

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, January 8 at 12:30 in the GSA trailer.

Science Report Highlights

Betsy and Dan thought all the items in following science report from Charles were interesting but most liked the following:

- FDA Level 1 Recall For Certain Eggs
- CDC Advice On Which Of The Three Classes Of Carbs Are Healthy
- Obstructive Sleep Apnea (OSA)
- *Manufactured* Replacement Artery
- FDA's New Definition Of 'Healthy'
- Getting Enough Vitamin B12 As You Age
- Billion Dollar Clean Energy GSA Contract With Constellation Energy (Baltimore MD)
- Toxic Chemicals In Retailers' Packaging
- Additional CHIPS For America Awards
- Now Drones Have Legs

Science Report

You should get your medical advice from official sources, your doctor, or your pharmacist ... not from this Report or the internet. Per recommendations by FDA and CDC, everyone should maintain current vaccinations for the three respiratory viruses: Covid, flu and RSV (for RSV, adults [over 60](#) and children [younger than 8 months](#)) - unless your doctor advises against it based on your medical record. Adults over 50 should have had the [Shingrix vaccine for shingles](#) (two doses 2 to 6 months apart, good indefinitely). Adults over 50 should have the [Pneumococcal Vaccine](#).

- [FDA Level 1 Recall For Certain Eggs](#) - Nearly 260,000 eggs sold under the Kirkland Signature brand at Costco were [recalled](#) over potential [Salmonella](#) contamination. The eggs were sold in 25 Costco [stores in five states](#) beginning on 11/22/25 - AL, GA, NC, SC, TN. The recall only applies to products labeled 'Kirkland Signature Organic Pasture Raised 24-Count Eggs' with the Julian code 327 and a use-by date of 1/5/25. Check your fridge, and discard if found.
- [CDC Advice On Which Of The Three Classes Of Carbs Are Healthy](#) - Details [here](#). Summary: 1) **Simple carbs** - mostly no, except whole fruits (not juice) and low fat dairy, 2) **Refined Grains** - no, 3) **Complex Carbs** - yes, but limit sugar and salt.
- [Pertussis \(Whooping Cough\)](#) - CDC reports a five fold increase from the tally recorded in 2023. The DTaP combination [vaccine needs to be repeated every 10 years](#) to remain effective for pertussis ... the disease agent is the bacterium *Bordetella pertussis*.
- [US Funding For Development Of Oral Covid Vaccines](#) - In December the Biomedical Advanced Research and Development Authority (BARDA) of the US Department of Health and Human Services announced up to \$500 million in 'Project NextGen' funding to plan and execute multiple Phase 2b clinical trials evaluating novel vaccines administered *as a nasal spray or as a pill (not an injection)* to protect against symptomatic COVID-19. Three companies were [awarded](#) up to \$453

million, \$34 million, and \$40 million respectively to conduct Phase 2 clinical trials. Update for Vaxart, [here](#).

- [NIH BMI Calculator](#) - Use the [NIH](#) National Heart, Lung and Blood Institute [calculator](#) to find your Body Mass Index (BMI). Above 25 - overweight. Above 30, check with your doctor, consider better nutrition, and exercise.
- [Basal Metabolic Rate \(BMR\)](#) - Your BMR is how many calories you burn just sitting in your chair. Use the [calculator](#) to get your BMR. Then consult the exercise table to see how many calories you can consume daily with your current exercise plan and still maintain your current weight.
- [Body Roundness Index \(BRI\)](#) - is a new medical screening tool for estimating *visceral* fat, [details](#). Use a calculator to get your BRI [here](#). Additional background from Harvard, [here](#). Results to your doc.

Vaccine and Therapeutic News -

- [Obstructive Sleep Apnea \(OSA\)](#) - FDA has [approved](#) the first medication for treating this condition. Zepbound (tirzepatide) from Eli Lilly had previously been approved for treating medically overweight or obese patients. Improvements in OSA are likely related to a concurrent reduction in weight. See company news release [here](#).
- [Manufactured Replacement Artery](#) - to be used for the urgent replacement of a severed artery to avoid amputation of an arm or leg. FDA has [approved](#) Symvess, the **first acellular vessel manufactured by tissue engineering techniques**. Symvess is [grown/manufactured](#), and is *not* human tissue. The US Department of Defense had requested that FDA give this review a priority. [Humacyte Global](#) (Durham NC). [Background](#)
- [Hemophilia A](#) - FDA has [approved](#) Alhemo (concizumab-mtci) for this condition. [Details](#)
- [Implanted Pump To Remove Excess Peritoneal Fluid Due To Liver Cirrhosis](#) - FDA has [granted](#) marketing clearance to [Sequana Medical](#) (Ghent Belgium) for the Alfapump System for this condition - recurrent or refractory [ascites](#) due to liver cirrhosis.
- [Pig Kidney Transplant](#) - On November 25 surgeons at NYU Langone Health in New York City [implanted a gene edited pig kidney in a patient](#). Permission for the experimental operation had been given by FDA under the Agency's 'compassionate use' authority - this was the fifth such procedure in the US. Revivacor (Blacksburg VA) provided the kidney, with 10 gene alterations. Revivacor's parent company, [United Therapeutics](#) (Silver Spring MD) now plans to file an application with the FDA to begin clinical trials in 2025 - [press release](#). 73,000 US patients are on the kidney transplant waiting list. Hopeful, and much needed.
- [First HIV Over-The-Counter Home Self-Test](#) - FDA has extended the indications for use of this over-the-counter, *previously* approved adult home self-test (HIV-1 and HIV-2) to include its use with adolescents 14-17. [Use of OraQuick](#) is based on oral fluid specimens. Confirmatory testing should be done in a medical setting.
- [Triglycerides Reduction](#) - FDA has [approved](#) Tryngolza (olezarsen) for use (with diet) to reduce familial chylomicronemia syndrome (FCS). Tryngolza uses a different mechanism of action than other therapies currently used to treat FCS. [Ionis Pharmaceuticals](#), Carlsbad, CA
- [Pertussis \(Whooping Cough\)](#) - FDA advice on what you can do to protect yourself, [video](#). There's a vaccine.
- [Metastatic Non-Small-Cell Lung Cancer](#) - FDA has [approved](#) Ensacove (ensartinib) from [Xcovery Holdings](#) (Miami FL) for this indication
- [Generic Drugs For Type 2 Diabetes](#) - In December FDA [approved](#) to [Hikma Pharmaceuticals](#) (London UK) a generic drug referencing the approved drug Victoza (liraglutide

injection), a glucagon-like peptide-1 (GLP-1) receptor agonist indicated to improve glycemic control for patients with Type 2 diabetes, along with diet and exercise. FDA had previously approved a generic drug referencing Byetta (exenatide) for the same indication. See the basis for FDA's generic drug program [here](#). Summary: affordability and access.

- [Kindergarten Vaccination Exemptions Increase In The DMV](#) - see the CDC numbers [here](#). See the US vaccination rate trends charted by disease [here](#). Summary: vaccine coverage has decreased.

Other Health Science News -

- [FDA's New Definition Of 'Healthy'](#) - See a [video \(with transcript\)](#) of this topic being discussed by a Nutrition Epidemiologist at the University of North Carolina, and what further actions she believes might help consumers sort through the marketing *noise* on food packaging.
- [Implantable, Cell-Base Bioelectronic Devices](#) - More tissue engineering applications. The US Advanced Research Projects Agency for Health, [ARPA-H](#), has awarded a **contract of up to \$9.4 million** to the partnership of [Ginkgo Bioworks](#) (Boston MA) and Carnegie Mellon University to develop [bioelectronic cell-based devices](#) aimed at diagnosing and treating hormone disorders.
- [Asbestos Contamination In Cosmetics](#) - containing [talc](#) sometimes occurs because talc (natural substance occurring in rock) is found in the same type of rock strata that can contain asbestos, a carcinogen. In December [FDA published a Proposed Rule](#) defining the [analytical testing procedures](#) and record keeping requirements for using talc in cosmetics - Polarized Light Microscopy (with dispersion staining), Transmission Electron Microscopy, Energy Dispersive Spectroscopy, and Selected Area Electron Diffraction are required.
- [Getting Enough Vitamin B12 As You Age](#) - See advice from the American Association of Retired Persons (AARP) [here](#). A shortfall of B12 is associated with depression, dementia and decreased cognitive function, as well as anemia. Get your doctor to test for deficiency, no guessing, and try natural foods to fill any gaps before considering taking a supplement. Stomachs naturally produce less of the digestive acid necessary to process B12 with age. Antacids and diabetes medications can interfere with B12 uptake (malabsorption).
- [Manage Cholesterol Levels With These 9 High Fiber Cereals](#) - recommended by a registered dietician, [here](#). Some also have protein. Tune-up: favor the ones that minimize or eliminate *added* sugar. You can add fruit to get the sweetness you want. [Ezekiel](#) Sprouted Grain Cereal is a good choice. No sugar substitutes.
- [Best Snack To Decrease Inflammation](#) - from a registered dietician, [here](#). White bean and avocado toast, [here](#).
- [PFAS Contamination In Clams From China](#) - PFAS was found in *all* 12 samples tested, [Details](#). Three shipments of clams from China have already been refused entry.
- [Two Widely Used Carcinogenic Chemicals Banned](#) - In December **EPA issued a final rule** to manage the manufacture and use of Trichloroethylene ([TCE](#)) and Perchloroethylene ([PCE](#)) ... to phase them out of all consumer uses, and most industrial uses over a 10 year period. [Details](#)
 - [TCE](#) - is an extremely toxic chemical known to cause liver cancer, kidney cancer, testicular cancer, non-Hodgkin's lymphoma, and damage to the central nervous system, immune system, reproductive organs, and fetal heart.
 - [PCE](#) - is also known to cause liver, kidney, brain and testicular cancer, as well as damage to the kidney, liver and immune system, neurotoxicity, and reproductive toxicity.
- [Are Your Stools Healthy?](#) - Check the Bristol Stool Chart [here](#). Ideally you should be a Type 3 or 4. This simple check, that you can routinely do yourself in a few seconds, may help catch a problem early, and could provide important information for your doctor. [Details](#).

Practical Nutrition -

- Not A Cook? - Learn how to boil water ... fast. Video at white arrow, [here](#). Hint: Induction.
- Live Long And Prosper - by adopting this dietician's high protein, 7-day [anti-inflammatory meal plan](#). 🙌
- More Protein Than An Egg - [Here](#) are 9 items that qualify ... one large egg has 6 grams of protein (50g is DV).
- Peanut Butter - is very healthy ... **if it contains just peanuts** ... and nothing else. Most commercial brands add sugar, salt, unhealthy oils, emulsifiers, etc. that turn it into junk food. See a video for the details, [here](#). Tune-up: go to a store with a peanut grinding machine, grind the peanuts into peanut butter yourself, and be confident that you know what's in it - you can add a bit of low-sodium salt to taste at home. Since it's 'real' it may separate a little, and need to be stirred a bit when used. Use nut-based crackers or whole grain/seed bread. Note: the word 'butter' in peanut butter refers to its consistency. There's no dairy in peanut butter.
- Macadamia Nuts Are Healthy - according to a registered dietician, details [here](#). Just macadamias with nothing else, not excessively salted, etc. They have many useful nutrients, including good (monounsaturated fats). Be alert for allergic reactions - may be toxic to dogs.
- 5 Highest Protein Fruits Ranked - by a registered dietician, [here](#). Fruit is known for fiber, antioxidants and disease-fighting phytonutrients. These 5 *also* have some good protein.
- 31 High Fiber Foods You Should Be Eating - recommended by a registered dietician at the Cleveland Clinic, [here](#). [Chad C.]
- 7 Ways Spinach Is Healthy - detailed by a registered dietician, [here](#). Summary: low in calories, high in vitamins and other nutrients, and has fiber. More information, [here](#).
- 9 Foods Recommended For Hangovers By British Nutritionist - [here](#). Note: 'rocket' is British English for arugula.
- Seed Oils And Colon Cancer - According to a study [published](#) in the scientific journal *Gut*, there is an increased risk of colon cancer due to [inflammation generated by the high levels of Omega-6 fatty acids](#) in seed oils.
- Nutritional Adjustments Made By King Charles - to help defeat his cancer, described [here](#). Summary: less red meat, a bit less dairy, more fiber.
- Matter If You Use The Shiny Or Dull Side of Al Foil? - [No](#), according to a Ph.D. food scientist at Reynolds. Shiny or dull is a function of how the foil is made, not how it works in the kitchen.
- Misleading Words For Sugar - High-fructose corn syrup, sucrose, barley malt, dextrose, maltose and rice syrup are all [forms of sugar](#). Certain blood alcohols sometimes used as sweeteners, such as Erythritol and Xylitol, are made by the body and occur naturally in certain foods - but in very small amounts. They have recently been [linked to heart disease and stroke by Cleveland Clinic researchers](#), and should be avoided as food additives. Chemical sugar substitutes to be avoided: acesulfame potassium, advantame, allulose, aspartame, brazzein, lactitol, maltitol, mannitol, neotame, rebaudioside A (reb-A), saccharin, sorbitol, thaumatin and trehalose.
- Is Your Favorite Food Ultra-Processed? - and if so, what's a good substitute. View the Northeastern University [TrueFood Dashboard](#).
- Most Nutritious Vegetables and Fruits Rank-Ordered by CDC - See the list [here](#). Chinese cabbage = bok choy.

Environmental Science News -

- Billion Dollar Clean Energy GSA Contract With Constellation Energy (Baltimore MD) - A [10-year, \\$840 million contract](#) will supply GSA with more than 1 million MWh/yr beginning this

year (equivalent to [power for 1 million homes](#)). GSA Administrator Robin Carnahan: "This historic procurement **locks in** a cost-competitive, reliable supply of nuclear energy over a 10-year period, accelerating progress toward a carbon-free energy future while protecting taxpayers against future price hikes." Receiving the power: Architect of the Capitol, General Services Administration (GSA), Social Security Administration, Army Corps of Engineers, Department of Veterans' Affairs, Department of Transportation, US Mint, US Railroad Retirement Board, National Archives and Records Administration, Federal Bureau of Prisons, Federal Reserve System, National Park Service, National Oceanic and Atmospheric Administration, and Washington Metropolitan Area Transit Authority. An additional \$172 million Energy Savings Performance Contract installs energy conservation measures at five GSA-owned facilities in the National Capital Region, and four federal buildings located in DC will be converted from steam power to electricity - electric boilers and heat pumps. Thank you for your vision GSA Administrator Carnahan.

- [New Mexico Cracks Down On Pollution From Natural Gas Processing Plant - New Mexico](#) has assessed a [\\$48 million fine](#) against [Targa Resources](#) (Houston TX) for emitting pollution at their Red Hills Gas Processing Plant in the southeastern part of NM far in excess of permitted levels, and will require the company to complete 16 emission abatement projects costing \$140 million. "[L'encouragement des autres](#)" - Voltaire. [Phil J.]
- [PFAS Contaminated Fertilizer Poisoned Their Land And Killed Their Cattle](#) - on a farm in Johnson County Texas. They traced the problem to [PFAS contaminated municipal waste biosolids used in the fertilizer](#). When the County tested it they found 27 types of [PFAS chemicals](#), including four out of the five the EPA has set limits for in *drinking water* - there are no EPA limits for PFAS in food or fertilizer, and *no Texas PFAS limits at all*. Maine is the only state to require testing, with limits for food/water/fertilizer. Not just a Texas issue, nationwide.
- [Toxic Chemicals In Retailers' Packaging](#) - A recent [report](#) concluded that the packaging used by many retailers contains chemicals, such as PFAS and PVC, that are harmful to both human health and the environment. See the 2024 Retailer Report Card, [here](#).
- [Sodium Ion Batteries - Natron Energy](#) (Santa Clara CA) has [announced](#) that it will invest \$1.4 billion to construct a manufacturing plant for sodium ion batteries in Edgecombe County NC (eastern NC). Sodium batteries are safer than Lithium batteries with respect to fire hazard, and don't require expensive, supply constrained materials like Lithium, Cobalt and Nickel - but are likely to have a lower power density. Stay tuned.
- [Recovering Rare Earth Elements From Toxic Coal Ash And Mining Waste](#) - The US Department of Energy (DOE), using funds from the US Bipartisan Infrastructure Act, **has awarded 4 grants totaling \$17.5 million** to [study](#) this possibility. The US currently imports more than 80% of its rare earth elements, with China being a principal supplier. DOE had **previously committed \$33.4 million** in Bipartisan Infrastructure Act funding for detailed front-end engineering and design studies for domestic, intermediate-to-demonstration-scale rare earth production facilities that utilize unconventional, coal-based feedstock materials. Thanks DOE Secretary Granholm.
- [Critical EV And Battery Metals Recovered From Mining Waste](#) - by MIT spin-off [Phoenix Tailings](#) (Woburn MA) using recyclable solvents with no emissions. Can produce: neodymium, dysprosium, nickel, magnesium. The company expects to be producing about 3,000 tons of rare earth metals annually by 2026, 7 percent of total U.S. production last year. The company has received two grants from the US Department of Energy's ARPA-E program totaling more than **\$2 million**. Podcast [here](#).
- [US Department of Energy \(DOE\) Awards Battery Recycling Grant](#) - The [American Battery Technology Company](#) (Reno NV) will apply its \$133 million DOE grant to the cost of constructing a *second* battery recycling facility. The new facility will process 100,000 tons of used battery

materials annually - 5 times the capacity of the [first facility in Tonopah NV](#). It will be able to process a wide variety of end-of-life and manufacturing scrap materials, and output battery grade nickel, cobalt, manganese, and lithium hydroxide products. **Work under the contracted grant award started on January 1, 2025.**

- **EV Charge Station Grants** - The US Department Of Transportation (DOT), through its 'Charging and Fueling Infrastructure ([CFI](#)) Program', **has awarded \$521.19 million** in CFI funding to [51 applicants located in 29 states, DC and 8 tribal areas](#), see list and map [here](#). CFI funds are sourced from the US Infrastructure Investment and Jobs Act. The two types of grants are 'Community Charging' and 'Alternative Fuel Corridor Charging (AFC)', defined [here](#). Thanks DOT Secretary Buttigieg.
 - **Maryland Example** - Maryland Equitable Charging Infrastructure Partnership (Corridor): The Maryland Clean Energy Center will receive \$33.5 million for EV charging stations at 29 sites along an existing AFC. This project will expand EV charging accessibility in rural, urban, and disadvantaged communities. It also includes workforce development and job creation efforts: EV charging franchise model. crowdfunding pilot, and partnership with IBEW Local 24 to train apprentices and journeymen in the installation and maintenance of EV charging stations.
 - **Georgia Example** - Middle Georgia Community Charging Program (Community): The Middle Georgia Regional Commission will be awarded \$15 million to deploy 234 publicly accessible EV chargers across 111 sites. The aim is to close gaps in the region's EV infrastructure by placing charging stations no more than 15 minutes apart. 54% of these sites are located in Transportation Disadvantaged Census Tracts, to focus on increasing EV charging access, particularly in rural areas.
 - **Effect Of State And Local Initiatives** - [here](#).
- **Uranium Mining In Texas** - [Dormant Uranium mines \(map\) are being brought back online](#) in the ranchlands of South Texas, and the local farmers are worried about contamination of their groundwater. [Details](#). Note: the mining method to be used is a process called [in-situ mining](#). Solvents are pumped underground into Uranium-bearing aquifer formations (50-400 feet down). Adjacent wells suck up the resulting slurry, from which Uranium dust is extracted. Two mines are in operation now, and by the end of 2027 there could be 6 or 7 more.
- **Specialized Fuel Required For New-Gen Modular Nuclear Reactors** - High-assay low-enriched uranium (HALEU, 5-20% U235) is required for use by the new generation of advanced modular reactors, but is presently available only from Russia The US Department of Energy [has awarded 6 contracts \(video\)](#) to US based companies ([details and list](#)) - each for a minimum of \$2 million up to **\$800 million from Inflation Reduction Act funds**. In parallel, the US Navy has begun a planning process to locate advanced modular reactors at several Navy facilities in VA, MD and NC. Thanks DOE Secretary Granholm.
- **Enhanced Geothermal Systems (EGS)** - extract energy from deep beneath the earth, regardless of sun or wind, making it a good base load source of clean energy for stabilizing the grid. A 400 MW EGS utility-scale project is under construction by [Fervo Energy](#) in Utah. [Ormat Technologies](#) has received a nearly **\$3.4 million grant from the DOE** to demonstrate the viability of EGS at its Brady facility near Reno. Soon we'll know more.
- **An All Renewable Energy Grid Requires More Storage** - but even a large battery bank can be drained in a few hours - at least [10 hours of backup power is required](#). A study [published](#) by researchers at the Renewable Energy and Advanced Mathematics Laboratory at the University of California San Diego shows that electricity prices could be reduced by as much as 70%, during times of high demand, with large, long-duration storage. Pumped storage hydropower is one way. In 2023 the US Department of Energy [announced \\$325 million for 15 projects](#) across 17

states and one tribal nation to accelerate the development of long-duration energy storage technologies - funded by the Bipartisan Infrastructure Law. Good timing, Secretary Granholm.

- [The Lucid 'Gravity' Battery/Electric SUV](#) - See a [video](#) of the celebration as the first production model rolls off the assembly line at the company's EV plant in Casa Grande Arizona. The [new three row SUV](#) has a range of over 440 miles, sport tail out the back, drag coefficient of 0.24, 6,000 lb tow capacity, and makes 0-60 MPH in 3.5 seconds. Lucid plans to launch its new *midsize* EV platform in 2026.
- [Audi 2025 RS e-tron GT](#) - 844 horsepower, 0-60 MPH in 2.5 seconds, 10-80% charge in 18 minutes, more [here](#).
- [More DC Fast Chargers For EVs](#) - GM and EVgo have [now installed more than 2,000](#) co-branded public DC fast chargers in the US, double the number 16 month ago. Good progress, carry on.
- [First 'National Electric Vehicle Infrastructure' \(NEVI\) Program EV Charging Station In Texas](#) - is now open on [Interstate 27 near the town of Happy](#), south of Amarillo Texas. The Texas Department of Transportation has completed the scoring and selection process for Phase 1 of the Texas Electric Vehicle Infrastructure Plan, and has begun planning the first 50 EV charging stations across the state. Texas expects **\$407.7 million in total federal funds** under the US Department of Transportation's [NEVI](#) program. Thanks DOT Secretary Buttigeig.
- [Colorado NEVI Project Complete](#) - Colorado and ChargePoint have completed the EV Fast-Charging Corridors program, **spending all the DOT NEVI funds allocated to the project under the Inflation Reduction Act** and adding DC fast chargers across six highway corridors ... more than 80 charging ports ([list](#)) at 33 sites are now available to EV drivers across Colorado, details and map [here](#). [Maureen T.]
- [280 Chevrolet Silverado Electric Pickup Trucks](#) - [SoCal Edison](#) will add these EV pickups to its service fleet, among with plans to roll out [41,000 EV charge stations](#) throughout its service area in southern California.
- [Toyota Invests \\$2 Billion In Kentucky EV Plant](#) - The company has announced that it will [build its first 3-row electric SUV](#) at its [Georgetown Kentucky](#) facility. The start date is the first half of 2026. The plant's new paint shop will add 1 million SF, while cutting carbon emissions 30% and water usage by 1.5 million gallons annually.
- [New Toyota Electric SUV](#) - the [Urban Cruiser](#) EV is well suited for urban driving. By 2026, the company plans to have [15 zero-emission models](#) in its lineup.
- [US Solar Industry Breaking Installation And Manufacturing Records In 2024](#) - with more to come, according to the [Solar Energy Industries Association](#). According to the SEIA, tax credits under the US Inflation Reduction Act were effective in incentivizing new or expanded factories in Alabama, Florida, Georgia, Ohio, and Texas. Commercial solar grew 44% across the US in 2024 Q3 compared to the same time in 2023. Residential solar saw an increase of 39% year-over-year. [Boom!](#)
- [Balcony Solar](#) - If 1.5 million Germans have balcony mounted solar panels for their apartments, there must be something to it, [details](#). They've even come up with a wonderfully German word for it: 'Balkonkraftwerk' (balcony power plant). Now the idea is catching on in Spain, where two-thirds of the population live in apartments and there's plenty of sun. Cost recovery is projected to be 6 years. [Sonja B.]

Other Science News -

- [Additional CHIPS For America Awards](#) - The US Department of Commerce **has finalized** additional awards under this program, bringing the total to over \$32 billion of the \$36 billion in proposed incentives funding allocated. With these awards the US will be the only country that has

computer chip manufacturing fabs from all 5 leading-edge semiconductor companies. Thank you Secretary of Commerce Raimondo. Examples:

- Samsung Electronics - was [awarded](#) up to \$4.745 billion in direct funding under the CHIPS Incentives Program's Funding Opportunity for Commercial Fabrication to construct two new leading-edge logic fabs and an R&D fab in Taylor TX, as well as expand their existing Austin TX facility. Samsung is expecting to invest \$37 billion in central Texas by 2030.
- Texas Instruments - was [awarded](#) \$1.61 billion in direct funding in support of the company's investment of \$18 billion through 2030 to construct three new state-of-the-art facilities, two in Texas and one in Utah.
- Micron Technology - was [awarded](#) \$6.165 billion for commercial fabrication facilities (fabs) in New York and Idaho to manufacture advanced memory chips, leveraging future investments from the company of \$100 billion and \$25 billion respectively. The Department of Commerce has also signed preliminary terms for an additional award of \$275 million for the expansion and modernization of Micron's existing fab in Manassas VA, leveraging a further \$2 billion investment from Micron.
- European Space Agency (ESA) Launches First Vega-C Rocket - from Europe's spaceport in Kourou, French Guiana. The Sentinel-1C satellite placed in orbit will use radar to monitor Earth's environment as part of the EU's Copernicus program to provide climate and other data to governments and businesses. Europe has had to work out how to independently launch missions, since Russia withdrew its rockets in 2022 over issues related to the war in Ukraine. Now they've done it! Good show.
- Now Drones Have Legs - they can use to walk, hop and leap into flight. See a [video](#) [turn on sound] of the 'Raven' (Robotic Avian-inspired Vehicle for multiple Environments) doing all this with grace. Second [video](#).
- Winter Solstice at Stonehenge - The druid priest Arthur Pendragon officiates, as scantily clad pagan men brave the cold to cavort, body paint and otherwise celebrate the return of the sun (4:21 am EST on 12/21) at this 5,000 year old religious monument before a crowd of 15,000 - Wiltshire England UK. Photos [here](#). [Mike C.]
- Parker Solar Probe - NASA has confirmed that the [Parker Solar Probe](#) has survived its passage through the corona (outer atmosphere) of the Sun (status and [video](#)), and has collected an amazing trove of new information, including answers to two important questions. 1) With a surface temperature of only 10,000 °K (17,540°F), how does the sun maintain a temperature of over a million degrees in its corona? 2) How does the sun accelerate particles to near lightspeed, such that they (solar wind) form auroras and interfere with radio communications when striking the earth's atmosphere? Parker is a partnering between NASA and the Johns Hopkins Applied Physics Laboratory in Laurel Maryland. Well done to all! [Larry G., Steve S, Wade S.]

Nice Thing - [full screen]

- Five of the most romantic Pas de Deux in classical ballet - [here](#).
- Song to the Moon - From the opera Rusalka by A. Dvořák, [Stjepan Hauser](#) cellist, sung in the original Czech by Anna Netrebko and Rene Fleming (with English subtitles), [here](#). [Jenna D]