moon science, cosmology, especially from the far side of the Moon; fundamental research; lunar resource [exploitation]; technology development; transportation; communication and logistics; resource management and planetary defense,” Woerner says. “It’s a stepping stone to go farther in our universe, and I’m quite sure that humans will go farther.”

Woerner notes that his concept has been “well received” in the U.S. Senior NASA managers already say the agency is able to “pivot” to a lunar focus, and it certainly could make a significant contribution to planting an outpost on the Moon. It has been there six times with humans, and is building the Saturn V-class Space Launch System and Orion crew capsule—“Apollo on steroids”—as long-term human-exploration infrastructure.

NASA also is opening up the “critical path” for access to lunar orbit and other deep-space destinations by allowing ESA to develop the service module that will move Orion through space.

“It’s hard for us to put others in the critical path,” adds Associate Administrator Robert Lightfoot, who shared the STA podium with Woerner. “That is a cultural thing for us, is control. We lose control. But those guys have been a great partner, and I think we’re going to see a pretty awesome flight of [Orion].”

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## **BREATHALYSER CAN DETECT 17 DISEASES**

Henry Bodkin, 21 DECEMBER 2016 • 4:47PM

<http://www.telegraph.co.uk/science/2016/12/21/breathalyser-can-detect-17-diseases/>

As far back as 400 BC, Hippocrates advised his students to smell their patients’ breaths to detect if they were ill.

Now, researchers in America have invented a system which does just that, only rather more scientifically.

A new analyser uses nano-rays to determine the precise chemical composition of a person's breath.

We have a device which can discriminate between them, which is elegant and affordable.  
Professor Hossam Haick

From that it is able to detect the "signature" of any of 17 serious diseases, from kidney cancer to Parkinson's disease.

Exhaled breath contains nitrogen, carbon dioxide and oxygen, as well as small amounts of more than 100 other chemicals, but the relative amount of each substance varies depending on a person's state of health.

Writing in the journal ACS Nano, scientists describe how they analyzed the results with artificial intelligence techniques to classify and diagnose the conditions.

They found that each disease produces a unique volatile chemical breathprint, based on differing amounts of 13 components.

They also showed that the presence of one disease would not prevent the detection of others.

The technology allows for an inexpensive and portable breathlizer-style device, which costs as little as £24 and is able to screen for various diseases in a non-invasive way.

Lead author Professor Hossam Haick, said: "We found that just as we each have a unique fingerprint, each of the diseases we studied has an unique breath print, a 'signature' of chemical components.

"We have a device which can discriminate between them, which is elegant and affordable."

In recent years, scientists have developed experimental breath analyzers, but most of these instruments focus on a single type of disease, such as cancer.

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## **NASA PLANS TO BUILD A GIGANTIC SPACE TELESCOPE FROM 2 TINY CUBESATS**

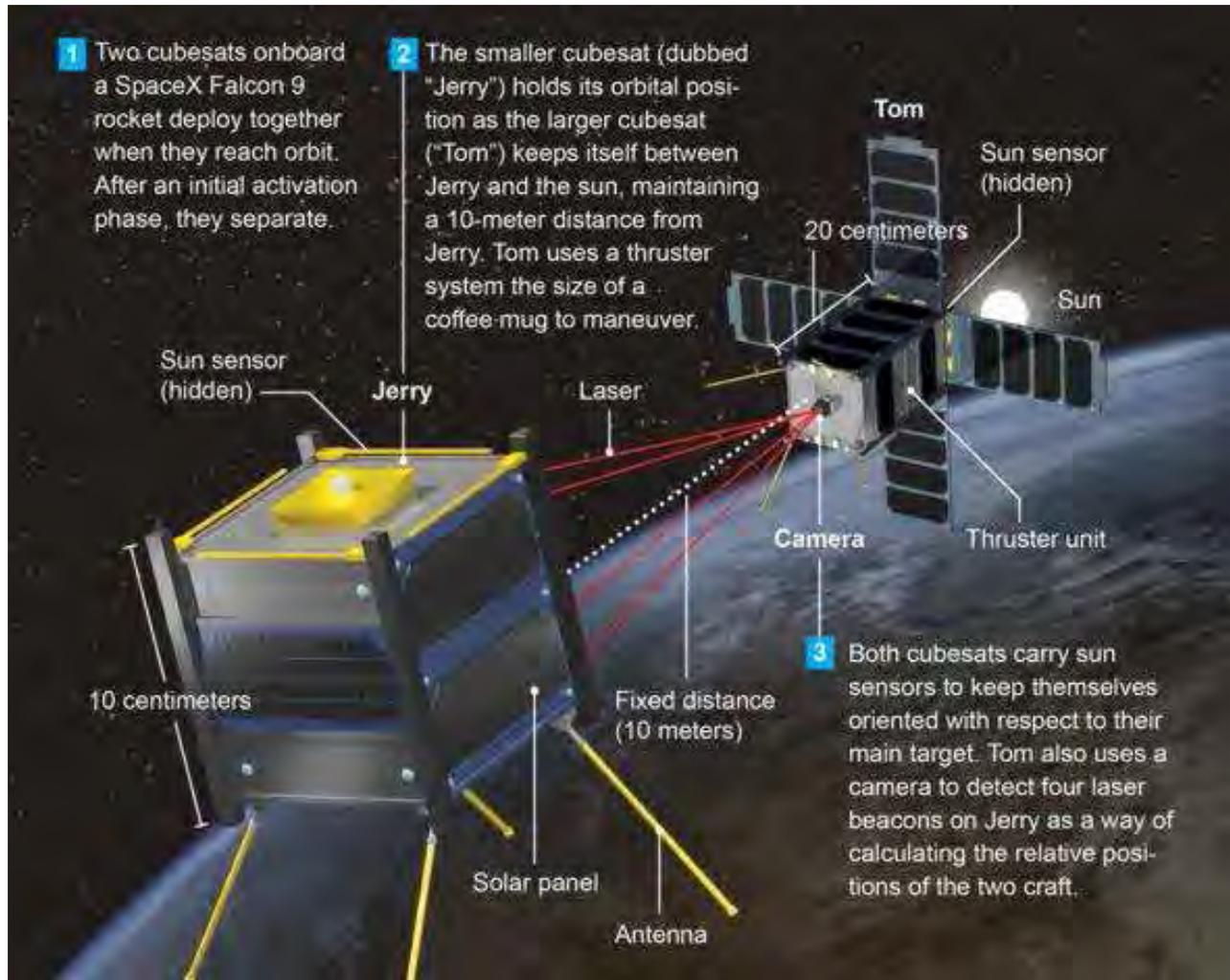
The distance between the satellites would serve as the telescope's focal length

By Jeremy Hsu | Scientific American January 2017 Issue

[https://www.scientificamerican.com/article/nasa-plans-to-build-a-gigantic-space-telescope-from-2-tiny-cubesats/?WT.mc\\_id=SA\\_SPC\\_20161222](https://www.scientificamerican.com/article/nasa-plans-to-build-a-gigantic-space-telescope-from-2-tiny-cubesats/?WT.mc_id=SA_SPC_20161222)

More than 400 years after Galileo handcrafted his first spyglass, NASA and South Korea's Yonsei University aim to create a "virtual" telescope in space by using two separate spacecraft. To test the concept, scientists have built two small satellites called cubesats that will practice lining up in orbit to construct a single telescope with a focal length as large as the distance between them. Scheduled for launch in early 2017, the roughly \$1-million mission could pave the way for a new class of instrument that can peer through the sun's glare or at distant alien planets, without requiring a massive single scope.

The six-month mission—called “CubeSat Astronomy by NASA and Yonsei using Virtual telescope ALignment eXperiment” (CANYVAL-X)—will try out a technique for forming a telescope that would otherwise be much heavier to launch. The plan requires two spacecraft (together the size of a bread loaf) to orbit together in a straight line, always pointed at their target. “Flying two spacecraft in coordination, aligning them to a distant source and holding that configuration is a capability that has never been attempted,” says Neerav Shah, an aerospace engineer at the NASA Goddard Space Flight Center.



Credit: Don Foley

Virtual telescopes could come in handy because components that would usually be housed together are able to fly free—a benefit to some types of missions, Shah explains. For example, an instrument on one satellite could block the glare of the sun or a distant star, making it possible for a camera on the other to image faint objects such as the sun's ghostly corona or exoplanets orbiting a star. Other telescopes designed to detect high-energy wavelengths, such as x-rays, need considerable distance between their mirrors and x-ray detectors and therefore must be built at large scales—an expensive venture in terms of construction and launch.

CANYVAL-X will not carry all the components necessary for a working scope but aims to demonstrate that the concept is possible. A \$110-million European Space Agency mission called Proba-3 is slated to fly a fully functional virtual telescope pointed at the sun in 2019.

This article was originally published with the title "Telescopic Tag Team"

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## ONLY MAKES SENSE THAT SPACEX WOULD USE RAPTOR ENGINES FOR UPGRADING FALCON 9 AND FALCON HEAVY

December 21, 2016

<http://www.nextbigfuture.com/2016/12/only-makes-sense-that-spacex-would-use.html>

The SpaceX Raptor engines are a family of cryogenic, methane-fueled, rocket engines. The engines are specifically intended to power both high-performance lower and upper stages of the Interplanetary Transport System launch vehicle that Elon Musk is championing to support substantial new technological and economic capabilities in the area of interplanetary spaceflight, particularly with respect to a long-term aim of colonizing Mars. The engine will be powered by densified liquid methane and liquid oxygen (LOX), rather than the RP-1 kerosene and LOX used in all previous Falcon 9 rockets, which use Merlin 1C and D engines. The Raptor engine will have over three times the thrust of the Merlin 1D vacuum engine that powers the current Falcon 9 launch vehicle.

SpaceX has not announced that they will use the SpaceX Raptor engine to re-engine the Falcon 9 or the Falcon Heavy.

However, if they have an engine that is the same size and roughly the same weight but has three times the thrust then why would they not use those engines exclusively?

Comparison to other engine designs

Engine name	Vacuum thrust [kilonewtons (kN)]	Vacuum specific impulse [seconds]	Thrust-to-weight ratio	Propellant	Cycle
SpaceX Raptor vacuum	3,500 (790,000) <sup>[50]</sup>	382 <sup>[50]</sup>		subcooled Methane/LOX	full-flow staged combustion
SpaceX Raptor sea-level 1.40 nozzle	3,050 (690,000) <sup>[50]</sup>	361 <sup>[50]</sup>		Methane/LOX	full-flow staged combustion
Blue Origin BE-4	2,400 (550,000) <sup>[51]</sup>			Methane/LOX	staged combustion (oxidizer rich)
SpaceX Merlin 1D	914 (205,000)	311 <sup>[52]</sup>	180 <sup>[53]</sup>	subcooled RP-1/LOX	gas generator
SpaceX Merlin 1D Vacuum	934 (210,000) <sup>[54]</sup>	348 <sup>[54]</sup>		RP-1/LOX	staged combustion (oxidizer rich)
NK-33	1,638 (368,000) <sup>[55]</sup>	331 <sup>[55]</sup>	136.66 <sup>[55]</sup>	RP-1/LOX	staged combustion (oxidizer rich)
RD-180	4,152 (933,000) <sup>[56]</sup>	338 <sup>[56]</sup>	78.44 <sup>[56]</sup>	RP-1/LOX	staged combustion (oxidizer rich)
RD-191	2,090 (470,000) <sup>[57]</sup>	337.5 <sup>[57]</sup>	89 <sup>[57]</sup>		
RD-270	6,710 (1,510,000)	322	125.77	N <sub>2</sub> O <sub>2</sub> /UDMH	full-flow staged combustion
RD-276	1,832 (412,000)	315.8	174.5	N <sub>2</sub> O <sub>2</sub> /UDMH	staged combustion (oxidizer rich)
Space Shuttle Main Engine	2,280 (510,000)	453 <sup>[58]</sup>	73 <sup>[58]</sup>	LH/LOX	staged combustion (fuel rich)
Roketloyne F-1 (Saturn V)	7,740 (1,740,000)	304 <sup>[59]</sup>	83	RP-1/LOX	gas generator
TR-107	4,900 (1,100,000) <sup>[60]</sup>	311 <sup>[60]</sup>	101	RP-1/LOX	staged combustion (oxidizer rich)

The developmental Northrop Grumman TR-107 engine was built by Tom Mueller, the co-founder of SpaceX. It was designed in 2002.



The Falcon Heavy configuration consists of a standard Falcon 9 with two additional Falcon 9 first stages acting as liquid strap-on boosters, which is conceptually similar to EELV Delta IV Heavy launcher and proposals for the Atlas V HLV and Russian Angara A5V. Falcon Heavy will be more capable than any other operational rocket, with a payload to low earth orbit of 54,400 kilograms (119,900 lb) and 13,600 kilograms (30,000 lb) to Mars. The rocket was designed to meet or exceed all current requirements of human rating. The structural safety margins are 40% above flight loads, higher than the 25% margins of other rockets. The Falcon Heavy is currently scheduled for a demonstration flight in Q2 of 2017.

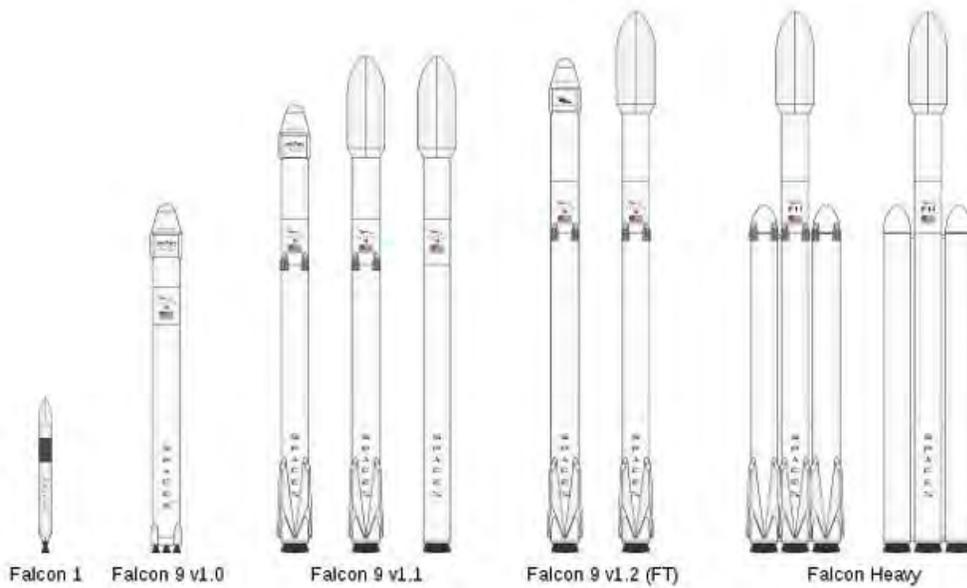
A Falcon Heavy Raptor would be able to launch about 150-170 tons into low earth orbit.

The extra launch power would leave plenty of margin for larger launches while saving capacity for powered landings (for reuse). If one third of the engines were used then the raptor version of a rocket would be able to launch cargo similar to the current systems

but get an addition 1-2 tons of weight saving per engine that was not needed.

Robert Zubrin had suggested improvements to the SpaceX Mars plan

Here is what Zubrin suggested



\* Have the second stage go only out to the distance of the moon and return to enable 5 payloads to be sent instead of one

\* Leave the 100 person capsule on Mars and only have a small cabin return to earth

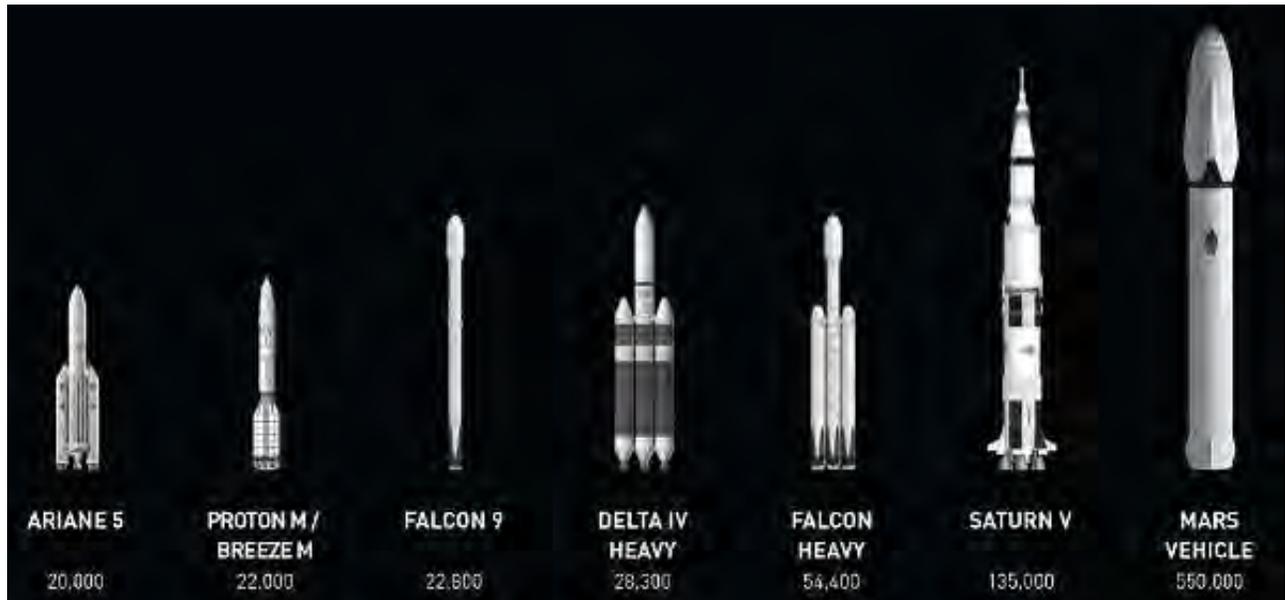
\* use the

*The 2017 New Year Edition of THE REVENGE HUMPH DAY!*

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refueling in orbit and other optimizations to enable a Falcon Heavy to deliver 40 tons to Mars instead of 12 for exploration missions in 2018, 2020 etc...

\* Reusable first stage makes rocketplanes going anywhere point to point on Earth feasible. Falcon Heavy would have the capacity of a Boeing 737 and could travel in about one hour of time anywhere



SpaceX Falcon Heavy

Using the Zubrin improved plan would enable SpaceX to send 40 tons (3.3 times more) to Mars with Falcon Heavy and is without switching to Raptor engines.

With Raptor engines this would enable about 120 tons to Mars.

Developing a Interplanetary Transport class rocket would take even the efficient SpaceX about \$10 billion of development.

Completing the Raptor engine and the modifying the Falcon Heavy and Falcon 9 to use it would be about \$1-2 billion and could be done in perhaps 2 years.

Consider what this revised version of the ITS plan would look like in practice, if it were used not for settling Mars but for the nearer-at-hand task of exploring Mars. If a SpaceX Falcon Heavy launch vehicle were used to send payloads directly from Earth, it could land only about 12 tons on Mars. (This is roughly what SpaceX is planning on doing in an unmanned "Red Dragon" mission "as soon as 2018.") While it is possible to design a minimal manned Mars expedition around such a limited payload capability, such mission plans are suboptimal. But if instead, following the ITS concept, the upper stage of the Falcon Heavy booster were refueled in low Earth orbit, it could be used to land as much as 40 tons on Mars, which would suffice for an excellent human exploration mission. Thus, if booster second stages can be refilled in orbit, the size of the launch vehicle required for a small Mars exploration mission could be reduced by about a factor of three.

SOURCES - SpaceX, wikipedia

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#### EBOLA VACCINE PROVES 100 PERCENT EFFECTIVE IN FINAL TRIALS

Nick Lavars, December 23rd, 2016

<http://newatlas.com/ebola-vaccine-final-trials/47104/>



Workers carrying out the WHO Ebola vaccine trial in Katongourou, Guinea

If there is to be a silver lining in the massive Ebola outbreak to recently sweep through West Africa, it is the progress being made toward developing an effective vaccine. The World Health Organization (WHO) last year reported some very promising signs during the early stages of a trial involving a vaccine called rVSV-ZEBOV, and now the final results are in, confirming the previously seen 100 percent protection rate from the deadly disease.

"While these compelling results come too late for those who lost their lives during West Africa's Ebola epidemic, they show that when the next Ebola outbreak hits, we will not be defenceless," said Dr Marie-Paule Kieny, WHO's Assistant Director-General for Health Systems and Innovation, and the study's lead author.

While Ebola outbreaks have occurred sporadically since the 1970s, these were short and affected much less people than the most recent event, making it difficult for doctors to trial and develop vaccines. But this changed in 2013, with the outbreak touching 28,000 people and claiming 11,300 lives.

In March 2015, researchers began vaccinating individuals in a coastal region of Guinea, which was still experiencing new cases of Ebola at the time. Just as important as the drug itself was a strategy the researchers used called "ring vaccination," which works kind of like a social quarantine.

Every time a new Ebola case was recorded, the researchers traced all the people who may have come into contact with the patient within the previous three weeks. This might mean people that lived in the household, people the patient came into contact with and even contacts of contacts. This is similar to the method that was employed in the 1970s to eradicate smallpox.

In all, the trial involved almost 12,000 participants, 5,837 of which received the vaccine. Some minor side effects like headaches and fatigue were reported, but among those to receive it not a single Ebola case was reported 10 or more days after administration. By comparison, 23 new cases were reported among those who did not receive the vaccination. Furthermore, the researchers say the ring approach proved effective in indirectly protecting those who did not receive the vaccination, though determining exactly how much will require further research.

"Ebola left a devastating legacy in our country. We are proud that we have been able to contribute to developing a vaccine that will prevent other nations from enduring what we endured," said Dr Kelta Sakoba, Coordinator of the Ebola Response and Director of the National Agency for Health Security in Guinea.

More studies are ongoing to determine the safety of the vaccine in children, while it is set to be fast-tracked through the regulatory approval process after receiving a Breakthrough Therapy Designation from the United States Food and Drug Administration and PRIME status from the European Medicines Agency. Its developer Merck has committed to submitting it for licensure by the end of 2017 and in the meantime, to ensure 300,000 doses are available for "compassionate use" should Ebola emergencies arise.

The research was published in the journal Lancet.

Source: World Health Organization

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## THE 10 BIGGEST SPACEFLIGHT STORIES OF 2016

By Mike Wall, Space.com Senior Writer | December 26, 2016 07:00am ET

<http://www.space.com/35127-top-spaceflight-stories-2016.html>

The first stage of SpaceX's Falcon 9 rocket lands on the deck of the robotic ship "Of Course I Still Love You" on April 8, 2016.



Credit: SpaceX

2016 was a very busy year in space.

A number of high-profile missions lifted off, others reached their destinations after long journeys through deep space, and a few, sadly, crashed and burned.

Here's Space.com's look at the most important spaceflight stories of the year.

### 1. ROCKET LANDINGS GALORE

Some of the most exciting spaceflight action of 2016 involved rockets coming down rather than going up. California-based company SpaceX managed to land the first stage of five different Falcon 9 rockets during operational orbital launches this year; one of the boosters touched down back at the launch pad, whereas the other four landed on robotic "drone ships" stationed in the Atlantic Ocean.

And the Washington-based company Blue Origin launched and landed the same suborbital New Shepard rocket four times this year, finally retiring the booster after a successful October test flight. (Dating back to 2015, SpaceX now has a total of six successful rocket landings, and Blue Origin has five.)

Both SpaceX and Blue Origin — which are headed by billionaire entrepreneurs Elon Musk and Jeff Bezos, respectively — aim to develop fully reusable rockets as a way to slash the cost of spaceflight and open up the heavens to exploration. As the above successes show, this year brought both companies closer to that ambitious goal. [Reusable Rocket Launch Systems: How They Work (Infographic)]

## **2. JUNO ARRIVES AT JUPITER**

NASA's \$1.2 billion Juno probe launched in August 2011, on a mission to study Jupiter's atmosphere, composition, and gravitational and magnetic fields. The spacecraft finally arrived at the giant planet this year, slipping into Jupiter orbit after aching a make-or-break, 35-minute engine burn on the night of July 4.

The road has been a bit bumpy for Juno since then. An apparent valve issue prevented the spacecraft from performing a planned engine burn in October, so Juno remains in a long and looping 53-day orbit rather than its envisioned 14-day science orbit. In addition, a glitch caused the probe to go into a protective safe mode shortly before its Oct. 19 Jupiter close approach; as a result, Juno didn't gather data during the flyby.

But mission team members are working through these issues. Juno's latest close Jupiter flyby, on Dec. 11, went well, and the spacecraft is healthy overall, Juno principal investigator Scott Bolton, of the Southwest Research Institute in San Antonio, said this month.

## **3. NASA ASTEROID-SAMPLING MISSION LIFTS OFF**

Shortly after Juno reached its destination, another NASA spacecraft began a long deep-space journey. On Sept. 8, the \$800 million Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-REx) probe lifted off from Cape Canaveral Air Force Station in Florida.

If all goes according to plan, OSIRIS-REx will rendezvous with the 1,640-foot-wide (500 meters) near-Earth asteroid Bennu in August 2018. The probe will study the space rock from orbit for two years, then snag at least 2 ounces (60 grams) of asteroid material in July 2020. In September 2023, this sample will make it back to Earth, where scientists will examine the material, searching for the carbon-based building blocks of life and other interesting molecules. [Blastoff! OSIRIS-REx Launches to Asteroid Bennu (Video)]

## **4. EUROPEAN MARS MISSION ARRIVES AT THE RED PLANET**

The first phase of the European-led ExoMars mission launched in March, sending a lander and an orbiter streaking toward the Red Planet. The duo got there in October, but only one of them lived to tell the tale.

The Trace Gas Orbiter (TGO) — which will sniff the Martian atmosphere for methane, a possible sign of Red Planet life — slipped into orbit successfully on Oct. 19. But earlier that

day, the lander, known as Schiaparelli, crashed on Mars. Schiaparelli's computer apparently thought the lander was much closer to the planet's surface than it actually was, and as a result, the vehicle didn't fire its descent-slows thrusters for nearly long enough, European Space Agency (ESA) officials have said.

Schiaparelli's main task was to prove out landing technologies that will put the life-hunting ExoMars rover down on the Red Planet in 2021. And data gathered during Schiaparelli's final minutes of life should indeed help in this aim, ESA officials have said.

## **5. CHINESE ASTRONAUTS DOCK WITH ANOTHER SPACE LAB**

China aims to have its own space station up and running in Earth orbit by the early 2020s, and the nation made a lot of progress toward that goal this year.

China launched its second-ever space lab, known as Tiangong-2, on Sept. 15, to help test spacecraft docking and rendezvous technologies. Then, on Oct. 18, two astronauts aboard the Shenzhou-11 spacecraft docked with the 9.5-ton (8.6 metric tons) Tiangong-2 and stayed aboard the lab for a month. The pair's stint more than doubled the previous Chinese record for longest crewed space mission.

Tiangong-2 is following in the footsteps of Tiangong-1, which launched in September 2011 and hosted three docking missions (two of which were crewed) before ending its operational life this past March.

## **6. ROSETTA COMET PROBE DIVES TO ITS DEATH**

Europe's epic Rosetta comet mission came to an end on Sept. 30, when the probe dove into the surface of Comet 67P Churyumov-Gerasimenko. This was a planned suicide: The comet was streaking far from the sun, and the solar-powered Rosetta would not have been able to stay operational for much longer, ESA officials said. [Gallery: Rosetta's Last Comet Photos During Crash-Landing]

Rosetta launched in March 2004 and arrived at 67P in August 2014, in the process becoming the first spacecraft ever to orbit a comet. The mission achieved another first that November, when the Rosetta mothership dropped a lander called Philae onto Comet 67P's surface. That touchdown didn't go entirely as planned; Philae's anchoring harpoons failed to fire, and the lander bounced twice before finally coming to rest in a location that remained mysterious for nearly two years. (The Rosetta team didn't find Philae until early September, just weeks before Rosetta's death dive.)

The 1.3-billion-euro (\$1.36 billion at current exchange rates) Rosetta mission captured the best-ever looks at a comet, and the mission's data should help scientists better understand these icy wanderers and the solar system's early days, mission team members have said.

## **7. SPACESHIP TWO BACK IN ACTION**

On Oct. 31, 2014, Virgin Galactic's first SpaceShipTwo vehicle, known as VSS Enterprise, broke apart during a rocket-powered test flight, killing co-pilot Michael Alsbury and injuring pilot Peter Siebold. The tragedy grounded the company — until this year.

In February, the company unveiled its new SpaceShipTwo, which is called VSS Unity. The suborbital space plane lifted off with its mothership in a "captive carry" test for the first time in September, then made its maiden free-flight test on Dec. 3, gliding back down to

Earth in a solo runway landing. Unity will perform a series of such "glide flights" before beginning the rocket-powered phase of its test campaign.

SpaceShipTwo is designed to carry six passengers to an altitude of 62 miles (100 km) or so, then bring them back down to Earth. Tickets to ride the suborbital space plane currently sell for \$250,000.

## **8. SPACEFLIGHT IS HARD: 2016 EDITION**

As SpaceShipTwo's story indicates, spaceflight is a tough proposition, and the world got two more reminders of that fact this year.

On Sept. 1, a SpaceX Falcon 9 rocket exploded on the pad during a routine pre-launch test, destroying the booster and the \$200 million AMOS-6 communications satellite. SpaceX engineers traced the anomaly to the interaction between oxygen and a carbon-composite helium container in the Falcon 9's upper stage. Falcon 9s have been grounded since the incident, but one of them should return to flight next month, SpaceX representatives have said.

Then, on Dec. 1, Russia's uncrewed Progress spacecraft failed during a cargo launch toward the International Space Station (ISS). A problem with the third stage of the Progress' Soyuz rocket apparently doomed the freighter, which burned up over southern Russia.

Such cargo-ship incidents aren't terribly uncommon. Another Progress fell back to Earth in May 2015 without reaching the station, and Orbital ATK and SpaceX — both of which signed ISS re-supply contracts with NASA — suffered their own failures in October 2014 and June 2015, respectively. (Both companies have flown successful cargo missions since those incidents.)

## **9. ELON MUSK UNVEILS MARS-COLONIZATION PLANS, AND ANOTHER TEAM SHOOTS FOR THE STARS**

Elon Musk has long dreamed of colonizing Mars. Now we know how he plans to do it.

At a conference in Mexico in September, the SpaceX chief unveiled blueprints for the planned Interplanetary Transport System (ITS) — a reusable rocket-and-spaceship duo that Musk said could begin ferrying colonists to the Red Planet by the mid-2020s, if everything goes according to plan. ITS could potentially also fly astronauts to more far-flung destinations, such as Jupiter's ocean-harboring moon Europa, Musk said. [Images: SpaceX's Interplanetary Transport System]

Musk wasn't the only person to reveal a bold spaceflight vision this year. In April, famed cosmologist Stephen Hawking, several other scientists and billionaire investor Yuri Milner announced the \$100 million Breakthrough Starshot project, which aims to develop a laser-sailing spaceflight system that will accelerate tiny probes to 20 percent the speed of light or so. The long-term goal is to send flotillas of such spacecraft to study Proxima Centauri and other nearby star systems up close, team members said.

## **10. YEARLONG ISS MISSION ENDS**

The longest-ever ISS mission came to an end this year, with the March touchdown of NASA astronaut Scott Kelly and Russian cosmonaut Mikhail Kornienko.

Kelly and Kornienko spent 11 months aboard the ISS, allowing doctors and scientists to gather a wealth of data about the effects of long-duration spaceflight on human physiology and behavior. Such data will inform preparations to send astronauts to Mars, NASA officials have said. (It takes six to nine months to get to Mars with currently available propulsion technology.)

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From: "Jim Woosley" [Jimwoosley@aol.com](mailto:Jimwoosley@aol.com)

## **RUSSIA CONDUCTS FIFTH TEST OF NEW ANTI-SATELLITE MISSILE**

**Third successful flight test of satellite-killing weapon**



Vladimir Putin / AP

BY: Bill Gertz,  
December 21, 2016  
5:00 am

<http://freebeacon.com/national-security/russia-conducts-fifth-test-new-anti-satellite-missile/>

Russia successfully flight tested a new missile capable of knocking out strategic U.S. communications and navigation satellites, according

to Pentagon officials.

The test of the PL-19 Nudol missile was carried out Dec. 16 from a base in central Russia, and was monitored by U.S. intelligence agencies.

It was the fifth test of the Nudol missile and the third successful flight of a system Moscow has claimed is for use against enemy missiles, said officials familiar with the reports of the launch.

The exact location of the flight test was not disclosed. Earlier tests of the missile took place from a facility near Plesetsk, located 500 miles north of Moscow.

It could not be learned if the Nudol was sent into space or fired in a sub-orbital trajectory.

Pentagon spokeswoman Lt. Col. Michelle Baldanza declined to comment. "We generally don't comment on other countries' capabilities," she said.

Earlier tests took place May 24 and Nov. 18, 2015. Both tests were first reported by the Washington Free Beacon.

The high rate of testing is an indication the program is a military priority and is progressing toward deployment.

The new anti-satellite missile is among several new strategic weapons systems being developed by the Russian military.

The Nudol is viewed by the Pentagon as a so-called “direct ascent” anti-satellite missile. Russia, however, has sought to mask the missile’s anti-satellite capabilities by claiming the missile is for defense against incoming ballistic missiles.

The Pentagon is worried about the development of anti-satellite weapons by both Russia and China.

Gen. John Hyten, the commander of Air Force Space Command who was recently promoted to lead Strategic Command, has stated that Russia and China are building space warfare systems that are worrying. “They are developing capabilities that concern us,” Hyten has said.

In March, Air Force Lt. Gen. David J. Buck, commander of the Joint Functional Component Command for Space, revealed during House testimony that the Russian military is developing weapons with “counter-space capabilities.”

“Russia views U.S. dependency on space as an exploitable vulnerability, and they are taking deliberate actions to strengthen their counter-space capabilities,” Buck said.

Mark Schneider, a former Pentagon strategic arms policymaker, said the current asymmetry between the United States and other nations in anti-satellite capabilities “is of enormous significance.”

“Potentially, it could result in our defeat in a high intensity conflict,” Schneider said. “The complete loss of the GPS network, or its serious degradation, would eliminate the effectiveness of all existing long-range conventional strike cruise missiles and would degrade the functioning of many of our precision guided weapons.”

Anti-satellite missiles also could be used to knock out communications satellites. “We have begun to take some steps to reduce our reliance on GPS but this will not be near term,” Schneider said.

Michaela Dodge, a defense analyst at the Heritage Foundation, said the Russian test highlights the growing threat to space from new weapons.

“The test demonstrates the need for the United States to treat space as an increasingly contested environment where access might not be guaranteed as it has been in the past,” she said.

“It demonstrates the need to exercise scenarios in which U.S. military might not have a complete access to its complete utilization,” Dodge added. “The test also illustrates the need to protect and diversify U.S. space infrastructure.”

**U.S. intelligence agencies have estimated that U.S. military operations could be severely disrupted with only two dozen or so anti-satellite attacks.**

**Satellites are used for precision navigation, targeting, and communications and intelligence gathering.**

**The Pentagon is very dependent on satellites for long-range warfare operations, an American military specialty.**

**Both Russia and China have recognized the strategic vulnerability of U.S. dependency on satellites. Anti-satellite missiles are regarded as important asymmetric warfare weapons.**

**Both China and Russia are developing lasers and other directed-energy weapons that can blind or disrupt satellites. Small satellites capable of maneuvering in space and grabbing and crushing satellites also are being developed.**

**Russian generals have mentioned their forces fielding anti-satellite capabilities in public statements, but with few details. For example, Russian Lt. Gen. Oleg Ostapenko, former commander of space forces, has said the S-500 anti-missile system is capable of hitting “low-orbit satellites and space weapons.”**

**In May, Vadim Kozyulin, a professor at the Academy of Military Sciences, was quoted as saying that discussion of “space kamikazes” suggests Moscow is preparing for a conflict in space with the United States.**

**The TASS news agency reported that the A-60, a variation of the IL-76 transport aircraft, has a laser anti-satellite capability.**

**In October, TASS reported that the Nudol is called the A-235 and is being developed to replace the current nuclear-tipped missile defense system ringed Moscow.**

**Missile defense interceptors share characteristics with space-faring satellite killers. Both travel at high rates of speed and require precision targeting and guidance.**

**The United States has no anti-satellite weapons. However, a Navy SM-3 anti-missile interceptor was modified to shoot down a de-orbiting intelligence satellite in 2008, indicating U.S. missile defenses could be used to target foreign satellites.**

**The Defense Intelligence Agency stated in a report to Congress last year that Russia leaders “openly assert that the Russian armed forces have anti-satellite weapons and conduct anti-satellite research.”**

**China conducted a flight test of its new anti-satellite missile in early December. Preparations for the test were first reported by the Free Beacon.**

**The missile was identified as a DN-3 direct ascent missile. That system, like the Russian Nudol, is being developed under cover as a missile-defense weapon.**

**China’s Defense Ministry said the Free Beacon report of test preparations for the DN-3 was “groundless.”**

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

From: "Tim Bolgeo" [tbolgeo@epbf.com](mailto:tbolgeo@epbf.com)

**GOVERNOR KASICH SIGNS BILL LEGALIZING CAMPUS CARRY IN WAKE OF OHIO STATE CAR, KNIFE ATTACK**

by AWR HAWKINS19 Dec 2016503

<http://www.breitbart.com/big-government/2016/12/19/governor-kasich-signs-bill-legalizing-campus-carry-in-wake-of-ohio-state-car-knife-attack/>



PHOTOALTO/AFP

**On Monday Ohio Governor John Kasich (R) signed Senate Bill 199, thereby legalizing concealed carry on college and university campuses where school trustees vote to allow it.**

**SB 199 also removes a state ban on concealed carry in the public areas of airports and on carrying guns for self-defense at daycares. The status of concealed carry at daycares is**

now in the hands of individual business owners, who can decide whether to allow concealed carry at their respective businesses.

Cleveland.com reports that SB 199 “also prohibits employers from banning concealed handgun permit holders from bringing guns into company parking lot.” The various aspects of the new law take “effect in 90 days.”

Breitbart News previously reported that Ohio lawmakers responded to the November 28 Ohio State University car and knife attack by placing campus carry language in SB 199, then passing the bill by large margins. Buckeye Firearms Association reported that the legislation passed in the House by a vote of 68-25 and in the Senate by a vote 22-8.

Kasich’s decision to sign SB 199 was opposed by Moms Demand Action, a Michael Bloomberg-funded gun control group staunchly against allowing students to be armed for self-defense. Moms Demand’s Michelle Mueller said, “Governor Kasich ignored the concerns of law enforcement, business leaders, gun violence survivors, moms, daycare providers, campus stakeholders and students.” She added, “By signing Senate Bill 199, Governor Kasich is siding with gun lobby interests over public safety.”

Mueller did not speak to the safety of the unarmed students who were attacked with a car, then chased by an Islamist with a butcher knife on OSU’s campus on November 28.

HMMMM, I THINK THAT THE EDITOR OF THIS MISSIVE HAS PONTIFICATED ON THIS SUBJECT A NUMBER OF TIMES AND SOME OF YOU OUT THERE THOUGHT HE WAS CRAZY. CRAZY LIKE A FOX MAYBE? UT

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From: "Jim Woosley" [Jimwoosley@aol.com](mailto:Jimwoosley@aol.com)

#### **FBI WARRANT RELEASED IN CLINTON EMAIL CASE**

FoxNews.com, Published December 20, 2016

<http://www.foxnews.com/politics/2016/12/20/fbi-warrant-released-in-clinton-case-revealing-extent-classified-info-on-laptop.html>

#### **Judge orders FBI to unseal search warrant against Clinton**

A federal court on Tuesday released the search warrant documents filed by the FBI to access a laptop used by disgraced ex-Rep. Anthony Weiner and his estranged wife, Hillary Clinton aide Huma Abedin, revealing new details about why the bureau revisited the email case just days before the presidential election.

The FBI’s earlier investigation found “27 email chains containing classified information” that were exchanged between Clinton and Abedin, and investigators wanted to see what was also on the Abedin-Weiner laptop, according to the government affidavit unsealed Tuesday. That laptop, the FBI noted, “was never authorized for the storage or transmission of classified or national defense information,” according to the application for the warrant, which was partially redacted.

The October re-opening of the Clinton investigation sprung from an unrelated case involving Weiner allegedly sexting with an underage girl. During the course of that inquiry, agents discovered the joint laptop and later found emails addressed to and sent from Clinton.

U.S. District Judge P. Kevin Castel on Monday ordered the warrant and accompanying documents released, which he said were secretly filed with the court on Oct. 30.

In the aftermath of Clinton's Election Day defeat, many of her top supporters – including husband former President Bill Clinton – have publicly blamed FBI Director James Comey for her loss.

“James Comey cost her the election,” Bill Clinton said earlier this month during remarks which were recently published in the Bedford-Pound Ridge Record Review.

Just days after President-elect Donald Trump's victory, Hillary Clinton also took Comey to task. “Our analysis is that Comey's letter raising doubts that were groundless, baseless, proven to be, stopped our momentum,” Clinton said during a Nov. 12 conference call with donors.

Comey was criticized not just for revisiting the case but for announcing that decision, in an Oct. 28 letter to Congress, only to confirm two days before the Nov. 8 vote that the inquiry uncovered no new evidence of wrongdoing.

On Tuesday, Clinton's attorney David Kendall said that the affidavit “highlights the extraordinary impropriety” of Comey's letter, which he called “legally unauthorized and factually unnecessary.”

The unsealed search warrant files, however, may help explain why Comey decided to revive the Clinton investigation despite the pending election.

“Out of the 27 email chains, six email chains contained information that was classified as the Secret level at the time the emails were sent, and information in four of those email chains remains classified at that level now,” the application stated.

Agents also were looking “to determine if classified information was accessed by unauthorized users or transferred to any unauthorized systems.”

The affidavit clearly states that the warrant relates to a “criminal investigation” of Clinton, terminology Clinton's team previously had disputed.

Fox News' Bill Mears and Doug McKelway contributed to this report.

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THE NEW YORK TIMES GUN CONTROL OP-ED STEPS IN A PILE OF PUBLIC SERVICE

By Thomas Sowell, Posted on December 22, 2016

<http://www.ammoland.com/2016/12/new-york-times-gun-control-op-ed/#axzz4Tlj6QRwa>

THE NEW YORK TIMES GUN CONTROL OP-ED STEPS IN A PILE OF PUBLIC.

USA – -(Ammoland.com)- Sometimes someone inadvertently performs a public service by bringing an unbelievably stupid and dangerous idea to the surface, where it can be exposed for what it is.

The New York Times can be credited — if that is the word — with performing this public service

in a recent editorial against proposals to allow law-abiding citizens to carry concealed guns. They refer to what they call the National Rifle Association’s “fantasy that citizens can stand up to gunmen by shooting it out.”

Nobody has suggested any such thing. Data collected over many years — but almost never seeing the light of day in the New York Times or the rest of the mainstream media — show many thousands of examples of people defending themselves with a gun each year, without having to pull the trigger.

If someone comes at you with a knife and you pull out a gun, chances are they will stop.

The only time I ever pointed a gun at a human being, it was when someone was sneaking up toward me from behind a shed in the middle of the night. I never fired a shot. I just pointed the gun at him and told him to stop. He stopped.

Actually having to shoot someone is the exception, not the rule. Yet the New York Times conjures up a vision of something like the gunfight at the OK Corral.

Concealed guns protect not only those who carry them but also those who do not. If concealed guns become widespread, then a mugger or a car jacker has no way of knowing who has one and who does not. It makes being a mugger or a car jacker a less safe occupation.

Gun control laws are in effect occupational safety laws — OSHA for burglars, muggers, car jackers and others.

The fatal fallacy of gun control laws in general is the assumption that such laws actually control guns. Criminals who disobey other laws are not likely to be stopped by gun control laws. What such laws actually do is increase the number of disarmed and defenseless victims.

Mass shootings are often used as examples of a need for gun control. But what puts a stop to mass shootings? Usually the arrival on the scene of somebody else with a gun.

Mass shooters are often portrayed as “irrational” people engaged in “senseless” acts. But mass shooters are usually rational enough to attack schools, churches and other places where there is far less likelihood of someone being on the scene who is armed.

Seldom do we hear about these “irrational” shooters engaging in “senseless” attacks on meetings of the National Rifle Association or a local gun show or a National Guard armory [or police stations].

The fallacy of believing that the way to reduce shootings is to disarm peaceful people extends from domestic gun control laws to international disarmament agreements. If

disarmament agreements reduced the dangers of war, there would never have been a World War II.

The decades leading up to that war were filled with international disarmament agreements. As with domestic gun control laws, the agreements were followed by peaceful countries and ignored by belligerent countries that built up huge war machines, such as in Nazi Germany and imperial Japan.

The net result was that the belligerent countries had every incentive to start wars, and that they inflicted devastating losses on the peaceful countries that had drastically curtailed their own military forces.

Eventually the Western democracies got their act together and turned things around, after they belatedly beefed up their military forces. But thousands of lives were lost needlessly before that happened. World War II was in its third year before Western forces won a single battle.

Undaunted by history, the same kind of thinking that had cheered international disarmament treaties in the 1920s and 1930s once again cheered Soviet-American disarmament agreements during the Cold War.

Conversely, there was hysteria when President Ronald Reagan began building up American military forces in the 1980s. Cries were heard that he was leading us toward nuclear war. In reality, he led us toward an end of the Cold War, without a shot being fired at the Soviet Union.

But who reads history these days, or checks facts before leading the charge to keep law-abiding people disarmed?

#### **About Thomas Sowell**

Thomas Sowell is a senior fellow at the Hoover Institution, Stanford University, as well as a prolific author including *Black Rednecks And White Liberals*. His website is [www.tsowell.com](http://www.tsowell.com). To find out more about Thomas Sowell and read his articles visit his website above.

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#### **DONALD TRUMP'S FORAYS INTO FOREIGN POLICY STRAIN TRANSITION**

President-elect wades into foreign policy before taking office, setting up confrontation between outgoing and incoming administrations

By CAROL E. LEE and PETER NICHOLAS, Updated Dec. 23, 2016 7:20 p.m. ET

<http://www.wsj.com/articles/let-it-be-an-arms-race-trump-says-1482507844>

WASHINGTON—President-elect Donald Trump is upending the modern convention that the U.S. speaks with one voice on foreign affairs, plunging into some of the most sensitive national-security matters before he takes office.

Mr. Trump has launched a series of challenges to President Barack Obama's policies on nuclear weapons, China and the Israeli-Palestinian peace process, setting up a rare and increasingly public confrontation between outgoing and incoming administrations.

Mr. Obama on Friday brushed back pressure from Mr. Trump to block a United Nations Security Council resolution harshly criticizing the expansion of Israeli settlements. Mr. Trump on Thursday called on the administration to veto the resolution. But Mr. Obama instead chose to break from longstanding U.S. policy and allow it to pass.

"There's one president at a time," said Ben Rhodes, a deputy national-security adviser. He said the president believes "it's important that the world understands who is speaking on behalf of the United States until Jan. 20."

Mr. Trump took to Twitter after the vote, saying: "As to the U.N., things will be different after Jan. 20th."

While Mr. Obama's move suggests it may be difficult to eclipse a sitting president who has said he intends to "run through the tape," Mr. Trump's policy pronouncements as president-elect could send mixed signals to America's allies and partners overseas about who is in charge, experts and analysts said.

Mr. Trump signaled soon after the election that he planned to take a different posture during the transition, when he took a protocol-breaking phone call from the president of Taiwan. The White House was caught off guard and fielded angry protests from Beijing.

Jon Alterman, a national-security expert at the Center for Strategic and International Studies, said Mr. Trump appears to be using his transition to test the waters on some issues. "It feels to me partly like he's just thinking out loud trying to imagine what a Trump foreign policy will be," Mr. Alterman said.

Brian Katulis, a senior fellow focused on national-security issues at the Center for American Progress, a liberal think tank, said Mr. Trump is deviating from a longstanding tradition that ensures "continuity" in foreign policy even when the presidency changes parties.

"What he's signaled on a number of different fronts since his election demonstrates that he has an unorthodox and unconventional way of dealing with the world," Mr. Katulis said. "It's deeply unsettling to a number of our longstanding partners."

Ken Duberstein, a chief of staff under Republican President Ronald Reagan, countered, saying Mr. Trump's approach could pay dividends.

The president-elect is "basically signaling to the world the way he will conduct things once he is in fact president," he said. "It's reassuring to many of our allies and it is setting the stage for an understanding from our adversaries that there will be a new sheriff in town."

While Mr. Obama's transition from President George W. Bush was notably smooth, previous transitions have also been rocky. President Bill Clinton's team was accused of vandalizing government property to play pranks on the incoming President Bush.

Messrs. Obama and Bush cooperated on addressing the economic crisis, but Presidents Herbert Hoover and Franklin Roosevelt famously clashed at the time of the transition from the former to the latter.

The U.S. hostage crisis in Iran also loomed over President Ronald Reagan's transition from the Jimmy Carter administration.

Mr. Trump has just this week waded into two of the most hot-button foreign-policy issues, both raising the prospect of expanding America's nuclear arsenal and, at the behest of Israel, pressuring Mr. Obama to veto the U.N. resolution.

Mr. Trump said Friday that he wouldn't shrink from a nuclear-arms race, doubling down on his tweet a day earlier saying the U.S. needs to expand its nuclear capabilities. "Let it be an arms race," Mr. Trump told MSNBC "Morning Joe" co-host Mika Brzezinski. "We will outmatch them at every pass and outlast them all."

Mr. Trump's top spokesman, Sean Spicer, later sought to play down the interview.

But Mr. Trump's comments—which followed Russian President Vladimir Putin's statement that Moscow needs to build up its military, including nuclear weapons—are reigniting concerns among critics that he lacks the temperament for the presidency.

"The words presidents speak or tweet or write can send armies marching and markets tumbling," said David Axelrod, who was a longtime adviser to Mr. Obama and supported Hillary Clinton's presidential campaign. "I think there was this hope or expectation that the weight of the presidency or the impending presidency would sober him and this is evidence that that's not the case."

Rep. Adam Schiff, the top ranking Democrat on the House Intelligence committee, expressed alarm at the casual tone Mr. Trump is using to discuss major changes to the nation's defense posture and security policy.

"These opaque, oracular statements that are coming out of his Twitter account are the subject of multiple interpretations and they're a dangerous thing to do as president-elect," said Mr. Schiff. "They could be a potentially catastrophic thing to do as president."

Also on Friday, Mr. Trump released a letter he received from Mr. Putin, in which the Russian president says he hopes that "we will be able—by acting in a constructive and pragmatic manner—to take real steps to restore the framework of bilateral cooperation in different areas as well as bring our level of collaboration on the international scene to a qualitatively new level."

Mr. Trump responded to what he called "a very nice letter from Vladimir Putin" with a statement saying, "His thoughts are so correct. I hope both sides are able to live up to these thoughts, and we do not have to travel an alternate path."

—Ben Kesling and Byron Tau contributed to this article.

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From: "Jim Woosley" [Jimwoosley@aol.com](mailto:Jimwoosley@aol.com)

## **OBAMA SCRAPS REGISTRY FOR SOME IMMIGRANT MEN, MOSTLY MUSLIMS**

**BY ALICIA A. CALDWELL, ASSOCIATED PRESS**

, Dec 22, 4:25 PM EST

[http://hosted.ap.org/dynamic/stories/U/US\\_OBAMA\\_IMMIGRANT\\_REGISTRATION?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2016-12-22-10-09-10](http://hosted.ap.org/dynamic/stories/U/US_OBAMA_IMMIGRANT_REGISTRATION?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT&CTIME=2016-12-22-10-09-10)

**WASHINGTON (AP) --** The Obama administration on Thursday officially scrapped the last vestiges of a U.S. registration system for Muslim immigrants. If President-elect Donald Trump now wants to introduce an expanded version of the program, he will have to start from scratch.

The post-9/11 registration program for immigrant men arriving mainly from the Islamic world hasn't been enforced since 2011. Although it never prohibited travel for men and boys from the more than 20 affected countries, including Syria, Iraq and Afghanistan, Trump's suggestions about banning Muslim immigrants from the United States have led to fears that it could be reinstated and used for new and enhanced purposes.

The decision to erase it from the books entirely marks one of President Barack Obama's last administrative actions on immigration and will at least slow any Trump effort to introduce even tougher requirements, as has been suggested by a top adviser.

The registration program is "not only obsolete," said Neema Hakim, spokesman for the Homeland Security Department, "its use would divert limited personnel and resources from more effective measures."

The registration system started about a year after the Sept. 11, 2001, terrorist attacks, requiring men and boys from a variety of mostly Middle Eastern countries to register with the federal government upon their arrival in the United States. Such people already in the country had to register with immigration authorities inside the U.S.

Registration, which also applied to immigrants from North Korea, included fingerprints and photographs. People also were required to notify the government if they changed addresses.

Trump has never publicly spoken about the program, but has made clear his desire to take a far tougher approach toward immigration than Obama.

He and his advisers have suggested the rising terror threat in the United States, Europe and elsewhere is linked to insufficiently vetted refugees and immigrants arriving from predominantly Muslim countries. After a truck attack killed 12 in a Christmas market in Berlin this week, Trump told reporters, "You know my plans."

Kansas Secretary of State Kris Kobach, a Trump confidant on immigration, has been more explicit on his plans for the registry. Last month, he said he wanted to launch an updated system for all foreigners from "high-risk" areas.

Meeting Trump in New York, Kobach carried a document labeled "Department of Homeland Security Kobach Strategic Plan for First 365 Days." It described a reboot of the National Security Entry-Exit Registration System as the top priority. Kobach helped draft the program while working at the Justice Department under President George W. Bush.

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If Trump opts to restart NSEERS and create a new program, he will have to start from scratch with a process that includes notifying the public about his plans. That could delay a new effort by months.

The program had been widely derided by civil libertarians as an effort to profile people based on race and religion.

"With this action, the U.S. is on the right path to protect Muslim and Arab immigrants from discrimination," said Joanne Lin, the senior legislative counsel at the American Civil Liberties Union, which said the registry "didn't yield a single terrorism conviction in nearly a decade."

When the Obama administration abandoned the system in April 2011, it said a newer data collection program would be sufficient to collect biometric information for all foreigners coming into the country. At the time, more than 80,000 foreigners were registered.

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