Welcome to the August 30th, 2017 Edition of THE REVENGE HUMP DAY!

The hurricane on the Texas Coast has been taking center stage this week. An impossible amount of rain water has deluged the Texas coast from Corpus Christi to Houston and it just seems to keep coming. I have friends and family in the Houston area and we are all worried about how they are doing. One of the bright spots in this whole disaster is that the local, state and federal government agencies and the military seem to be doing a pretty good job coping with all of the emergencies in that hurricane stricken area. It is wonderful to see that the bureaucracy for once has got it's 'shit' together to help the people in need.

Also, apparently there is a lot civilian help that is coming in to help the people. One interesting group that is helping is the Cajun Navy from around Baton Rouge, LA, that is coming into the area and helping to transport the stranded to safety. Give a Red Neck a flat bottomed fishing boat and there is nothing they can't do. It makes me proud to be a Southerner and an American to see how people are just showing up to help their fellow neighbors.

SHE WHO MUST BE OBEYED is devastated this week because here favorite movie of all time has been put on the racist list by the Social Justice Warriors. 'Gone With the Wind' is a cinema classic that has been a mainstay of Hollywood since it was released in the 30's. Yes, it did depict some of the elements of slavery in the south before the Civil War. But it also showed some of the complex relationships between the races in the south during that time. Also, Hattie McDaniels was the first black actress to win an Oscar for her performance. Not Clark Gable and not Leslie Howard. But Hattie McDaniels. It was well deserved. It just goes to show you that when you are trying to ban something you have the possibility of throwing out the baby with the bath water.

So on that "sagely 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>~<!>

SCIENCE FICTION AUTHOR BRIAN ALDISS DIES AGED 92

From: "Robert Kennedy" Robert.Kennedy@tetratech.com

Alison Flood, the Guardian UK, Monday 21 August 2017
https://www.theguardian.com/books/2017/aug/21/science-fiction-author-brian-aldiss-dies-aged-92

The prolific writer behind more than 80 books and editor of 40 anthologies died at his Oxford home after celebrating his birthday

Brian Aldiss, the "grand old man" of science fiction whose writing has shaped the genre since he was first published in the 1950s, has died at the age of 92.

Aldiss's agent, Curtis Brown, and his son, Tim Aldiss, have announced that the author, artist, poet and memoirist died at home in Oxford in the early hours of 19 August. "Brian had celebrated his birthday with close friends and family and spoken to many close to

him," wrote Tim on Twitter as he announced the death of "our beloved father and grandfather".

Brian Aldiss, at his home in Oxford. Photograph: Sessions/Future/REX/Shutterstock

Aldiss was the author of science fiction classics including Non-Stop, Hothouseand Greybeard, as well as the Helliconia trilogy, which his agent said bridged "the gap between classic science fiction and contemporary literature". His numerous short stories include Super-Toys Last All Summer Long, which was adapted into the Steven Spielberg film AI, while his Horatio Stubbs saga was based on his time during the war in Burma and the far east.

Aldiss was the recipient of numerous awards, including the Hugo and Nebula prizes for science fiction and fantasy, an honorary doctorate from the University of Reading, the title of grand master from the Science Fiction and Fantasy Writers of America, and an OBE for services to literature. In a 2013 profile of Aldiss for the Guardian, Stuart Kelly described him as "the grand old man of British science fiction", saying that "few writers have contributed more" to speculative fiction.

In an introduction to a new edition of Hothouse, Neil Gaiman described Aldiss's career as "enormous". "It has recapitulated British SF, always with a ferocious intelligence, always with poetry and oddness, always with passion; while his work outside the boundaries of science fiction, as a writer of mainstream fiction, gained respect and attention from the wider world." The American Gods author described Aldiss on Twitter as a "larger than life wise writer", adding that the news "just hit me like a meteor to the heart".

"For the short time I had the pleasure of knowing Brian, there wasn't a moment when he wasn't writing something," said his editor at HarperCollins, Natasha Bardon. "His passion for language and literature was wonderful and he wielded his skill like a blade. Fiction, non-fiction, poetry: there was just no stopping him. Though I came to publish Brian later in his career, I feel the luckiest, because it wasn't just the fiction I heard about. Brian told the most incredible stories: of days when he and his contemporaries were writing books that would become classics of the genre, of evenings out among other giants of literature, and of much cheekier tales, always told with a smile and twinkle in his eye. It is with great sadness that we say farewell to such a beloved author and I am so proud I was able to publish him even briefly."

A friend and drinking companion of Kingsley Amis, Aldiss counted CS Lewis and JRR Tolkien among his correspondents. His death was marked by names from across the science fiction writing community.

Adam Roberts said he was "very sad" about Aldiss's death, "though 92 is not a bad innings". He added: "I grew up reading him: Hothouse in particular had an immense impact on me as a youngster, and the short story 'Who Can Replace a Man?', and inspired me with the desire to be a science fiction writer myself... He wrote many kinds of things, from mainstream novels to memoir and poetry, but it is as a grandmaster of science fiction that he will be remembered – a giant of the genre."

"Aldiss was one of the greats. I remember staying up all night as a teenager to read a tattered copy of Hothouse, before I even knew who he was. And the shock of Helliconia Spring, which was like nothing I'd read before," said Jon Courtenay Grimwood. "He was stubborn, stroppy, and an inveterate raconteur, and it seemed sometimes that there was no great writer, from TS Eliot to Kingsley Amis to Dylan Thomas, that he hadn't known or hadn't been drinking with. He liked to shock, at least it seemed to me he did, and I'm not sure he ever really thought of himself as an SF novelist; more as a novelist who often wrote science fiction. Very good science fiction, obviously."

Editor-at-large at Eye Books Scott Pack, who published a range of Aldiss's backlist and new fiction while he was at HarperCollins, said that the novelist's "passion for writing was tremendously infectious". "Every time I met with him, he would want to talk about the story, novel or poem he was working on that day – and he did try to write every single day, even into his 90s. I will miss his great warmth, enthusiasm and wit very much indeed."

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

Re: Monuments

From: "Donna Cuzzort" donnacuzzort@gmail.com

I'm not opposed to the Confederate flag because I view it as a part of our history. As I see its removal as trying to wipe out part of History. The fact is the Civil War happened and it was for more reasons than slavery. I think people tend to forget that. It's not a symbol of pride but a symbol of History. There's a reason they call it the bloodiest war. People think the Vietnam War was bad and it was but the Civil War was much bloodier. Another fact that I think some people tend to forget. This is just the way a few things people can be offended

or not I really don't care. Everyone can voice their opinion it doesn't mean I have to agree with them either.

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Well said Donna. Well said. VT

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

Re: Monuments

From: Mary Ann van Hartesveldt vanhart@bellsouth.net

George and Thomas Jefferson were building this country. The Confederates tried to destroy the Union. They should not be revered.

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

Re: Monuments

From: "Jerry Pournelle" jerryp@jerrypournelle.com

The Taliban likes to tear down historical monuments. So does ISIS. Perhaps it's time for us to get on board the flywheel of history? Of course there may not be much history left when everyone has had their turn eliminating it.

I'll be at DragonCon next week.

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

Re: Monuments

From: "Karen Boyd" abtales@comcast.net

If you have to, put the statues that are so controversial in the Museums, where those with a love of History with all it's ugly reminders that America evolves but it started here, can be viewed by those who want to view them or revere them or learn from them.

As for the crosses etc., this country has a long history of religious tolerance, so tough, find another route home or to work, where you don't have to pass a certain something that offends you.
It's like porn or other situations in the shadows, if it's not for you, don't look, or listen, or try it.

BTW, T - your solution to those issues is absolutely spot on!

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

From: "Frank Brayman" afranklin3@gmail.com

The graveside service just barely finished, when there was massive clap of thunder, followed by a tremendous bolt of lightning, accompanied by even more thunder rumbling in the distance. The little old man looked at the pastor and calmly said, 'Well, she's there...

****

There's an old Irish folk song called "The Farmer's Curst Wife" with the same general theme. One version (not this one) includes the lyric "She was six days goin' o'er, an' one day comin' back."

Irish version:
https://www.youtube.com/watch?v=_gxtW5n2Tho

Appalachian version:
https://www.youtube.com/watch?v=xQ8iVIIFCXg

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

From: "Allen Lakner" allen@nehifirearmstraining.com

Hi Uncle Timmy,

Everyone in my family enjoys The Revenge. I thought I'd share a few jokes with you, located in various periodicals. The joke from Café Racer Magazine is scanned and attached.

These others appeared in the Orange Peel Gazette:

THE ARMOR OF GOD
An elderly woman had just returned to her home from an evening religious service when she was startled by an intruder. As she caught the man in the act of robbing her home of its valuables, she yelled, "Stop! Acts 2:38!" [Turn from your sin]

The burglar stopped dead in his tracks. Then the woman calmly called the police and explained what she had done.

As the office cuffed the man to take him in, he asked the burglar, "Why did you just stand there? All the old lady did was yell a scripture at you."

"Scripture?" replied the burglar, "She said she had an axe and two .38s!"

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REPORT CARD TIME
The little boy wasn't getting good marks in school. One day he made the teacher quite surprised.

He tapped her on the shoulder and said...

"I don't want to scare you, but my daddy says if I don't get better grades... somebody is going to get a spanking..."

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

From: "Mike Waldrip" waldripk@gmail.com

"For better digestion – I drink beer. In the case of appetite loss, I drink white wine. In the case of low blood pressure, I drink red wine. In the case of high blood pressure, I drink scotch. And when I have a cold, I drink Schnapps."
"When do you drink water?"
"I've never been that sick.

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

Don't Be a Florida Man

In a novel I was reading lately it said something like this:

"You don't want to be a Florida man".

"Why?"

"Because it seems every other day there is a headline saying, "And in Florida today....

"A man was taken to the hospital for the removal of a small rodent from his #$%

"A man shot his brother-in-law who he mistakenly identified as bigfoot"

We've all seen or heard these things but I believe the following takes the cake. I assume this person was a proud graduate University of Florida.

Read all about it.....

FLORIDA: ZOO EMPLOYEE KILLED WHILE ATTEMPTING TO RAPE AN ALLIGATOR..

http://everythingnews.net/florida-zoo-employee-killed-while-attempting-to-rape-an-alligator/

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

https://patriotpost.us/humor/50956

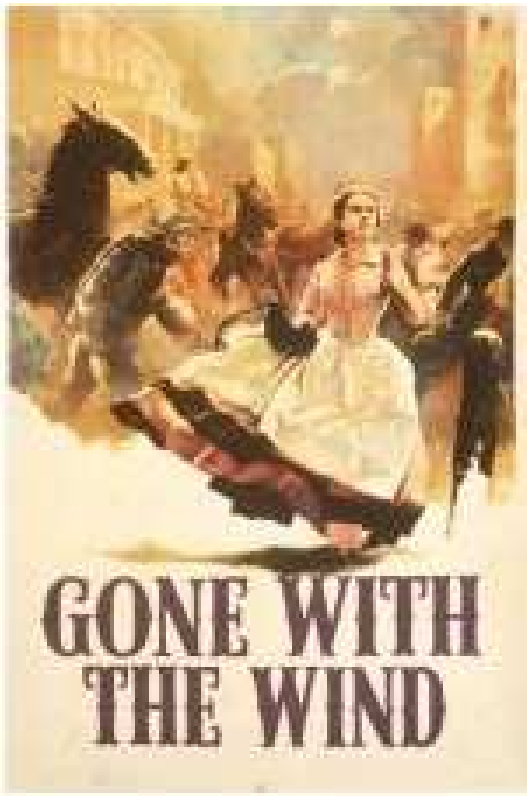
<YOU>~<>~<JUST>~<>~<CAN'T>~<>~<MAKE>~<>~<THIS>~<>~<STUFF>~<>~<UP!>

YOU JUST CAN'T MAKE THIS STUFF UP!

From: "Tim Bolgeo" tbolgeo@epbfi.com

Orpheum theater won't show 'Gone With the Wind,' calling film 'insensitive'

POSTED 1:53 PM, AUGUST 25, 2017, BY DAVID ROYER, UPDATED AT 02:21PM, AUGUST 25, 2017
http://wreg.com/2017/08/25/orpheum-theater-wont-show-gone-with-the-wind-calling-film-insensitive/



MEMPHIS, Tenn. — "Gone With the Wind" will be gone from The Orpheum's summer movie series, the theater's board said Friday.

The Orpheum Theatre Group decided not to include the 1939 movie about a plantation in the Civil War-era South in its 2018 Summer Movie Series after feedback from patrons following the last screening Aug. 11.

"As an organization whose stated mission is to 'entertain, educate and enlighten the communities it serves', the Orpheum cannot show a film that is insensitive to a large segment of its local population," the theater's operators said in a statement.

Memphis' population is about 64 percent African-American.

The historic theater in Downtown Memphis has shown the movie for decades, but this year's event "generated numerous comments," leading to the decision.

"While title selections for the series are typically made in the spring of each year, the Orpheum has made this determination early in response to specific inquiries from patrons," the Orpheum group said.

The theater's 2018 movie series will be announced in the spring and will contain classic films and more recent blockbusters.

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SHE WHO MUST BE OBEYED is devastated! 'Gone With The Wind' is her favorite movie of all times only to find out it racist. I think they are taking this stuff a little too far. And SWMBO would agree with me. Ut

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

FORGET LEE, WASHINGTON; CHRIST STATUE MUST GO FROM CATHOLIC SCHOOL

by IAN MASON, Aug 2017
http://www.breitbart.com/big-government/2017/08/26/forget-lee-washington-christ-statue-must-go-catholic-school/

JOSEPH EID/AFP/Getty Images

San Domenico School, a nominally Catholic institution in San Anselmo, California, has removed the vast majority of its Christian statues and icons as "an effort to be inclusive of all faiths."

The iconoclasm comes as a nationwide war rages to erase from public spaces historical symbols some people find offensive. San Domenico officials told the Marin Independent Journal that their "strategic plan," which includes removing the word "Catholic" from the school's mission statement, has nothing to do with the events this month in Charlottesville or the wider controversy about historical monuments.

"[P]eople have a hard time with change," San Domenico board of trustees chairwoman Amy Skewes-Cox said, denying the plan, which does not see the removal of all but 18 of the school's 180 religious symbols as having anything to do with the campaign against Confederate monuments. "If you walk on the campus and the first thing you confront is three or four statues of St. Dominic or St. Francis, it could be alienating for that other religion, and we didn't want to further that feeling."

Artifacts removed include a statue of the Virgin Mary holding the Christ once prominently placed in the school's center courtyard. "The one main statue that has everyone fired up is the baby Jesus and Mary one," Kim Pipki, a mother who withdrew her child from San Domenico said. "People were shocked that the statues were pitched in the basement."

Other parents were similarly upset. Another San Domenico mother, Shannon Fitzpatrick, described it as follows:

Articulating an inclusive foundation appears to mean letting go of San Domenico's 167-year tradition as a Dominican Catholic school and being both afraid and ashamed to celebrate one's heritage and beliefs.

In our time here, the word 'Catholic' has been removed from the mission statement, sacraments were removed from the curriculum, the lower school curriculum was changed

to world religions, the logo and colors were changed to be 'less Catholic,' and the uniform was changed to be less Catholic.

The removal of historical markers in an effort to appease allegedly offended minorities became a craze on the political left long before Charlottesville but has spun into a hysteria in the last few weeks. Confederate memorials, ostensibly the cause of the craze, were quickly left in the dust, replaced by controversy over the slave-owning presidents George Washington, Thomas Jefferson, and Andrew Jackson. Discoverer of the New World Christopher Columbus is the latest target.

No American popular majority exists for removing Confederate monuments, let alone other historical, and, in this case, religious statues that allegedly offend.

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As a Catholic with 17 years of a Catholic Education, I am the one that is offended by this act of disrespect. Maybe these crazy ass liberals who are offended by these statues are what should be removed. VT

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

From: "Tim Bolgeo" tbolgeo@epbfi.com

ELON MUSK JUST UNVEILED THE SPACEX SPACESUIT

*** Elon Musk reveals his SpaceX spacesuit.**
*** The suit features a unique helmet design.**
*** It appears to be more of a flight suit than one designed for spacewalks.**

Todd Haselton | @robotodd, August 23, 2017
https://www.cnbc.com/2017/08/23/spacex-spacesuit-unveiled-by-elon-musk.html
Elon Musk just unveiled the SpaceX spacesuit

Elon Musk unveiled the SpaceX space suit on Wednesday.

Musk posted a picture of the suit to Instagram, where he made sure to alert his followers that it "actually works."

"First picture of SpaceX spacesuit," Musk said. "More in days to follow. Worth noting that this actually works (not a mockup). Already tested to double vacuum pressure. Was incredibly hard to balance esthetics [sic] and function. Easy to do either separately."

The suit features a helmet and what appears to be a low-weight design. Given that it doesn't look as bulky as NASA's spacewalk suits, this is probably more of a flight suit meant to be worn by passengers traveling inside the ship rather than for spacewalks.

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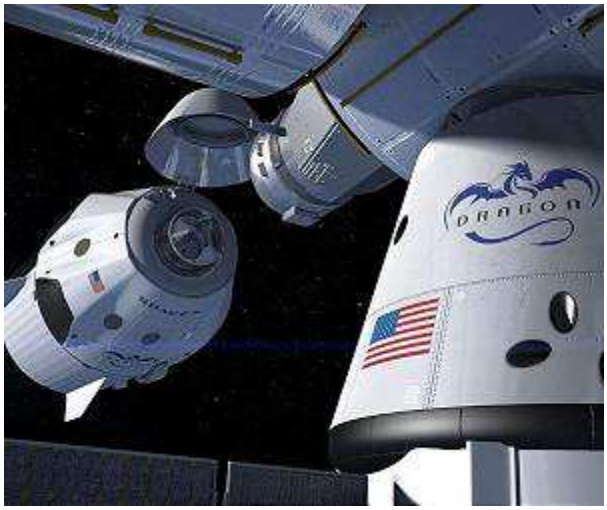

THE PHANTOM LUNAR DRAGON

by Morris Jones for SpaceDaily, Sydney, Australia (SPX) Aug 23, 2017
http://www.spacedaily.com/reports/The_Phantom_Lunar_Dragon_999.html

Artwork depicting the crewed Dragon spaceship docked at the ISS

In February, SpaceX announced plans to send a crewed Dragon capsule on a private circumlunar mission in late 2018. The announcement caught most of the space community by surprise. It was a bold plan for a company that hasn't even flown astronauts into Earth orbit, but SpaceX founder Elon Musk is famous for thinking big.

The circumlunar mission was tame compared to his bold plan to colonize Mars, which has received so much attention. Also, much of the groundwork was well established for the lunar mission.

SpaceX has already flown several uncrewed Dragon cargo missions to the International Space Station. The Falcon Heavy rocket that would be used for a lunar mission was also in development, and draws on the design heritage of the highly successful Falcon 9 rocket.
So SpaceX could probably do such a mission in the near future, even if the announced timeframe was too tight. Give them a few more years, and such a mission could be feasible.

Since then, SpaceX has been silent on the subject. The Dragon capsule that would be needed for such a flight is slipping in its development schedule. Recently, SpaceX changed plans for a powered Dragon landing with rocket thrusters to a conventional parachute-aided splashdown, just like current Dragon cargo spacecraft.

We don't really know when the first astronauts will ride aboard a Dragon capsule, as the schedule keeps changing. Currently, it's slated for some time in 2018. But SpaceX can't really send astronauts to the Moon without such a test flight. Even if the Dragon carries its first crew on time, scheduling for a lunar mission would be very tight.

We are also awaiting the debut of the new Falcon Heavy rocket. If all goes well, it should make its first flight before the end of this year. It's highly probable that the maiden launch of this big launch vehicle will work, but we can't really be sure. A loss of the vehicle or an underperformance of its thrust levels will set the program back.

All things considered, it would seem difficult for SpaceX to send astronauts to the Moon in 2018. The announcement seemed overly ambitious when it was originally made. As problems arise at SpaceX, it seems increasingly unrealistic.

That's not to suggest that this mission can't be done at some point. Once SpaceX has chalked up considerable experience with a debugged Falcon Heavy rocket and crewed Dragon spacecraft, the mission will be feasible. But reaching that point will take time.

SpaceX should really say something about this. They should admit that the project won't meet its original deadline. They should also tell us if the Lunar Dragon is still a going concern. We would really like to know. Elon Musk is not afraid to speak his mind. It's time for him to step up to the podium again.

We all want to see humanity return to the Moon. SpaceX is well on the way to achieving this goal. But it's time for some hard facts to set into the program and the publicity.

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CINNAMON: PANTRY STAPLE -- AND MEDICAL POWERHOUSE?

By Sandee LaMotte, CNN,,Updated 0828 GMT (1628 HKT) August 24, 2017
http://edition.cnn.com/2017/08/24/health/cinnamon-health-benefits/index.html

(CNN)Cinnamon is one of the world's most popular spices, sprinkled on lattes, boiled with ciders and enjoyed in numerous dishes. Without it, Thanksgiving and Christmas meals might well become tasteless and definitely less fragrant.

Harvested from the inner bark of a tropical evergreen plant, cinnamon has been used in Ayurvedic medicine to treat respiratory and digestive problems for centuries. Ancient Egyptians used cinnamon as a perfume during the embalming process, while Romans used it in funeral pyres to mask the stench of burning flesh.

The Bible mentions cinnamon several times, most commonly as a way to perfume bedding, clothes and anointing oil. The essential oil form is made from the bark, leaves or twigs of the plant.

But it's cinnamon's use as a medicinal agent that has scientists buzzing, trying to determine just how well its antioxidant capabilities might work to better our health.

"Medicine started as herbs and plants," said Lauri Wright, a spokeswoman for the Academy of Nutrition and Dietetics. "So it almost comes full circle, as we're now going back and proving what some of these plant substances may do for health."

NOT ALL CINNAMON IS CREATED EQUAL

There are two basic types of cinnamon. Ceylon, or Cinnamomum verum, is grown in Sri Lanka. C. cassia, C. loureiroi and C. burmannii, communally known as cassia, are widely produced in China and Indonesia. Cassia has the stronger flavor and odor of the two and, due to its much lower cost, is what we buy in the store to sprinkle on our food.

But it's the more expensive Ceylon version, with a milder, sweeter flavor, that might be the best for your health.

Cassia can contain relatively high concentrations of coumarin, a plant compound that can damage the liver. A study of 91 cinnamon samples from various stores in Germany found 63 times more coumarin in cassia cinnamon powder than Ceylon powder. Cassia sticks, which look like a thick layer of rolled bark, also contained 18 times more coumarin than Ceylon sticks, which have thin layers.

"A challenge with some of these herbal solutions, because they are not a regulated drug, is that you don't know exactly what you are getting," said registered dietitian Melinda Maryniuk, who serves on the professional practice committee for the American Diabetes Association. "A lot of things affect the makeup of the product: where it's grown, the soil, growing conditions, even how the spice was stored and dried."

That problem also plagues research on cinnamon. Scientists have used different doses, species and compounds of the spice for their research.

"The doses have varied greatly among the studies, from less than 1 gram to levels that would be toxic in humans," Wright said. "The duration of taking the capsules has also varied greatly. That's the problem with translation of all of this work. Even when we find positive results, how do we come up with the correct compounding and dosage for maximum safety?"

Keep that in mind as you read on about where science stands on cinnamon.

DIABETES AND CHOLESTEROL

"I think the strongest evidence lies so far with diabetes and the promise of cinnamon and blood sugar control," Wright said, pointing to studies in test tubes and mice and even small studies in people showing that cinnamon helps with insulin sensitivity and glucose transport while decreasing inflammation.

"A lot of the studies have been in postmenopausal women and men of that age," said biochemist Amy Stockert, who studies cinnamon at Raabe College of Pharmacy at Ohio Northern University. "Some have found positive effects; other studies have not."

Stockert co-authored a small study of 18 people with type 2 diabetes that showed the cassia species of cinnamon was more effective than diet alone in lowering blood glucose levels. In fact, her study found that it was comparable to oral diabetes medications.

Another study of 60 people with type 2 diabetes found that small doses of cinnamon reduced blood sugar levels and improved LDL, or "bad" cholesterol, triglycerides and total cholesterol.

"I like the fact that the amount that showed benefits for blood sugar and cholesterol in that study was 1 to 6 grams, which is the range of half-teaspoon to three teaspoons, or one tablespoon, so it's easy to sprinkle on cereal or in yogurt or use in recipes," said registered dietitian Lisa Drayer, who writes about nutrition for CNN. The Food and Drug Administration's recommended limit is 6 grams a day.

But while the future looks promising, the American Diabetes Association urges caution.

"The ADA believes there's not enough evidence," Maryniuk said. "A 2013 meta-analysis, which is one of the most rigorous of reviews, found that cinnamon had no impact on hemoglobin A1c levels, which is what we look at to measure how well blood sugar is being controlled over time. If that had gone down, I'd be more impressed."

Still, if you want to see whether cinnamon works for you, Maryniuk suggests that people with type 2 diabetes do a self-test.

"Do some paired blood glucose testing," she said. "Use a half a teaspoon in the morning, on fruit or oatmeal or in coffee, and see what happens to your blood sugar levels before and after you eat. Check again two to three hours later and see if there's a difference.

"But keep taking your medicine," she warned. "You don't want to try something to the exclusion of the medicine you're taking."

"We still need a bit more work before we roll this out," Wright agreed. "And you must be careful to work with your doctor when using cinnamon with diabetes medications, as it might drop your blood sugars too low."

DEMENTIA, HIV, CANCER AND MORE

The antioxidant properties of cinnamon are also being studied for their impact on the formation of the plaques and tangles of Alzheimer's disease and other dementias. Cinnamaldehyde, a compound responsible for the spice's sweet smell, and epicatechin, a powerful antioxidant that's also in blueberries, red wine and chocolate, seem to offer some protection against the oxidative stress that damages tau, a key player in the development of dementia.

Another study found a component of Ceylon cinnamon to have the same effect. However, research has occurred only in mice, rats and laboratory Petri dishes.

"It appears to work as an anti-inflammatory or antioxidant, protecting the body on a cellular level from bad things that happen," Wright said, "by getting rid of waste products and keeping the cells healthy."

Cinnamon and other traditional Indian medicinal plantsare also being tested in the fight against HIV. One study found that green tea, elderberry and some extracts of cinnamon rich in flavonoids blocked the virus from entering and infecting certain cells.

"That's how AZT works, which is one of the early HIV drugs," said Wright, who specializes in nutrition for infectious disease at the University of South Florida. "And while that's interesting, what I would hate is that patients will use cinnamon and other supplements instead of their HIV medications.

"Having worked with many HIV clients over the years, I know there's definitely a big interest in supplements," she said. "But I would always caution them to always use the meds that we know work, that have been tested and dosed, and then look carefully to make sure there are no conflicts with any additional supplements."

The research on cinnamon doesn't stop there. Ceylon cinnamon has also been associated with cancer-fighting properties in rodents, anti-parasitic effects, improved diabetic neuropathy, lower blood pressure and wound healing, including liver damage. Studies have shown that solutions of cinnamon oil can kill a number of common bacteria, such as streptococcus and E. coli. The National Center for Complementary and Integrative Health is investigating cinnamon's impact on multiple sclerosis.

Using a computer model, biochemist Stockert found that cinnamon was as effective as resveratrol, an antioxidant in red wine known for anti-aging and disease-fighting properties, in activating SIRT-1 -- also known as the longevity gene because of its role in repairing DNA.

"In some cases, it did better than resveratrol," Stockert said. "We're talking anti-cancer, anti-aging, a very, very big deal if that is what is going on."

CINNAMON AS HEALTH AID

Based on all this preliminary research, the potential of cinnamon seems enormous. But experts caution that it's still too early in the scientific process to suggest cinnamon as a daily supplement.

"I don't recommend capsules. There's not enough science to tell us to take capsules," Wright said.

"You are affecting your body's signaling," Stockert said, "and that's significant. We're at an early stage in research where we don't know how cinnamon will affect most people. Is it healthy to cook with spices and use them liberally? I'm sure that's fine. But I would be cautious about taking any supplements on their own."

"I think the bottom line is that cinnamon is a perfect pantry staple, a pleasant spice that can add flavor to foods for minimal calories, with antioxidant properties that may give an edge to those looking to better control their blood sugar," Drayer agreed. "But we need to see more research before we can make any solid health claims linking cinnamon to reduce risk of disease or improved health."

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MINOTAUR LAUNCHES AMID REKINDLED DEBATE OVER SURPLUS ICBM MOTORS

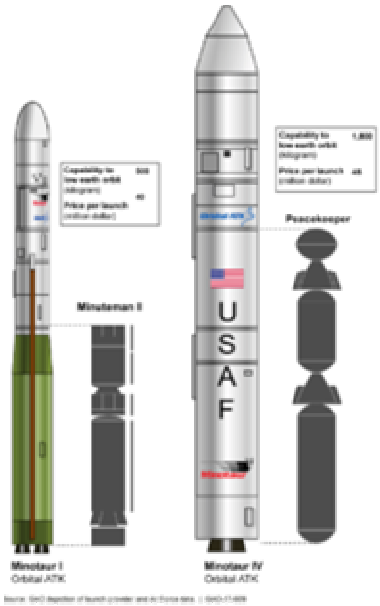
by Mike Fabey — August 24, 2017
http://spacenews.com/minotaur-launch-gao-report-rekindles-debate-over-surplus-icbm-motors/

Weather pushed the scheduled Friday night launch of Orbital ATK's Minotaur 4 into early Saturday morning.

WASHINGTON — An Orbital ATK Minotaur 4 rocket lifted off from Cape Canveral, Florida, early Saturday morning, carrying the U.S. Defense Department's Operationally Responsive Space (ORS)-5 satellite. The launch comes as a debate is flaring up again about whether companies should be able to use converted surplus intercontinental ballistic missile (ICBM) motors to launch commercial satellites.

Rekindling the argument is a U.S. Government Accountability Office (GAO) report released this month examining the pros and cons of such a course and provides plenty of fodder for both sides.

While surplus ICBM motors can be used for government launches like the one Orbital ATK conducted this morning, the 1998 Commercial Space Act forbids their use for commercial launches. The U.S. Air Force has a stockpile of about 720 surplus motors, the GAO says in its Aug. 16 report, "Surplus Missile Motors, Sale Price Drives Potential Effects on [Defense Department] and Commercial Launch Providers."



Changing the law to allow the use of surplus ICBM motors for commercial space launch could give U.S. companies more domestic options for sending small satellites to low-Earth orbit while making U.S. launch companies more globally competitive, the GAO says. Commercial rockets used surplus ICBM solid rocket motors could also provide launch customers with more service options and greater schedule flexibility, according to the report.

Surplus Intercontinental Ballistic Missile Motor-Based Launch Vehicles. Credit: U.S. Government Accountability Office

But the GAO notes the sole beneficiary of such a policy change appears to be Orbital ATK, currently "the sole U.S. provider of ICBM motor-based space-launch vehicles."

The Minotaur 1, first launched in 2000, uses two surplus

Minuteman 2 motors and the Minotaur 4, first launched in 2010, uses three Peacekeeper motors.

After waiting out a weather delay, Minotaur 4 lifted off Aug. 26 at at 2:04 a.m. EDT from Cape Canaveral's revamped Complex 46, which was last used for a launch in 1999 amd is next scheduled for launch use in 2019 when NASA tests the Orion crew capsule's abort system.

The launch was Minotaur's first from Florida. Previous Minotaur launches have been conducted from Alaska, California and Virginia.

The Minotaur 4 carried the Air Force's 113-kilogram ORS-5 satellite, known as SensorSat, into a low-inclination orbit from where it will track satellites and other space objects in higher orbits. The ORS-5 system cost $87.5 million, the Air Force says, including $49 million for the satellite and $11.3 million for its ground system. Orbital ATK's $27.2 million launch contract, awarded in 2014 after no other launch venture was deemed qualified to bid, was about $7 million more than ORS officials initially expected to spend to put ORS-5 in orbit.

Orbital ATK's competitors are concerned, though, that relaxing restrictions on surplus ICBM motors could help Orbital ATK drive down costs for commercial launches of small satellites. The company is already pushing its Minotaur-C, an upgraded Taurus rocket whose only scheduled flight is an Oct. 18 launch from Vandenberg Air Force Base, California, with six SkySat Earth-observation satellites for commercial-imaging company Planet.

Orbital ATK builds Castor 120 motors in house for the Minotaur-C but wants to replace them with surplus Peacekeeper motors in order to offer cheaper commercial launches, said Barron Beneski, Orbital ATK vice president of corporate communications. "Whether it would be a Minotaur-C or something we would rebrand, I don't know."

Some in the launch industry, GAO notes, say that if the Air Force is allowed to sell the surplus motors, it should offer the Peacekeeper motor set at the market price of the Castor 120 they would replace, or about $11.2 million. But at least one party – Orbital ATK won't say if it was them – told government officials the Air Force should sell a Peacekeeper motor set for $1.3 million, significantly less than what it would cost the Air Force to refurbish and transfer the motors to Orbital ATK.

While it looks like the Air Force likely would not offer the motors at such a cut-rate price — there are concerns any below-cost pricing would violate U.S. international trade agreements — launch competitors fret that any kind significant savings the government would offer could send the wrong signal to the reemerging U.S. commercial launch industry.

"This is exactly the wrong time to start intervening in the commercial launch industry," said Richard DalBello, vice president for business development and government affairs for Virgin Orbit, a Long Beach, California company targeting the small-satellite market with an air-launched rocket. "Especially in a way that can pick winners and losers."

"The GAO points out a change in policy could have a significant negative result," said DalBello, who helped organize the Next-Generation Launch Coalition, a group of companies that oppose relaxing the restrictions on surplus motors.

Beneski said if Orbital ATK were permitted to buy the surplus motors for commercial launches, it would agree to a case-by-case review process meant to ensure the company wasn't given unfair advantage in commercial launch competitions.

Beneski also said Minotaur-class rockets are generally overpowered for small satellite launches, adding that Orbital ATK would be going after customers needing to launch satellites weighing at least 1,000 kilograms.

Still, Department of Commerce officials have warned that allowing broader motor sales could disrupt competition by lowering costs for a select group of launch providers. NASA officials told the GAO that allowing motor sales may stifle commercial space innovation.

But Beneski said U.S. launch providers that have been losing cubesat contracts and other small payload customers to foreign competitors should not fear the Minotaur rocket family, which is meant for bigger payloads.

"What they are worried about is secondary payloads," Beneski said "We're not their competition. India just launched a hundred of them."

In February, India's PSLV rocket launched 101 cubesat-class spacecraft — 88 for San Francisco-based Planet and eight for neighbor Spire — into addition to the primary payload, the Cartosat-2D imaging satellite, and two smaller Indian satellites.

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ULA TO LAUNCH DREAM CHASER FOR CARGO RUNS TO ISS FOR SIERRA NEVADA

by Staff Writers, Centennial CO (SPX) Jul 21, 2017
http://www.spacedaily.com/reports/ULA_to_launch_Dream_Chaser_for_cargo_runs_to_ISS_for_Sierra_Nevada_999.html

In 2016, Dream Chaser was selected by NASA under the CRS2 contract to transport pressurized and unpressurized cargo to and from the ISS with return and disposal services.

Sierra Nevada Corporation (SNC) announced that it selected United Launch Alliance's (ULA's) commercially developed Atlas V rocket to launch the first two

missions of its Dream Chaser cargo system in support of NASA's Cargo Resupply Services 2 (CRS2) contract.

"ULA is pleased to partner with Sierra Nevada Corporation to launch its Dream Chaser cargo system to the International Space Station in less than three years," said Gary Wentz, ULA vice president of Human and Commercial Systems.

"We recognize the importance of on time and reliable transportation of crew and cargo to Station and are honored the Atlas V was selected to continue to launch cargo resupply missions for NASA."

The two awarded Atlas V missions will carry pressurized and unpressurized cargo to the International Space Station (ISS). The first mission is set to lift off in 2020 from Space Launch Complex 41 at Cape Canaveral Air Force Station, in Florida. The second contracted mission is scheduled to lift off in 2021. Dream Chaser will launch atop an Atlas V 552, with a dual engine Centaur upper stage.

"SNC recognizes the proven reliability of the Atlas V rocket and its availability and schedule performance makes it the right choice for the first two flights of the Dream Chaser," said Mark Sirangelo, corporate vice president of SNC's Space Systems business area.

"ULA is an important player in the market and we appreciate their history and continued contributions to space flights and are pleased to support the aerospace community in Colorado and Alabama," added Sirangelo.

The Atlas V has received NASA's highest and most rigorous Category 3 Certification, which allows the Atlas V family of launch vehicles to fly NASA's most complex and critical missions.

The Dream Chaser spacecraft has been in development for more than 10 years, including six years as part of NASA's Commercial Crew Program and leverages more than 40 years of NASA spaceflight and space shuttle heritage.

In 2016, Dream Chaser was selected by NASA under the CRS2 contract to transport pressurized and unpressurized cargo to and from the ISS with return and disposal services.

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ARCHEOLOGISTS DECIPHER ANCIENT BABYLONIAN TRIGONOMETRY TABLET

Michael Irving August 24, 2017

It's long been accepted that the ancient Greeks were responsible for developing the mathematical concept of trigonometry, but a new discovery indicates they weren't the first to figure it out after all. Scientists from the University of New South Wales (UNSW) have shed light on the purpose of a mysterious clay tablet containing a trigonometric table created by the Babylonians a full 1,000 years earlier than Pythagoras – and it's more accurate than our techniques today.

Plimpton 322, a 3,700-year old clay tablet, has been found to be the world's oldest and most accurate trigonometric table (Credit: UNSW/Andrew Kelly)

The tablet – a small clay slab known as Plimpton 322 – was discovered in the early 20th century in southern Iraq, and currently resides in the Rare Book and Manuscript Library at Columbia University in New York. It's inscribed with numbers in four columns and 15 rows, using a base 60 system similar to the one we use to measure time. These numbers are arranged in what we now call Pythagorean triples, sets of three numbers that can form the equation a2 + b2 = c2.

"Plimpton 322 has puzzled mathematicians for more than 70 years, since it was realised it contains a special pattern of numbers called Pythagorean triples," says Daniel Mansfield, co-author of the study. "The huge mystery, until now, was its purpose – why the ancient scribes carried out the complex task of generating and sorting the numbers on the tablet."

For decades, the commonly-held answer to the riddle was that Plimpton 322 was used by teachers to check their students' answers to geometric problems. But the UNSW researchers noticed similarities between the numbers on the tablet and rational trigonometry, an emerging branch of mathematics.

"Our research reveals that Plimpton 322 describes the shapes of right-angle triangles using a novel kind of trigonometry based on ratios, not angles and circles," says Mansfield. "It is a fascinating mathematical work that demonstrates undoubted genius. The tablet not only contains the world's oldest trigonometric table; it is also the only completely accurate trigonometric table, because of the very different Babylonian approach to arithmetic and geometry."

Long before the advent of electronic calculators, trigonometric tables were the easiest way to solve certain geometric problems. Essentially, users can take a known ratio of the sides

of a right-angle triangle and use it to figure out the two unknown ratios. This technique was long attributed to the Greek astronomer Hipparchus, who developed the circular "table of chords" in around 120 BCE. But Plimpton 322 has been dated back to between 1822 and 1762 BCE.

UNSW's Daniel Mansfield, holding the Plimpton 322 tablet (Credit: UNSW/Andrew Kelly)

"Plimpton 322 predates Hipparchus by more than 1,000 years," says Norman Wildberger, co-author of the study. "It opens up new possibilities not just for modern mathematics research, but also for mathematics education. With Plimpton 322 we see a simpler, more accurate trigonometry that has clear advantages over our own."

The key to the tablets' accuracy is the base 60 arithmetic, which the researchers say allowed the ancient Babylonians to divide numbers more neatly than our base 10 system can handle. Their studies indicate that the tablets' 15 rows describe a series of 15 right-angle triangles of decreasing inclination. It's broken along the left-hand side, and the team says it most likely used to contain an extra two columns, and a total of 38 rows.

"Plimpton 322 was a powerful tool that could have been used for surveying fields or making architectural calculations to build palaces, temples or step pyramids," says Mansfield.

This finding indicates the ancient Babylonians were mathematically far more advanced than we might give them credit for, and the scientists say that studying other artefacts could reveal similar secrets.

"A treasure-trove of Babylonian tablets exists, but only a fraction of them have been studied yet," says Wildberger. "The mathematical world is only waking up to the fact that this ancient but very sophisticated mathematical culture has much to teach us."

The research was published in the journal Historia Mathematica, and the team describes the find in the video below.

Source: UNSW

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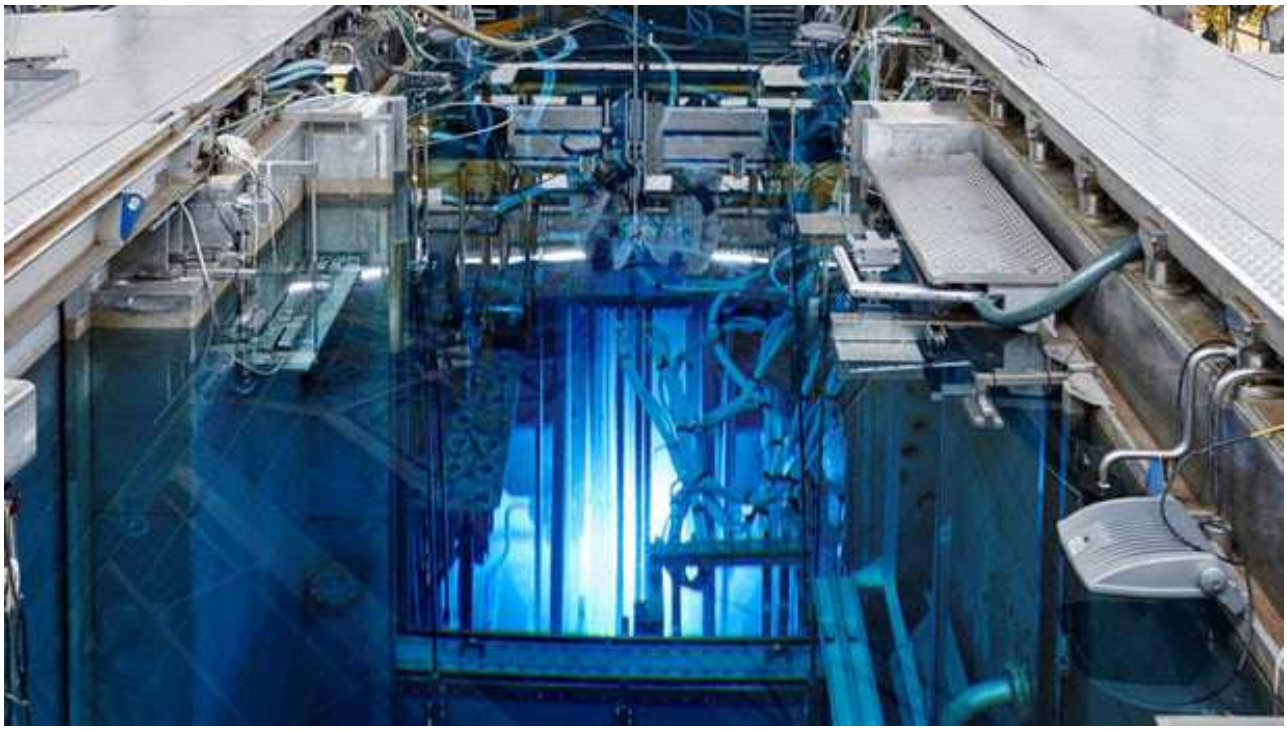
THORIUM SALT REACTOR EXPERIMENTS RESUME AFTER 40 YEARS

David Szondy August 24, 2017
http://newatlas.com/author/david-szondy/



This is the first thorium salt experiment since the 1970s (Credit: Thorium Energy World)

Scientists at the Nuclear Research and Consultancy Group (NRG) the Netherlands, are looking back to the 1970s to meet the energy needs of the future. For the first time since 1976, the NRG team is conducting experiments in thorium molten salt reactor technology that could lead to cleaner, safer nuclear reactors capable of supplying energy on a global scale.

In a world marked by strong political pressure to create a carbon-neutral economy, nuclear energy seems like an ideal alternative. Despite their reputation, nuclear reactors have a remarkable record for reliability, produce carbon emissions that are lower than even wind

and solar when construction, operation, and life cycles are taken into account, and have the lowest fatality rate per watt of any competitor.

However, nuclear power does suffer from four major drawbacks. First, the uranium needed to power reactors is rare and expensive to process. Second, the technology to produce nuclear fuel can also be adapted to create weapons. Third, there is the danger in older reactor designs of an unlikely, but frightening catastrophic meltdown. And fourth, no one has come up with a long-term nuclear waste disposal strategy that is acceptable to everyone.

One way of overcoming these issues is to replace the uranium and the plutonium derived from it with a different fissile material. Since the 1940s, the most attractive alternative has been thorium. Unlike uranium, thorium is abundant and widespread, it doesn't require the sort of elaborate enrichment process that uranium needs, and it isn't easily made into bombs. In addition, thorium reactors have an inherently safe design that shuts down if the reaction goes out of control, and the radioactive waste products from thorium are relatively short lived – becoming harmless in only a matter of centuries.

The main obstacle is that thorium can't achieve critical mass on its own. If you take enough uranium that's been refined to fuel grade and stack it together, the amount of neutron radiation released will start a chain reaction that will cause the uranium atoms to split in a self-sustaining process. Unfortunately, thorium can't do this, so thorium fuel must be mixed with uranium or subjected to an outside neutron source to start the reaction cycle.

From the 1960s until 1976, the Oak Ridge National Laboratory in the United States carried out reactor experiments using thorium fluoride dissolved in a molten salt instead of solid fuel elements. Though the results were promising, that approach was abandoned. Since then, India, China, Indonesia, and others have been experimenting with thorium reactors and have toyed with the idea of using molten salts as fuel, but it wasn't until NRG took up the baton that the Oak Ridge approach was resumed.

The custom built test equipment showing the thorium salt in the center (Credit: Thorium Energy World)

Working in cooperation with the European Commission Laboratory Joint Research Center, NRG's SALt Irradiation ExperimeNT (SALIENT) is a multi-stage experiment aimed at turning Thorium Molten Salt Reactors (TMSR) into an industrial scale energy source with commercial possibilities.

According to advocacy group Thorium Energy World, the first phase of the experiment is focusing on removing the noble metals produced by the thorium fuel cycle. That is, the metals created in the steps in the nuclear fission process where the thorium transmutes into uranium before splitting to give off energy.

Once this has been achieved, the next step will be to determine how

well commonplace materials used in the construction of TSRMs stand up to the corrosive high-temperature salt mixture or to find alternatives to keep down maintenance and operation costs. These might include an alloy of nickel called hastelloy, or Titanium-Zirconium-Molybdenum (TZM alloy

The ultimate goal is to create TMSRs that are modular and scalable to meet local energy demand, yet provides 24-hour power that is available year round. In addition, using molten salts mean that refueling can take place while the reactor is still in operation, drastically reducing downtimes.

The video below introduces the SALIENT experiment.

Source: Thorium Energy World

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A RUSSIAN TANKER COMPLETES FIRST SOLO TRIP THROUGH THE ARCTIC OCEAN

By Nathaniel Scharping | August 24, 2017 2:33 pm
http://blogs.discovermagazine.com/d-brief/2017/08/24/russia-arctic-tanker/#.WaRFAyh95PY


The Christophe de Margerie. (Credit: Sovcomflot)

A Russian tanker ship has traversed the Arctic Ocean without the help of a separate icebreaker, marking a first for the Northern Sea Route.
The Christophe de Margerie made the journey from Norway to South Korea in 23 days carrying a shipment of liquefied natural gas (LNG), opening up the frigid route to sustained shipping traffic. Ships normally travel through the Suez Canal to reach Asia from Europe, a trip that takes some 30 percent longer. The ship, which has a reinforced hull allowing it to

travel through ice up to seven feet thick, is the first of 15 planned tankers to take advantage of retreating sea ice in the Arctic.

SAILING THE ARCTIC

The ship is owned by Sovcomflot, a Russian company specializing in fossil fuel transport, and will support a new LNG mining operation on the Yamal Peninsula in Siberia. As warming oceans have opened up Arctic waters, Russia has been aggressively pursuing mining operations in the region. Growing Asian markets have made the prospect of a short sea route lucrative, and changing conditions are making it feasible.

This marked the ship's first trip carrying a full load of cargo — it had previously made a trial run this past spring. Ships have completed the journey, which runs along the northern Russian coast, before, but only in the company of an icebreaker, and usually only between July and September. The updated fleet will make it possible to continue shipping year-round.

The move signals that energy companies expect sea ice retreat to continue, opening up further opportunities for resource extraction and transportation. Climate models certainly back that notion, as sea ice extent has been on a downward trend marked by spikes of extreme warming for at least the past decade, spurred, ironically, by the very fossil fuels that these ships will be carrying.

OIL UNDER THAT THERE ICE

The undiscovered reserves in the Arctic are estimated at around 90 billion barrels of oil, 17 trillion cubic feet of natural gas and 44 billion barrels of natural gas liquids, much of which is located in Russian territory. Russia estimates that shipping traffic will increase by a factor of 10 by 2020. Shipping in the region hit a peak in 2013, and has been on the decline ever since — though that could now change.

All of that motion in the ocean comes with potential dangers to the environment and to wildlife. Cargo ships can leak fuels into the environment, and give off sooty emissions that can increase ice melting rates. Increased shipping traffic poses a threat to marine wildlife as well, both through increased noise levels and the threat of collisions. This is on top of the inherently dangerous task of punching through thick ice floes in extreme conditions.

On the bright side, icebreakers are less likely to suffer damage at sea and spill millions of gallons of fossil fuels into the ocean, as almost happened in 2013, when a ship was struck by ice in the Matisen Strait and had to be rescued. The shorter journey also uses less fuel, although an uptick in shipping in the region would certainly offset that benefit.

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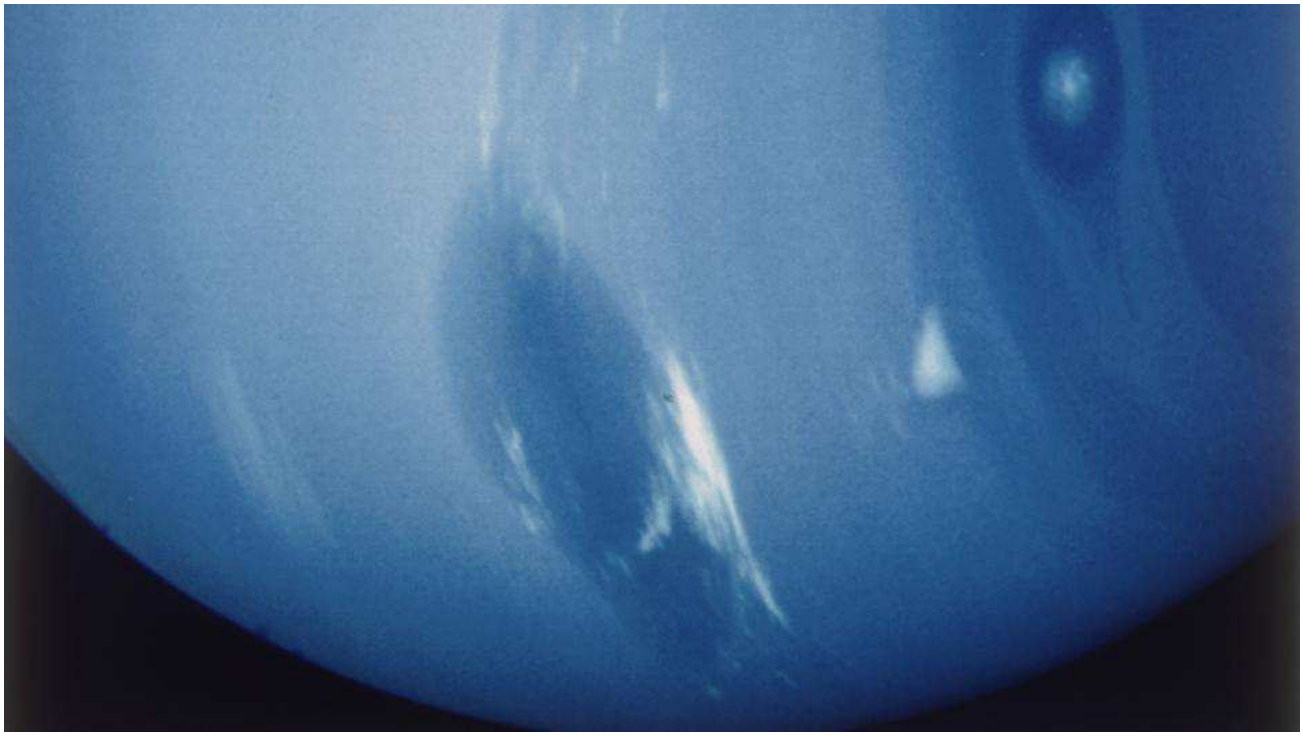
IT RAINS SOLID DIAMONDS ON URANUS AND NEPTUNE

Sarah Kaplan, Washington Post
http://www.chicagotribune.com/news/nationworld/science/ct-uranus-neptune-diamonds-20170825-story.html



Neptune is seen in 1989, as observed by the Voyager 2 spacecraft. (Space Frontiers / Getty Images)

Consider this your daily reminder that the solar system is even more awesomely bonkers than you realized: On Uranus and Neptune, scientists forecast rain storms of solid diamonds.

The gems form in the hydrocarbon-rich oceans of slush that swath the gas giants' solid cores. Scientists have long speculated that the extreme pressures in this region might split those molecules into atoms of hydrogen and carbon, the latter of which then crystallize to form diamonds. These diamonds were thought to sink like rain through the ocean until they hit the solid core.

But no one could prove that this would really work - until now. In a study published this week in the journal Nature Astrophysics, researchers say they were able to produce this "diamond rain" using fancy plastic and high-powered lasers.

"Previously, researchers could only assume that the diamonds had formed," lead author Dominik Kraus, a physicist at the Helmholtz Dresden-Rossendorf research center in Germany, told the magazine Cosmos. "When I saw the results of this latest experiment, it was one of the best moments of my scientific career."

Scientists have tried to do this before - who wouldn't want to make it rain precious stones? - but they ran into problems mimicking the incredible pressures near the gas planet's cores. Neptune and Uranus are 17 and 15 times the mass of Earth, respectively, and their oceans are crushed by pressures millions of times more intense than the air pressure at Earth's sea level.

To match this absurd intensity, Kraus and his colleagues used two types of laser - one optical, one X-ray - to produce shock waves. These waves were then driven through a block of polystyrene - a type of plastic composed of hydrogen and carbon, just like Uranus and Neptune's oceans.

"The first smaller, slower wave is overtaken by another stronger second wave," Kraus explained in a news release. The combination of the two waves squeezed the plastic to 150 gigapascals of pressure - more than exists at the bottom of Earth's mantle - and heated it to more than 8,500 degrees. At that moment, the diamonds began to form.

The process lasted only a fraction of a second, and the diamonds were no bigger than a nanometer in length. But Kraus and his colleagues believe that the diamonds that develop on Uranus and Neptune are probably bigger and longer-lasting.

"In the planet you have years, millions of years, and a long range of conditions where this actually can happen," co-author Dirk Gericke, of the University of Warwick, told the Guardian.

The results will be useful not just for understanding the outer gas giants but for improving the process of making diamonds. Most lab-grown stones are produced via a blasting process, but Kraus and Gericke suggest that using lasers may make production cleaner and easier to control. Those stones can then be used for semiconductors, drill bits and solar panels, not to mention instruments that mimic the conditions inside the very gas planets that inspired this research.

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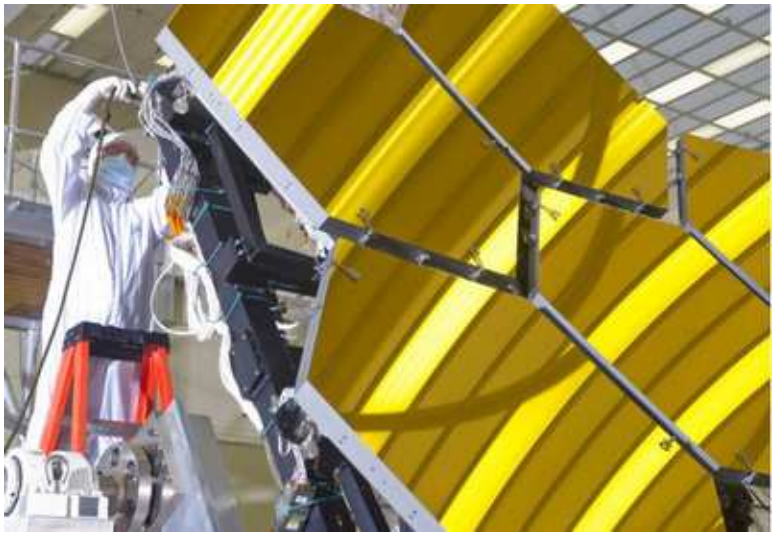
AFTER WEBB: SCIENTISTS MAKE THE CASE FOR EVEN BIGGER TELESCOPES

By Nola Taylor Redd, Space.com Contributor | August 28, 2017 07:41am ET
https://www.space.com/37952-hunting-second-earth-next-generation-telescopes.html?utm_source=sdc-newsletter&utm_medium=email&utm_campaign=20170828-sdc



A technician works on the James Webb Space Telescope's enormous mirrors at Marshall Space Flight Center, where they underwent deep-freeze tests in 2011. Credit: Emmet Given/NASA Marshall

With NASA's James Webb Space Telescope set to launch in late 2018, researchers are already talking about the next generation of telescopes. That's because massive instruments take years, if not decades, to plan, build and launch, and scientists don't want

the science to stop when Webb wraps up its mission.

When it comes to telescopes, larger mirrors collect more light, allowing researchers to see even fainter objects. Many are looking forward to a primary mirror far larger than JWST's 6.5-meter diameter, which is already the largest to ever be launched into space.

"When we find Earth 2.0, it will be fainter than the faintest galaxy in the Hubble Deep Field," said John Grunsfeld, physicist and former NASA chief scientist. As an astronaut, Grunsfeld served on multiple missions to service NASA's Hubble Space Telescope; in fact, he was the last human to touch the iconic instrument.

At the Astrobiology Science Conference (AbSciCon) in Mesa, Arizona, in April, Grunsfeld made the case for a 12-meter telescope. Such an instrument could not only help spot the first truly Earth-like planet, but could also probe the origins of the universe, study worlds in the solar system and examine distant stars.

"We don't want to be in the position of saying, now we need a bigger telescope to find something important," Grunsfeld said.

THE PIRATE TELESCOPE

One of the strongest contenders in the fight to follow JWST is the Large UV/Optical/Infrared Survey (LUVOIR). LUVOIR is a proposed multi-wavelength observatory with the ability to characterize exoplanets, study galaxy formation and evolution, and examine the early universe. With a primary mirror of 30 to 45 feet (9 to 14 meters), LUVOIR can reach the size Grunsfeld is calling for.

"It's truly a grand sort of vision," Debra Fischer, LUVOIR's Science and Technology Definition Team co-chair, said at the conference. She called the proposed instrument "the space observatory for the 21st century."

The name LUVOIR is pronounced as in French, or, Fischer said, "like a pirate," emphasizing the "ARRR."

As currently proposed, LUVOIR could probe star-forming regions of distant galaxies and map the distribution of dark matter in the nearby universe. It would be capable of identifying the first starlight in the early universe and image the icy plumes spouting from Saturn's icy moon Enceladus and Jupiter's giant moon Europa. The Earth-orbiting instrument should resolve features as small as 125 miles (200 km) on Pluto and other Kuiper Belt objects.
For attendees of the AbSciCon, exoplanets are where LUVOIR should really shine. The instrument should allow astronomers to analyze the atmospheres of Earth-like worlds around sun-like stars, hunting for signs of life. The closest contender to date, Kepler-452b, is a rocky planet orbiting a star like our own, but it's about 60 percent larger than Earth. Astronomers are hunting for a world closer to our planet's size, one whose atmosphere they can examine.

"The biosignatures are really what we're after," Fischer said.

Based on scientists' current understanding of how frequent rocky terrestrial worlds are around other stars, Fischer said that a large telescope like LUVOIR, combined with a coronagraph to block the light from the star, should be an enormous improvement over smaller telescopes. Over average observations, a 4-meter telescope should be capable of spotting something like six Earth-candidates, she said, while an 8-meter instrument could spot only around 25. A 16-meter instrument with a coronagraph should reveal around 100 worlds.

That's important, because most likely not every Earth-size world will be ripe for life. The more worlds an instrument can spot, the greater the likelihood that scientists can identify at least one of them as habitable.

"If the frequency of habitable worlds is something like 10 percent, then we like to have about 30 candidates to guarantee seeing one with high confidence," Fischer said. [10 Exoplanets That Could Host Alien Life]

Time is another factor. According to Grunsfeld, an hour hunting for exoplanets on a 16-meter telescope would produce the same results as about 10 hours on a 4-meter instrument. That means a larger instrument can identify more exoplanets over the same mission time.

"We can cover a lot more exoplanets to make that discovery [of Earth 2.0]," Grunsfeld said.

Thanks to the constant evolution of science, both Grunsfeld and Fischer emphasized that the work a future telescope may be involved with could easily be something unimagined today. The Hubble Space Telescope is an excellent example. When the instrument was launched in 1990, scientists had not yet identified a single exoplanet. Today, the telescope probes the atmospheres of worlds around other stars, an avenue unforeseen by its designers. LUVOIR will likely function the same way.

"It will answer questions we haven't even thought to ask," Fischer said.

SERVICEABLE

For 27 years, the Hubble Space Telescope has probed the depths of the universe from its orbit around Earth. After initial problems with its instruments, astronauts were able to make repairs because the telescope was designed to be serviceable. Instruments could also be upgraded as necessary, allowing greater flexibility.

"I think serviceability is a critical role," Grunsfeld said. "Serviceability allows you to put new instruments in that keeps [the telescope] vital."

In 2010, Congress passed a law requiring that proposed flagship astrophysics support servicing, a law that JWST's successor will fall under. (JWST itself will not be serviceable.)

LUVOIR isn't a sure thing. It may wind up competing with another proposed mission, the Habitable Exoplanet Imaging Mission (HabEx). HabEx would focus on directly imaging planetary systems around sun-like stars, with a primary goal of directly imaging Earth-like planets and characterizing their atmospheres.

Unlike LUVOIR, HabEx would use direct imaging, allowing it to capture an image of a far-off world. But the telescope won't be limited to exoplanet research. It will also be able to study features of the Milky Way and outside the galaxy.

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RUSSIAN HELICOPTERS TO DEVELOP HIGH-SPEED ATTACK HELO

Aug 24, 2017Tony Osborne | Aerospace Daily & Defense Report
http://aviationweek.com/defense/russian-helicopters-develop-high-speed-attack-helo?NL=AW-05&Issue=AW-05_20170829_AW-05_950&sfvc4enews=42&cl=article_8_5&utm_rid=CPEN1000003019593&utm_campaign=11474&utm_medium=email&elq2=0c0ed1e5e53040b881814f214e73223a

Mi-24: Tony Osborne

LONDON—Russian Helicopters' Mil Moscow design bureau has been contracted by the Russian defense ministry to work on the concept of a high-speed attack helicopter.

As part of the SBV program, announced Aug. 24 by Russian Helicopters as part of the ministry's national Army 2017 events, Mil will spend two years refining designs for a high-speed attack helicopter. This will build on the company's recent experience flying a highly-modified Mi-24 "Hind" attack helicopter, designated Mi-24LL PSV. It was originally developed to experiment with technologies for the company's high-speed Russian Advanced Commercial Helicopter (Rachel).

Mi-24LL flight trials conducted in 2016 saw the aircraft attain speeds of around 219 kt. (405 km/hr.). This was slightly faster than the 216 kt. achieved by a modified Westland Lynx in 1986, which still holds the official world speed record for a conventional helicopter.

The Mi-24LL was fitted with more powerful Klimov VK-2500 engines and new-design composite rotor blades with curved tips. The aircraft has been fitted with several different wing configurations, but it is unclear which configuration it was using when it completed the high-speed flight.

At the time of the flights, senior Russian government officials were openly talking about the procurement of a fleet of high-speed attack helicopters capable of cruising at 350-360 km/hr. that could perhaps enter production during the next round of state arms purchases, set for 2018-2025.

Russian Helicopters "has developed a series of scientific and technical reserve [knowledge] for a promising high-speed helicopter," said Andrey Boginsky, Russian Helicopters' director general. "With the indicators and experience gained during the tests, both the Ministry of Defense and our holding believe the parameters received during the tests and the experience gained to be enough to move on to the next stage."

It is not clear if this will lead to a new-design attack helicopter or modified derivatives of the attack helicopters already operational in the Russian inventory. The Russian Army Air Force already has three types of attack helicopters operational, including the Kamov Ka-52, Mil Mi-28 and Mi-24/35. Ka-52s also have been adapted for naval use.

Meanwhile, the general designer of Klimov, Alexey Grigoriev, described the development of a new generation of helicopter engines making greater use of additive manufacturing processes. Grigoriev also said consideration is being given to replacing the main gearbox with an electric drive similar to that tested last year on a modified Robinson R44 in the U.S. But it is not clear if Grigoriev is talking about a hybrid system using a turbine to provide electrical power for an electric motor or eliminating the engines altogether.

"The power plant no longer includes an engine and a main reducer, but a DC motor that rotates the screw directly," he said through a translator. "We are striving to make not just an evolutionary, but a revolutionary step in the development of power plants for helicopters."

Russia has become more reliant on the Klimov bureau for helicopter turboshafts after being cut off from Ukrainian supplier Motor Sich because of Moscow's annexation of Crimea and its support for the insurrection in Eastern Ukraine.

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

From: "Mike Waldrip" waldripk@gmail.com

CORVETTE

A man named Tom Nicholson posted on his Facebook account the sports car that he had just bought and how a man approached and told him that the money used to buy this car could've fed thousands of less fortunate people.

His response to this man made him famous on the internet.

A guy looked at my Corvette the other day and said, "I wonder how many people could have been fed for the money that sports car cost."

I replied I am not sure; it fed a lot of families in Bowling Green, Kentucky who built it,

It fed the people who make the tires, it fed the people who made the components that went into it,

It fed the people in the copper mine who mined the copper for the wires,

It fed people in Decatur IL. at Caterpillar who make the trucks that haul the copper ore.

It fed the trucking people who hauled it from the plant to the dealer

and fed the people working at the dealership and their families.

BUT,… I have to admit, I guess I really don't know how many people it fed.

That is the difference between capitalism and welfare mentality.

When you buy something, you put money in people's pockets and give them dignity for their skills.

When you give someone something for nothing, you rob them of their dignity and self worth.

Capitalism is freely giving your money in exchange for something of value. Socialism is taking your money against your will and shoving something down your throat that you never asked for.

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!"
