

Welcome to the September 27th, 2017, Edition of THE REVENGE HUMPH DAY!

Last Wednesday I suffered a LODA on my computer. For those of you who are not acquainted with this acronym it means LOSS OF DATA ACCIDENT. I had received a number of comments about my introduction last week and would you believe I wrote them up and then the file got corrupted. Oh well, you can't win them all. Most of the comments from my readers were either neutral or agreed with my comments about Hollywood. So I guess I am not that far away from the mainstream of the people in this country.

This week my bitch is with the NFL players taking a knee during the national anthem. Sorry guys, I am a veteran and I was taught from a young age to stand at the national anthem with my hand over my heart. Love it or leave it, this is my country which I love and I refuse to disrespect it. The funny part about it is that the rules of the NFL state clearly that the players shall be on the field when the national anthem is played with there helmets in there left hands and their right hands over their hearts. I am not joking with you about this one. It is on pages 62-63 of the players rules. (See the 4th story in my section of "YOU JUST CAN'T MAKE THIS STUFF UP!") I just found out about this one myself. So yep, I am off of pro football and now only watch college games until the pro players come to their senses and stop disrespecting our country.

Apparently I am not the only person who thinks this we. The NFL Football ratings are way down and a poll taken last weekend showed that 62% of the American people do not agree with this form of protest at NFL Games.

So on that "interesting 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>

NOTIFICATION FROM DR. JERRY POURNELLE'S CHAOS MANOR WEB SITE

From: "Jim Woosley" jimwoosley@aol.com

As a subscriber to Dr. Pournelle's Chaos Manor, we are letting you know about a newly published (or updated) post from Dr. Pournelle: 'Eulogy – In Remembrance'.

You can read the latest post at:

<https://www.jerrypournelle.com/chaosmanor/eulogy-in-remembrance/>.

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

From: "Bolgeo, Bob" bbolgeo@aol.com

SABBATH

I had everything planned and had told my wife I would not be going to church with her on Sunday. My wife reminded me that Sunday was the Sabbath Day and hunting a trophy buck should not be part of the Sabbath.

1. I had scouted the area all summer.
2. I searched out the best location for my tree stand.
3. I set it all up a month ahead of time.
4. I trailed the herd.
5. I picked out a trophy buck.
6. Two days before opening day I rechecked every aspect of the hunt.
7. Everything was in place.
8. Sunday morning, I woke up at 2 am.
9. I put on my camo, loaded my pack, set out for my stand.
10. This was destined to be an "Epic" hunt.
11. As I approached my deer stand.

*** Bear Stand ***

I called my wife and told her I had decided not to hunt on the Sabbath and would meet her at church.

The Sunday sermon was entitled, "The Lord Works In Mysterious Ways ".

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

This is Priceless! Note reference to the "Main Stream Media"...72 years ago!!!

POLITICAL CORRECTNESS

*** Harry Truman ***

What is meant by the modern term referred to as "POLITICAL CORRECTNESS" ... The definition is found in 4 telegrams at the Truman Library and Museum in Independence, Missouri.

The following are copies of four telegrams between President Harry Truman and General Douglas MacArthur on the day before the actual signing of the WWII Surrender Agreement in September 1945.

The contents of those four telegrams below are exactly as received at the end of the war - not a word has been added or deleted!

(1) Tokyo, Japan 0800-September 1,1945

To: President Harry S Truman
From: General D A MacArthur

Tomorrow we meet with those yellow-bellied bastards and sign the Surrender Documents, any last minute instructions?

(2) Washington, D C 1300-September 1, 1945

To: D A MacArthur
From: H S Truman Congratulations, job well done, but you must tone down your obvious dislike of the Japanese when discussing the terms of the surrender with the press, because some of your remarks are fundamentally not politically correct

(3) Tokyo, Japan, 1630-September 1, 1945

To: H S Truman
From: D A MacArthur and C H Nimitz
Wilco Sir, but both Chester and I are somewhat confused, exactly what does the term politically correct mean?

(4) Washington, D C, 2120-September 1, 1945

To: D A MacArthur/C H Nimitz
From: H S Truman
Political Correctness is a doctrine, recently fostered by a delusional, illogical minority and promoted by a sick mainstream media, which holds forth the proposition that it is entirely possible to pick up a piece of shit by the clean end!

Now, with special thanks to the Truman Museum and Harry himself, you and I finally have a full understanding of what 'POLITICAL CORRECTNESS' really means ...

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

From: "Mike Waldrip" <waldripk@gmail.com>

GOLF – DENTURES

A couple of old guys were golfing when one mentioned that he was going to go see Dr. Steinberg for a new set of dentures the next morning.

His elderly buddy remarked that he, too, had gone to the very same dentist two years before.

"Is that so?" asked the first old guy. "Did he do a good job?"

The second oldster replied, "Well, I was on the golf course yesterday when a guy on the next fairway

hooked a shot. The ball must have been going at least 180 mph when it slammed me right in the testicles."

The first old guy was confused and asked, "What the hell does that have to do with your dentures?"

"It was the first time in two years my teeth didn't hurt."

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

Meanwhile on the Ark...

* Meanwhile on the Ark *

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

From: "Chris Cowan" cowanc1028@earthlink.net

CREATIVELY FUNNY SIGNS IN SEATTLE

Local Seattle Gas Station Sign Has the Best Messages Ever (21 Photos)

http://twistedgifter.com/2017/09/funny-seattle-gas-station-sign-wallingford/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+Twistedgifter+%28TwistedSifter+%29

Back in 2005, the local Chevron gas station in Seattle's Wallingford neighbourhood converted their auto repair shop into a convenience store. Their outdoor sign—once used for service promotions and store specials—became redundant with the inside of the store already plastered with signage.

So the owners decided to have fun with the outdoor sign instead, and the @WallingfordSign was born. Funnily, the weekly sign message has become so popular it has become a more effective marketing tool for the gas station than anything prior.

My favorite - but they are all groaners

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

YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Tim Bolgeo" tbolgeo@epbfi.com

FLORIDA WOMAN MAKES 'SINGLE AND SEXY' SIGN TO GET POWER BACK ON

POSTED 9:21 AM, SEPTEMBER 20, 2017, BY WEB STAFF



Florida woman makes sexy plea for power

FORT MYERS, Fla. -- A Florida woman who lost power after Hurricane Irma hit the state more than a week ago got creative in an attempt to get it restored.

Kynse Leigh, was in a local hospital recovering from a kidney and pancreas transplant when Irma knocked out power at her home in Fort Myers, according to the Daily Mail. On Sunday, she got home and created a sign with hot-pink letters that read, "Hot single female seeks sexy lineman to electrify her life."

Leigh posted a now-viral picture of the sign on Facebook Sunday. The post received more than 1,600 shares and 1,400 likes.

Leigh said she decided to put up the sign after she learned it could take up to two weeks to get her power back.

"After Hurricane Charlie, I spent two weeks without power but coming out of an organ transplant it's a little more difficult," she told the Daily Mail. "The heat makes me sick and just being in a clean environment is so important. You can't keep your home clean and keep germs out without power."

On Monday, the mother-of-one posted an update, saying her power had been restored.

"I just got word my power is on!!!! Wahooooo! Thank you to the lineman that hooked it up," she wrote. "They even left me a note! They heard me from the radio this morning discussing my recent organ transplants! I'm so blessed! Thank you!!!!"



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

STEELERS' BLACK COACH UNHAPPY ARMY VET VILLANUEVA STOOD FOR THE ANTHEM, BUT LOOK AT HIS T-SHIRT SALES SOAR!

September 25, 2017 | Samantha Chang

<http://www.bizpacreview.com/2017/09/25/steelers-black-coach-unhappy-army-vet-villanueva-stood-anthem-look-t-shirt-sales-soar-540265>



Pittsburgh Steelers coach Mike Tomlin was unhappy that offensive tackle Alejandro Villanueva, an Army veteran, stood for the national anthem. Are you serious? (Image: BizPac Review)

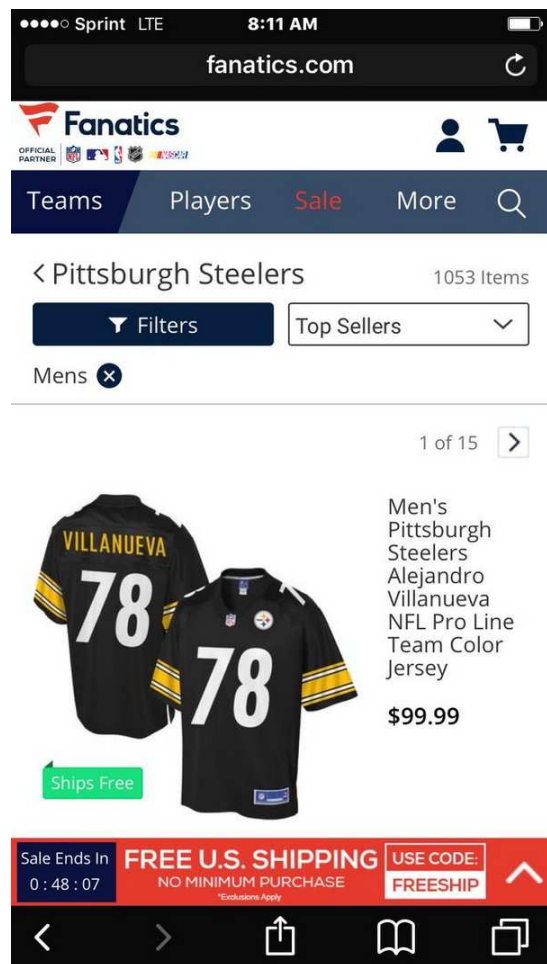
“This We’ll Defend.” That’s the U.S. Army motto that Pittsburgh Steelers offensive tackle Alejandro Villanueva honored when he stood for the national anthem before an NFL game.

And by “this,” the Army motto refers to the United States of America — not the National Football League.

The Pittsburgh Steelers’ head coach Mike Tomlin, who’s black, apparently thinks Army veterans should place their transient football teams above their country. B*tch, please.

Tomlin was upset that Villanueva — who did three tours of duty in Afghanistan — broke ranks by standing to respect the Star-Spangled Banner while his teammates hid like hood rats in the locker room.

At a post-game press conference, Tomlin expressed disappointment that Villanueva respected the American flag that he risked his life fighting for.



“I was looking for 100% participation, we were gonna be respectful of our football team,” Tomlin said (see video at 2:28). “Many of them were not going to accept the words of the President, so we decided to not take the field.”

Coach Tomlin was upset that the former Army Ranger put his country before his football team. Keep in mind that football players are traded all the time, so it’s not like the allegiance is reciprocal.

Meanwhile, Alejandro Villanueva’s patriotic gesture earned praise from millions of Americans. Sales of his jersey skyrocketed, catapulting him to the No. 1 all-time bestseller among Pittsburgh Steelers. Villanueva’s jersey is also now of the NFL’s top sellers.

[View image on Twitter](#)

Dagen McDowell - ?@dagenmcdowell
The top-selling @steelers jersey on @Fanatics this orning. #Villanueva #StandForTheAnthem #StandForTheFlag
8:14 AM - Sep 25, 2017

Twitter Ads info and privacy

Mike Tomlin claimed his team decided together to hide like cowards during the anthem, but it’s

obvious he had a preference. And we all know that players defer to their coaches, many of whom rule the locker room with an iron fist.

Tomlin was reacting to Trump's suggestion that NFL team owners fire players who refuse to stand for the national anthem.

"Wouldn't you love to see one of these NFL owners — when somebody disrespects our flag — to say, 'Get that son of a b-tch off the field right now! He's fired,'" Trump said.



Pittsburgh Steelers coach Mike Tomlin thinks Alejandro Villanueva should put his football team above his country. Riiiiight. (Photo: BPR screengrab)

Tomlin said football players should not be dragged into politics, but ignored the fact that unemployed quarterback Colin Kaepernick is the one who dragged the entire NFL into politics. President Trump merely responded to his anti-American gesture.

"We're not politicians, we're coaches and professional athletes," Tomlin said. "We come out of locker rooms to play football games ... We will not be divided by this."

And then he launched into a self-righteous monologue suggesting Villanueva should have toed the line with his Pittsburgh Steelers teammates This just goes to show you that clown Tomlin has no idea how deep the patriotism of our military goes.



Villanueva played college football at West Point, where the motto is “Duty, Honor, Country.” Notice there’s no mention of a football team anywhere in that code.

Alejandro Villanueva was awarded a Bronze Star for defending his country and his flag. (Image: US Army file photo)

After graduating, Villanueva became an Army Ranger and served three tours in Afghanistan, where he was awarded the Bronze Star for Valor. He joined the Pittsburgh Steelers in 2015 after briefly playing for the Philadelphia Eagles.

No one knows what Villanueva’s future will be with the Steelers, but for grateful Americans, he has a place forever. Right here in our hearts.

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

NASCAR TEAM OWNERS HAVE ZERO TOLERANCE FOR DISRESPECT OF AMERICA: HERE’S WHAT WILL HAPPEN IF YOU DO

September 25, 2017 | Tom Tillison | [Print Article](#)

<http://www.bizpacreview.com/2017/09/25/nascar-team-owners-zero-tolerance-disrespect-america-heres-will-happen-540270>

With NFL players opting to disrespect America on Sunday by refusing to stand for the national anthem or remaining in the locker room, not a single NASCAR driver or team member took a knee.

...not that race team owners would tolerate such unpatriotic behavior.

Pre-race ceremonies Sunday at the Monster Energy NASCAR Cup Series running of the ISM Connect 300 in Loudon, New Hampshire, was a spectacle of celebration and respect for America.

A display that earned the respect of President Donald Trump:

Pre-race ceremonies can be seen below: *Pay attention Commissioner Roger Goodell:

The race featured the standard invocation from a member of clergy, the singing of the national anthem and a military flyover:

While the NFL chose to align its brand with displays of disrespect for the country by millionaire players protesting oppression, with some team owners actually standing arm-in-arm with the coddles athletes, NASCAR owners offered a stark contrast.

A stance that earned NASCAR the label of “insular oddity in American sports culture” from USA Today — why not just come right out and call them white supremacists?

Richard Childress, the longtime team owner of the legendary driver Dale Earnhardt, was clear about his views on protesting the national anthem.

“It’ll get you a ride on a Greyhound bus,” Childress said, according to the Associated Press.

And he let his team know that “anybody that works for me should respect the country we live in. So many people gave their lives for it. This is America.”

Richard Petty, “The King” of NASCAR, took things a step further and will get plenty of reaction from the liberal media on Monday.

“Anybody that don’t stand up for the anthem ought to be out of the country. Period,” Petty said. “What got ’em where they’re at? The United States.”

The seven time NASCAR champion and now team owner was asked if an employee at Richard Petty Motorsports would be fired if they protested, he replied, “You’re right.”

But the truth is, teams are not likely to be faced with such controversy.

Team Penske told USA Today that they have “no policy” on the issue because it has never been necessary.

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

ROGER GOODELL IGNORING LEAGUE’S OWN RULE BOOK IN LETTING PLAYERS PROTEST AMERICA

At the risk of fines and suspensions, the NFL requires players on the field during the anthem, standing

Sep 25, 2017

<https://news.grabien.com/story-roger-goodell-ignoring-leagues-own-rule-book-letting-players>

NFL Commissioner Roger Goodell is such a stickler for adhering to the intricacies of the NFL’s league rule book that he infamously waged a years-long, multi million-dollar battle with the New England Patriots trying to prove that balls used in the 2014 AFC championship between the Pats and the Indianapolis Colts were under-inflated.

After a federal vacated Goodell’s four-game suspension of Tom Brady, Goodell appealed to the 2nd U.S. Circuit Court of Appeals; by 2016, the Pats appeared to lose their will to keep fighting the case and eventually accepted the penalty (Brady’s four game suspension, \$1 million fine, and the loss of two draft picks).

Yet the NFL commissioner, notorious for his unusually massive compensation package -- rumored to be north of \$40 million/year, making his total compensation of \$156 million higher than Tom Brady’s -- is taking a decidedly less fastidious approach to the rules governing the national anthem at NFL games.

The NFL rule book specifically requires both teams appear on the field for the playing of the anthem, standing, remaining quiet, and holding their helmets in their left hands. Failure to do so can result in fines, suspensions, and the loss of draft picks.

The rules are found on pages A62-63 of the league's game operations manual:

The National Anthem must be played prior to every NFL game, and all players must be on the sideline for the National Anthem.

During the National Anthem, players on the field and bench area should stand at attention, face the flag, hold helmets in their left hand, and refrain from talking. The home team should ensure that the American flag is in good condition. It should be pointed out to players and coaches that we continue to be judged by the public in this area of respect for the flag and our country. Failure to be on the field by the start of the National Anthem may result in discipline, such as fines, suspensions, and/or the forfeiture of draft choice(s) for violations of the above, including first offenses.

On Sunday, almost a hundred players took a knee during the national anthem. The Pittsburgh Steelers, Chicago Bears, Seattle Seahawks, and Tennessee Titans all opted against even coming out on the field for the anthem.

But rather than warn these players and team they're violating league rules, Goodell is focusing his anger at President Trump, who said in a speech Friday that the NFL team owners should require their players to stand during the anthem.

"The way we reacted today, and this weekend, made me proud," Goodell said. "I'm proud of our league."

On Saturday, Goodell responded directly to Trump, accusing the president of disrespecting the league, which aspires to "create a sense of unity in our country and our culture":

The NFL and our players are at our best when we help create a sense of unity in our country and our culture. There is no better example than the amazing response from our clubs and players to the terrible natural disasters we've experienced over the last month. Divisive comments like these demonstrate an unfortunate lack of respect for the NFL, our great game and all of our players, and a failure to understand the overwhelming force for good our clubs and players represent in our communities.

Goodell hasn't always been so supportive of his players engaging in free speech on the field.

* Last year the NFL barred the Dallas Cowboys from wearing a decal on their helmet honoring the five police officers killed in a domestic terror attack.

* The NFL also banned the Tennessee Titan's linebacker, Avery Williamson, from honoring 9/11 victims by wearing cleats that read "9-11/01" and "Never Forget" on the 15th anniversary of the terror attack.

* The NFL fined Robert Griffin III \$10,000 for wearing a t-shirt during a press conference that said "Operation Patience." (The shirt was created by Reebok and players are required to only wear clothing sold by Nike.)

* RGIII also ran into trouble with the league for wearing a shirt that said "Know Jesus, Know Peace."

- * The NFL has banned players from wearing Beats headphones on the field (doing so violated the league's deal with Bose).
- * The Steelers' William Gay was fined for wearing purple cleats, which he did to raise awareness for domestic violence (an issue Goodell claims the league takes seriously).
- * Goodell's opposition to speech he dislikes is so determined that he even has a Patriots fan who flipped him off fired from his job.

UPDATE: Snopes.com claims that this rule does not, in fact, exist. The article cites the rule quoted above and reports "No such wording appears in the 2017 version of the Official Playing Rules of the National Football League.

Yet the NFL's Game Operations Manual -- which the league refers to as its "bible" -- is different than its rulebook. It is not available to the public. The rule cited above comes from the league itself, via the Washington Post.

The Post reported Sunday that the NFL confirmed the rule's existence but emphasized their ability to enforce it selectively:

Under the league rule, the failure to be on the field for the anthem may result in discipline such as a fine, suspension or loss of a draft pick. But a league official said the key phrase is "may" result, adding he won't speculate on whether the Steelers would be disciplined.

The specific rule pertaining to the national anthem is found on pages A62-63 of the league's game operations manual, according to a league source.

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

From: "Tim Bolgeo" tbolgeo@epbfi.com

SNC ENTERS HUEY REPLACEMENT COMPETITION WITH FORCE HAWK

Sep 20, 2017 James Drew | Aerospace Daily & Defense Report

<http://aviationweek.com/defense/snc-enters-huey-replacement-competition-force-hawk>



Sierra Nevada Corp. has proposed the "Force Hawk" to replace the Air Force's 60 UH-1N Huey helicopters.

James Drew/AWST

NATIONAL HARBOR, Maryland—Sierra Nevada Corp. has submitted its "Force Hawk" for the U.S. Air Force's UH-1N Huey Replacement program, offering ex-Army UH-60L Black Hawks upgraded to

meet the mission requirements for ICBM security and government transport.

SNC's surprise entry into the high-profile helicopter competition is made possible through its partnership with Huntsville, Alabama-based Global Aviation Services and the Corpus Christi Army Depot in Texas. The company is one of several prime contractors that have responded to the Air Force's request for proposals for 84 helicopters, issued in July.

SNC says Force Hawk is based on refurbished and life-extended Army UH-60A models, which are being divested and sold on the commercial market. The Black Hawks are overhauled, reset and converted to the UH-60L configuration through the government's A-to-L conversion process, performed by the Corpus Christi Army Depot.

The cockpit of the aircraft will be stripped down and upgraded to the latest Garmin G5000H glass touchscreen avionics suite.

The aircraft will receive mission-specific equipment, including a line-of-sight and beyond-line-of-sight communications suite, FLIR Star Safire 380HDc sensor turret, rescue hoist and standard fold-in M240 machine gun posts.

The Air Force's program could be worth as much as \$2 billion for 84 aircraft to replace approximately 60 UH-1Ns, which have been in service since 1970. Those Hueys perform a variety of roles at different air force bases, but the predominant missions are security and armed escort at the Minuteman III intercontinental ballistic missile bases in Montana, North Dakota and Wyoming; and transport of government officials around Washington from Andrews AFB, Maryland.

SNC unveiled Force Hawk at the Air Force Association's Air, Space and Cyber conference this week. In an interview on Sept. 20, SNC Business Development Director Jack Bailey confirmed the company has submitted the Force Hawk proposal to the government in response to the Huey Replacement RFP.

The Air Force originally wanted to replace the UH-1N with ex-Army Black Hawks overhauled through the A-to-L conversion process at Corpus Christi. This strategy was recommended in an Air Force-commissioned Rand Corp. study, but the service instead decided to hold a full and open competition between helicopter manufacturers.

Bailey says SNC essentially is giving the Air Force what it originally wanted: a like-new, ex-Army Black Hawk tailored to the ICBM and continuity-of-government missions.

"You've got the government as a partner to re-use assets the government has already bought," Bailey explains. "This fits with the original intent of the Air Force very well. The costs of a new, different airplane are exponential."

The final Force Hawk configuration would be finished, painted, tested, flown and delivered by SNC through the company's new modification and upgrade facility at Madison County Executive Airport in Huntsville. That site opened in February 2016.

Bailey says the Army plans to divest and sell 400-800 Black Hawks, and SNC has access to at least three sources of supply. "If they were going to divest 800, we only need to get our hands on less than 10% of those," he explains.

Gump Reynolds, a business development consultant for SNC, says the weight savings by moving to the new Garmin glass cockpit are substantial, upwards of 400 lb. The helicopter's airframe and mission equipment are configured to lower drag.

Reynolds says older Black Hawk metal airframes are easier to maintain and repair than new composite aerostructures.

"You can fly this one another 30-50 years, much like the B-52," he says. "If the Huey has taught us anything, it's that we might end up flying this aircraft longer than we initially expected."

SNC's Force Hawk is not the only Black Hawk in the race. Lockheed Martin is proposing brand-new HH-60Us. Northrop Grumman might propose the "Victor-model" Black Hawk it produces for the Army, based on upgraded, digitized UH-60Ls.

Boeing has proposed the MH-139 through its partnership with Leonardo Helicopters. The MH-139 is the company's marketing designation for the AW139, with modifications and mission equipment to meet the Air Force's needs.

SNC's Force Hawk is powered by a pair of General Electric T700-701D turboshaft engines—the same engine used in the new Sikorsky M-model Black Hawk and Boeing AH-64E Apache.

Force Hawk has an advertised airspeed of 147 kt. and maximum operating weight of 22,000 lb. The aircraft has a range of 486 nm and endurance of 3.5 hr. when flying at 135 kt. cruise speed.

<S><C><I><E><N><C><E>

VIDEO: HUBBLE'S CONTENTIOUS CONSTANT

<https://science.nasa.gov/science-news/sciencecasts/hubbles-contentious-constant>

Video Length: 4:01

There are two leading ways to measure the universe's rate of expansion, and for fifteen years, they more or less agreed with one another. Not anymore, and that's a big deal.

<S><C><I><E><N><C><E>

SPIKE SET TO FLY SCALED SUPERSONIC BIZJET DEMO

Sep 21, 2017 Guy Norris | The Weekly Of Business Aviation

http://aviationweek.com/business-aviation/spike-set-fly-scaled-supersonic-bizjet-demo?NL=AW-05&Issue=AW-05_20170922_AW-05_273&sfvc4enews=42&cl=article_1&utm_rid=CPEN1000001477803&utm_campaign=11840&utm_medium=email&elq2=c42d63d0552a4aa292dfcdaced14be8c



S-512: Spike Aerospace

LOS ANGELES—Supersonic business jet developer Spike Aerospace is poised to begin flight tests of a scaled, proof-of-concept demonstrator that will validate the low-speed aerodynamics of its intended Mach 1.6 S-512 aircraft.

The Boston-based company says the SX-1.2 will focus on stability and control tests, and will be followed by a series of progressively larger and faster demonstrators.

“This is a small-scale, fixed-wing unmanned air vehicle. It will be flying from an undisclosed location in New England,” Spike CEO Vik Kachoria tells Aviation Week.

The follow-on demonstrator is already complete and a third vehicle is under construction. The company, which is self-funding a design incorporating a pair of unspecified 20,000-lb.-thrust engines, says high-speed tests are on track to start in mid-2018. The first crewed high-speed test aircraft is scheduled to begin supersonic flights by the end of 2019. Lessons learned from the subscale airframes will help refine the design of the S-512, which is targeted for unrestricted supersonic flight overland. Flight tests are scheduled to begin by 2021, with deliveries expected to follow from 2023 onward. Seating up to 22 passengers, the aircraft will have a supersonic range of 6,200 mi. Design features include a “Multiplex Digital” windowless cabin in which the walls are covered by thin display screens projecting inflight entertainment.

Several companies have partnered with Spike to support aspects of the S-512 program. They include Siemens, aerospace design company Quartus Engineering, Spanish aerostructures specialist Aernnova and manufacturing design company BRPH. Others include Greenpoint Technologies, a completion center owned by Zodiac Aerospace that last year signed a memorandum of understanding to coordinate interior design, engineering and technology efforts to develop the VIP business interior.

<S><C><I><E><N><C><E>

VIDEO: RIDING THE SLINGSHOT TO BENNU

<https://science.nasa.gov/science-news/sciencecasts/riding-the-slingshot-to-bennu>

Video Length: 3:21

Gravity's pull is being used to help propel a small spacecraft known as OSIRIS-REx to a near-Earth asteroid called Bennu.

<S><C><I><E><N><C><E>

NEW SPACEX VIDEO SHOWS HOW NOT TO LAND A ROCKET

Watch the epic—and explosive—bloopers reel for the Falcon 9 booster's arduous path to reusability

By Tariq Malik, SPACE.com on September 14, 2017

https://www.scientificamerican.com/article/new-spacex-video-shows-how-not-to-land-a-rocket/?utm_source=newsletter&utm_medium=email&utm_campaign=space&utm_content=link&utm_term=2017-09-21_more-stories



Credit: SpaceX Youtube

SpaceX CEO Elon Musk likes reusability. With 16 successful rocket landings under its belt, along with two reused rockets and one reused Dragon spacecraft, Musk's rocket company has made giant leaps in reusable booster technology for sure.

But an amazing new video from the company, which Musk has touted as a mere "blooper reel," shows just how hard it is to launch rockets into space and land them safely again. Musk posted the video—called "How Not to Land a Rocket"—on Twitter today (Sept. 14). SpaceX's most recent rocket landing occurred Sept. 6 after the launch of an Air Force X-37B space plane.

"Long road to reusability of Falcon 9 primary boost stage," Musk wrote on Twitter.

"When upper stage & fairing also reusable, costs will drop by a factor >100."

He teased the video's arrival last week: "Putting together SpaceX rocket landing blooper reel. We messed up a lot before it finally worked, but there's some epic explosion footage."

"EPIC" IS RIGHT.

The video is set to a soundtrack of John Philip Sousa's "The Liberty Bell" march (which also served as the theme song for "Monty Python's Flying Circus"). It shows a series of rocket-landing fails dating back to 2013 as SpaceX tried repeatedly to perfect the technology needed to land the first stage of its two-stage Falcon 9 rockets back on Earth.

The early Falcon 9 booster landing attempts were over the open ocean, with the rockets either slamming into the sea hard, or hovering over the waves before tipping over. Another clip shows the dramatic explosion of SpaceX's prototype first stage for landings, the Falcon 9 Reusable (or F9R). That booster exploded in August 2014 over McGregor, Texas, when an engine sensor failed.

In the new video, Musk is seen touring the F9R wreckage. "Rocket is fine," a caption reads. "It's just a scratch."

SpaceX's next rocket failures occurred at sea as the company tried to land the Falcon 9 booster on a drone ship. In September 2014, a rocket ran out of liquid oxygen before touchdown, and crashed. In January 2015, another booster ran out of hydraulic fluid and made a spectacular nighttime crash into the drone ship.

"Well, technically it did land," a video caption reads. "Just not in one piece."

A sticky throttle valve doomed a rocket-landing try in April 2015. The booster gets so close to a successful landing, then falls over and explodes.

"Look, that's not an explosion ... it's just a rapid unscheduled disassembly," the video states.

SpaceX achieved its first successful rocket landing in December 2015, but the blooper video initially skips that milestone. Instead, it skips straight to January 2016, when a landing leg collapsed during touchdown, causing the Falcon 9 booster to tip over and explode.

In March 2016, a landing engine burn failed, and the booster slammed into its landing platform.

"The course of true love never did run smooth," a video caption reads.

Then comes a strange sight. During a May 2016 rocket landing, the booster can be seen hopping about on its drone ship. SpaceX attributes the weird rocket dance to a radar glitch that damaged the landing legs. The booster had an obvious tilt when the drone ship finally reached its port in Cape Canaveral, Florida.

A June 2016 rocket landing failed when the booster ran out of propellant.

Only after the June crash does the new SpaceX video return to its first successful rocket landing, in December 2015. That mission launched a Dragon cargo ship for NASA, and then returned to Earth to make a smooth landing at SpaceX's Landing Zone 1 pad at Cape Canaveral Air Force Station.

SpaceX made its first successful drone ship landing in April 2016.

"You are my everything," the SpaceX video states.

SpaceX and Musk have long pursued reusable rockets to lower the cost of spaceflight. It's a core part of the company's goal to colonize Mars with giant reusable spaceships.

SpaceX successfully launched two used Falcon 9 rockets earlier this year. The company has also seen two other failures. A Falcon 9 rocket failed in June 2015 during a Dragon cargo ship launch for NASA. In September 2016, a rocket exploded on SpaceX's launchpad at Cape Canaveral Air Force Station ahead of a preflight test.

Earlier this year, Musk said SpaceX is studying the potential for a completely reusable Falcon 9 rocket. That would mean reusing the rocket's upper stage, as well as its protective payload fairing (the nose cone). The fairing alone costs about \$5 million, Musk has said.

SpaceX is also building a much larger rocket, the Falcon Heavy, which will consist of three Falcon 9 boosters for its first stage. All three of those rockets are designed to land after launch, Musk has said.

The first Falcon Heavy test flight is expected to launch in November.

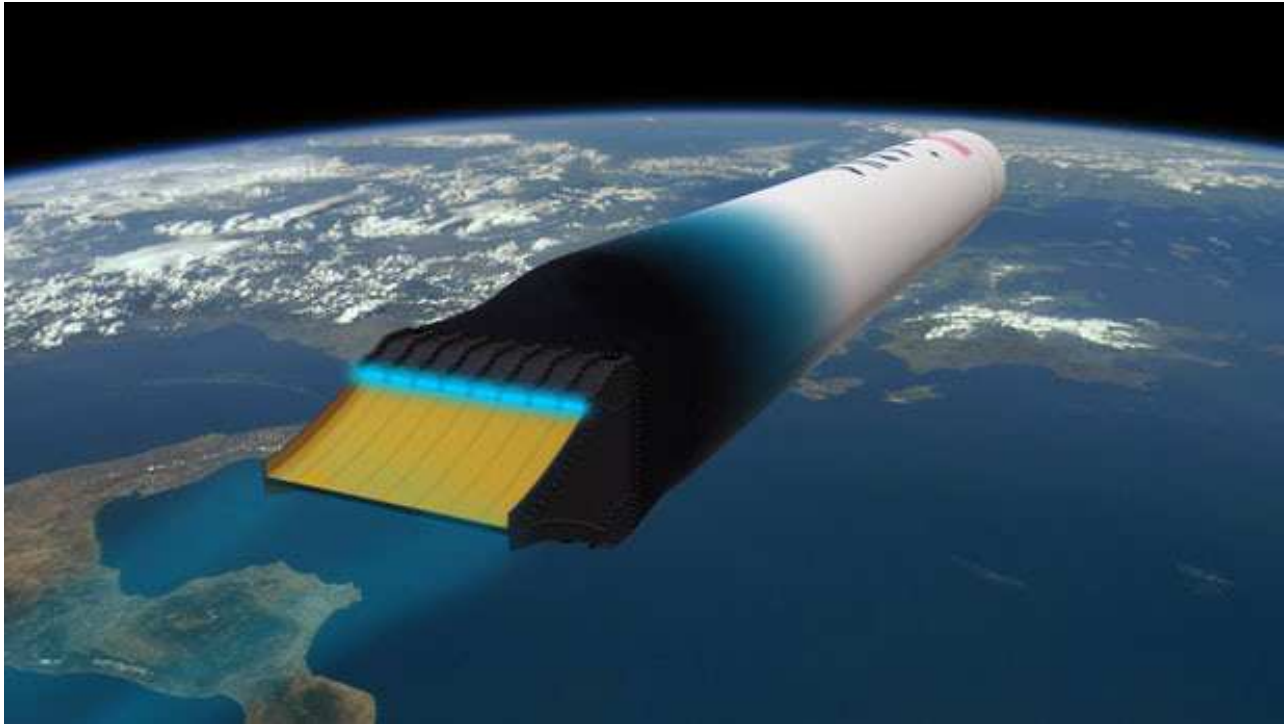
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ARCA'S REVOLUTIONARY AEROSPIKE ENGINE COMPLETED AND READY FOR TESTING

David Szondy, September 21st, 2017

<http://newatlas.com/arc-aerospike-linear-engine-complete/51431/>

ARCA Space Corporation has announced its linear aerospike engine is ready to start ground tests as the company moves towards installing the engine in its Demonstrator 3 rocket. Designed to power the world's first operational Single-Stage-To-Orbit (SSTO) satellite launcher, the engine took only 60 days to complete from when fabrication began.



The linear spike engine will eventually power the Haas 2CA SSTO rocket (Credit: ARCA)

Over the past 60 years, space launches have become pretty routine. The first stage ignites, the rocket lifts slowly and majestically from the launch pad before picking up speed and vanishing into the blue. Minutes later, the first stage shuts down and separates from the upper stages, which ignite and burn in turn until the payload is delivered into orbit.

This approach was adopted not only because it provides enough fuel to lift the payload while conserving weight, but also because the first-stage engines, which work best at sea level, are very inefficient at higher altitudes or in space, so different engines need to be employed for each stage of flight.

The aerospike engine is different because it basically works by cutting a rocket engine's bell, which directs the exhaust of a rocket engine in one direction, in half, then placing the two halves back to back to form a tapering spike. This means the air itself acts as the missing half of the rocket bell, containing the hot gases as they leave the combustion chamber.

As the rocket flies higher, the thinner air holds the gases less tightly and they spread out more, as if the rocket bell has gradually grown larger. This allows the aerospike engine to automatically adjust itself in flight, turning itself from a sea-level engine into a high-altitude one with virtually unlimited expansion ratios.

According to ACRA, the new test engine uses a monopropellant of 70 percent hydrogen peroxide mixed with RP-1 – a highly refined form of kerosene – and has a sea-level thrust of 4.2 tons. Despite using a low-energy propellant, the aerospike's increased efficiency and a special lightweight composite propellant tank will make the Demonstrator 3 ballistic suborbital rocket capable of reaching space.

The ultimate goal of the tests will be to develop a practical working engine for ACRA's Haas 2CA SSTO rocket slated to make its first flight from NASA's Wallops Flight Facility next year. The Haas 2CA is aimed at the small satellites market with a projected cost of US\$1 million per launch.

The video AT THE WEBSITE introduces the ACRA linear aerospike engine.

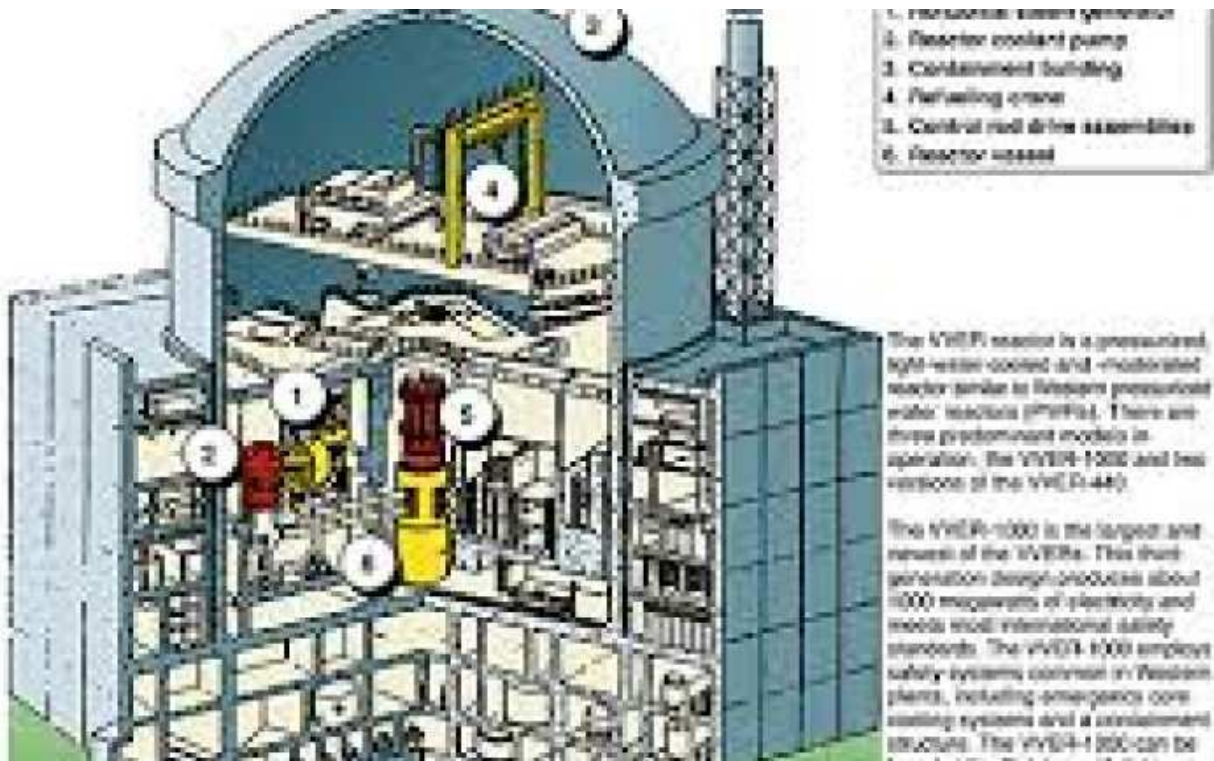
Source: ARCA

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TURNING 1 MILLION TONS OF USED NUCLEAR FUEL BY 2050 INTO ENERGY

brian wang | September 22, 2017 |

<https://www.nextbigfuture.com/2017/09/turning-1-million-tons-of-used-nuclear-fuel-by-2050-into-energy.html>



The amount of used nuclear fuel will continue to increase, reaching around 1 million tonnes by 2050. The uranium and plutonium that could be extracted from that used fuel would be sufficient to provide fuel for at least 140 light water reactors of 1 GWe capacity for 60 years, she said. "It makes sense to consider how to turn today's burden into a valuable resource."

Rosatom estimates that the current closed fuel cycle – in which reprocessed uranium (RepU) and plutonium are only used once – can at best use about 21% of used light water reactor fuel, with the remaining 79% – mostly uranium-238 – going into storage. The new nuclear fuel cycle could use a further 77%, with only 2% of used fuel then requiring disposal as waste, Zalimskaya said.

Russia is already working to modernise its nuclear fuel cycle and currently has four main processing facilities operating at the back-end. The Mayak reprocessing facility is in the process of upgrading its infrastructure for high-active waste handling, and is reprocessing a broader range of used nuclear fuel starting with VVER-1000 fuel from last year.

The Siberian Chemical Plant, in Seversk, is a production facility operating with RepU. Mining and Chemical Combine, in Zheleznogorsk, is a cluster of used fuel management with centralised interim wet and dry storage facilities, a pilot demonstration centre for reprocessing, to be commissioned in 2019, and a fabrication plant for mixed oxide (MOX) fuel for fast reactors. The National Operator for Radioactive Waste Management, NO RAO, expects to commission in 2022 an underground research laboratory for the deep geological storage of highly active waste.

BACK-END SCENARIOS

Zalimskaya presented three possible scenarios for the back-end of the fuel cycle which are currently being tested by Rosatom. The first scenario involves recycling of RepU and plutonium in the existing nuclear power fleet, with RepU used to fuel VVER-1000 reactors and plutonium in the BN-800 fast reactor.

The second scenario is a so-called REMIX nuclear fuel cycle. REMIX fuel is produced directly from a non-separated mix of recycled uranium and plutonium from the reprocessing of used fuel, and can be used in light-water reactors. The used REMIX fuel can be reprocessed and recycled repeatedly.

The third scenario is a two-component nuclear power system involving light water reactors and fast reactors. In this scenario, used fuel from light water reactors is reprocessed with the RepU recycled in the same reactors and the plutonium recycled in MOX fuel in fast reactors. Plutonium separated from used fast reactor fuel is suitable for use in MOX fuel that can then be used in the light water reactors.

All three scenarios have evolved from simple, existing practices, Zalimskaya said, and all are now being tested in practice in Russia.

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WORLD'S BIGGEST UN CUT DIAMOND SELLS FOR \$53M

<https://www.afp.com/en/news/23/worlds-biggest-uncut-diamond-sells-53m>

British jeweller Graff said Tuesday it has purchased the world's largest uncut diamond -- roughly the size of a tennis ball -- for \$53 million (44.5 million euros).

Canadian miner Lucara Diamond sold to Graff the 1,109-carat gem, the Lesedi La Rona, which was found in Botswana's Karowe mine in late 2015.

"We are thrilled and honoured to become the new custodians of this incredible diamond," said company chairman, Laurence Graff, in a statement.



AFP/File / BEN STANSALLThe Lesedi La Rona, the world's largest rough diamond, is 1,109 carats and was found in Botswana's Karowe mine in late 2015.

"The stone will tell us its story, it will dictate how it wants to be cut, and we will take the utmost care to respect its exceptional properties."

Lucara confirmed the hefty price tag in a statement issued in Vancouver.

"The discovery of the Lesedi La Rona was a company defining event for Lucara," said William Lamb, president and chief executive of Lucara.

"It solidified the amazing potential and rareness of the diamonds recovered at the Karowe mine."

The rough diamond had previously failed to meet its reserve price of more than \$70 million at a Sotheby's auction in 2016.

Graff is already the owner of a 373-carat diamond, which was bought earlier this year and formed part of the original stone.

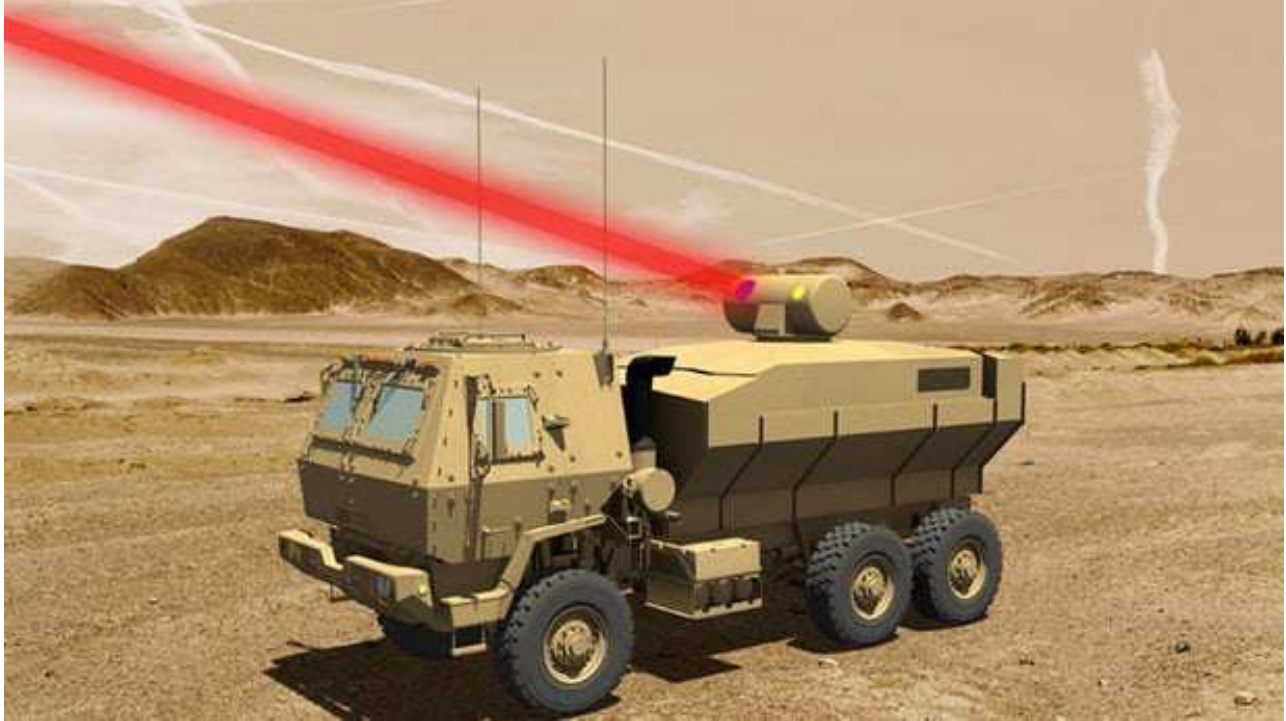
Lesedi La Rona means "our light" in Botswana's Tswana language. It could be cut into smaller gems for jewellery or left whole in a private collection.

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LOCKHEED MARTIN TO HAND RECORD 60-KW LASER WEAPON OVER TO THE US ARMY

David Szondy, March 19th, 2017

<http://newatlas.com/lockheed-martin-laser-60-kw/48467/>



Rendering of a truck-mounted 60-kW laser weapon system for tactical U.S. Army vehicles(Credit: Lockheed Martin)

In 2015, Lockheed Martin took the wraps off a 30-kW mobile [laser weapon](#) that was powerful enough to take out a truck. Now the company will deliver a new 60-kW weapon to the US Army that earlier this month set a new record by generating a single 58-kW beam. With all phases from demonstration to development completed, Lockheed will ship the combined fiber laser to the US Army Space and Missile Defense Command/Army Forces Strategic Command in Huntsville, Alabama.

Similar to the previous laser, the new 60-kW design uses spectrum beam combining technology to produce a weapon-grade laser that is destructive as well as portable and accurate. The fiber laser modules are made of an active gain medium consisting of an optical fiber doped with a rare-earth element, including erbium, ytterbium, neodymium, or others.

The optical fibers are flexible, so the laser can be thousands of meters long for greater gain, while taking up very little space because it can be coiled like a rope. The large surface-to-volume ratio means that it's easy to cool. In addition, fiber lasers are very durable and project a high-quality beam using 50 percent less electricity than an equivalent solid-state laser.

Lockheed says that the individual lasers produced by the fibers are combined into a single beam that is intense and scalable through the addition of more fiber bundles. The present

laser is close to the diffraction limit. That is, it's close to the physical limit for focusing a laser on a single spot without interfering with itself, but it's still highly efficient – translating over 43 percent of the electricity fed into it into laser light.

"The inherent scalability of this beam combined laser system has allowed us to build the first 60 kW-class fiber laser for the U.S. Army," says Robert Afzal, senior fellow for Laser and Sensor Systems. "We have shown that a powerful directed energy laser is now sufficiently light-weight, low volume and reliable enough to be deployed on tactical vehicles for defensive applications on land, at sea and in the air."

Lockheed sees the new lasers as eventually leading to new systems to provide protection against swarms of drones, rockets, and mortars that would overwhelm conventional defenses.

Source: [Lockheed Martin](#)

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From: "Chris Cowan" cowanc1028@earthlink.net

SCIENTISTS CLOSING IN ON THE DAWN OF PLATE TECTONICS

The massive slabs of Earth's crust might have started their journey more than 3.5 billion years ago

By Shannon Hall on September 22, 2017

https://www.scientificamerican.com/article/scientists-closing-in-on-the-dawn-of-plate-tectonics1/?utm_source=newsletter&utm_medium=email&utm_campaign=sciences&utm_content=link&utm_term=2017-09-22_top-stories



Scientists now think early Earth contained light-colored rocks, like the granite within Yosemite's Half Dome. Such rocks likely formed via plate tectonics. Credit: David Illiff Wikimedia (CC-BY-SA 3.0)

Geologists think early Earth may have looked much like Iceland—where jet-black lava fields extend as far as the eye can see, inky mountainsides rise steeply above the clouds and stark black-sand beaches outline the land.

But over time the world gradually became less bleak. Today Earth also harbors light-colored rocks, like the granite that composes Half Dome in Yosemite National Park. But scientists remain uncertain as to when the world started to transition from the one that looked like Iceland to that which we know today.

A new study published Thursday in *Science* suggests the shift transpired more than 3.5 billion years ago. Not only does the finding tell scientists the color of the world's early beaches, it might help them understand when tectonic plates—the interlocking slabs of crust that fit together like puzzle pieces far beneath our feet—started to wake up and shuffle around. That is because the lighter-colored rocks, known as felsic rocks, are actually dark, or mafic, rocks “reincarnated.” In short, felsic rocks form when mafic ones are pushed deep inside Earth—possibly when one tectonic plate slips under another in a process called subduction. Given that light-colored felsic rocks were abundant billions of years ago, plate tectonics had likely already kicked into action.

In order to reach that conclusion, Nicolas Greber, a geologist at the University of Chicago, and his colleagues analyzed 78 different layers of sediment to pin down the ratio of felsic to mafic rocks. This was not as simple as counting light versus dark stones (both had long ago eroded into tiny particles). Instead, Greber's team looked at titanium. Although the metallic element is present in both types of rock, the proportion of its isotopes (chemically identical atoms with the same number of protons but a different number of neutrons) shifts as the rock changes from mafic to felsic. Suppose you mix something that turns out both salty and sweet, Greber says. An analysis like this gives you “an idea of how much salt you added and how much sugar you added.” He had expected the earliest sediments in his sample, which date back 3.5 billion years, would be composed mostly of mafic particles. But to his surprise, roughly half of the particles locked within were felsic.

Assuming those rocks formed within subduction zones, that means tectonic plates were already on the go by that time—a conclusion that just might help solve an age-old mystery: the birth date of plate tectonics. Scientists have long argued over the precise date these crustal plates started to rouse from their slumber, with estimates ranging from one billion to 4.2 billion years ago. That range is far too large if scientists want to understand the evolution of early Earth. Shifting plates have the ability to dramatically reshape the planet by sculpting ocean basins and thrusting up mountain ranges. They also alter the composition of the atmosphere and oceans. This would have affected the supply of nutrients available to the fledgling life on our young planet.

With such a vast time range involved, it is easy to see why scientists cannot agree on a firm date. Paul Tackley, a geophysicist at the Swiss Federal Institute of Technology, disagrees with the latest interpretation. He contends felsic rocks can form anytime mafic rocks sink deep within Earth—and not only along subduction zones. In fact, he argues this process can occur on a motionless plate. Should a volcano erupt, for example, the newly released

lava will push down on mafic rocks until they become so deeply buried that they melt under the high subterranean pressures and temperatures, transforming into felsic rocks.

Although Greber agrees felsic rocks can certainly form like this, he argues such a high felsic ratio cannot be explained by Tackley's rock-sinking explanation alone. Take Iceland, for example—because the island is far from any subduction zones high numbers of light-colored rocks simply do not form—hence the island's endless black lava fields and black-sand beaches. So Greber argues the high ratios of light-colored rocks discovered in his old sediments can only mean plate tectonics began early in our planet's history. But 3.5 billion years is just a lower limit. In the future he hopes to find even older rocks, allowing him to pinpoint an exact birth date.

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!"
