

Betsy says HI!!!!

Announcements

The next LABQUEST meeting will be Wednesday, July 10 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:

- Four FDA actions
- Microplastic Particles Found in *Every* Sample of Human Semen Tested
- A Nutrient Found in Pomegranates May Reduce Risk of Alzheimer's Disease (AD)
- Wearing High Heels Improves Walking Efficiency
- US Department of Transportation's National Highway Traffic Safety Administration Final Rule on New Vehicle Fuel Economy Standards
- Long Distance US Electrical Grid Connection Log Jam
- Federal Energy Regulatory Commission (FERC) Approves \$796 Million Maryland Grid Capacity Expansion
- Federal-State Modern Grid Deployment Initiative
- Severe Drought 4,200 Years Ago – affected the course of the Nile.

Science Report

Self-Protective Measures -

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).

- [FDA Advises Vaccine Industry To Produce Monovalent JN.1 Vaccine for Fall 2024 Covid Season - Details.](#)
- [FDA Advice on Migraine Headaches - here.](#)
- [FDA Safety Alert for Crecelac Goat Milk Infant Formula - here.](#)
- [FDA Has Recalled 28 Beverages So Far in 2024 - see a list of the sodas/juices/drinks here.](#) All but 4 because they had undisclosed drugs, bacteria, or harmful chemicals. More [details](#).
- [Nantucket Fever aka Babesiosis](#) - is a tick borne disease that is spreading from its present Virginia to Maine range into the upper Midwest, and is often [misdiagnosed](#) as Lyme Disease. Prompt diagnosis and [treatment](#) is important. [Eileen J.]

- [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.

Vaccine and Therapeutic News -

- [Focus on Long Covid Spotlights Chronic \(post treatment\) Lyme Disease \(LD\)](#) - [Details](#). A researcher at Northeastern University is investigating an old antibiotic that is no longer effective against most pathogens, but has been very effective against LD in animal trials. Preliminary human trials for acute LD have now begun, and may be extended to chronic LD. Chronic LD diagnoses are difficult because there is no definitive test.
- [FDA Has Approved Imetelstat \(Rytelo, Geron Corporation\)](#) - an oligonucleotide telomerase inhibitor for adults with myelodysplastic syndromes (MDS). [Details](#).
- [Primary Biliary Cholangitis \(PBC\)](#) - FDA has approved [Iqirvo](#) (elaflibanor) for the treatment of PBC in combination with ursodeoxycholic acid. PBC is a rare autoimmune disease in which the small bile ducts in the liver become injured and inflamed, and without treatment are eventually destroyed. [Details](#)
- [Connection Between Stress and Weight Management](#) - The Mayo Clinic discusses the connection, and what you can do (and should not do) to reduce stress, [here](#).

Other Health Science News -

- [Microplastic Particles Found in Every Sample of Human Semen Tested](#) - [Details](#). The most common types of plastic found were polystyrene (packaging foam), and polyvinyl chloride (PVC) often used in plumbing pipes. The red flag from this study was the correlation between PVC concentration and decreased sperm motility. In an [unrelated study of both dogs and humans](#), the same two types of plastics were also found. [Publication](#).
- [A Nutrient Found in Pomegranates May Reduce Risk of Alzheimer's Disease \(AD\)](#) - Researchers at the University of Copenhagen have recently [published](#) a study (*mouse model*) showing that a substance found in pomegranates, urolithin A (UA), helps the brain remove weak or damaged mitochondria (mitophagy). Supplemental UA resulted in a reduction in the incidence of two of the biomarkers characteristic of AD - amyloid plaques and tau tangles. [Details](#). Promising. Natural foods that help the gut make UA: Pomegranates, Pomegranate juice/extract, Walnuts, Raspberries, Strawberries, Almonds, Pecans - frozen is OK. UA is a gut microbiome metabolite of ellagic acid.
- [Coffee on an Empty Stomach?](#) - For most people it isn't a problem. The pH of coffee is typically about 5 (slightly acidic). Stomach acid has a pH of about 2 (much more acidic). So [the stomach can handle it](#). For some, however, coffee can cause the relaxation of the lower esophageal sphincter, allowing acidified food to pass [back up into the much more acid sensitive oesophagus to cause heartburn](#) - and potentially damage. It may help to add milk to the coffee, or take it with food, but the bottom line is: if it hurts, don't do it, and check with your doctor. Coffee has good antioxidants and vitamins.
- [Wearing High Heels Improves Walking Efficiency](#) for Both Men and Women - A University of Texas [human study](#) on walking efficiency showed that walking efficiency for male and female participants improved - both when wearing high heels, and afterward when wearing flats. Walking efficiency means walking longer and faster using less energy. The high heels served as a training/strengthening tool

- [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 -

- [15 Brands of Canned Tuna Ranked](#) - in terms of taste, consistency, health, protein, sub-species of tuna, Sodium - [here](#). Tune-up: quick, cheap and healthy, but watch the Sodium.
- [Healthy, Tasty, High Protein Chicken Dinners](#) - See 20 recipes recommended by a registered dietician, [here](#). The key is skinless, bone-in chicken *thighs*. Note the tradeoff between a modest amount of saturated fat and a boat load of protein. More protein = less hunger = better weight maintenance. [Karen W.]
- [UK Fruits, Vegetables, Spices, and Beans Contaminated With PFAS](#) - The government's Expert Committee on Pesticide Residues in Food, which annually tests about 2,500 samples of food from UK supermarkets and other stores, reports that [PFAS containing pesticides \(intentional constituent\) were found in more than 1 in 3 samples](#) of *strawberries* (95%), grapes (61%), cherries (56%), spinach (42%), tomatoes (38%), peaches/nectarines (38%), and eight other produce items. No pesticide needs to contain PFAS. **Skip the details, choose organic.**
- [More Health Conscious New Menus on the Amtrak Acela](#) - designed to complement the new fleet of rail cars due later this year. See the new Cafe *Acela* menu [here](#) - the *Acela* First Class menu and wine selection [here](#)
- [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. [Sarah F.]
- [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 -

- [US Department of Transportation's National Highway Traffic Safety Administration Final Rule on New Vehicle Fuel Economy Standards](#) - for passenger cars, light trucks, heavy-duty pickup trucks, and vans ... [here](#). The fuel efficiency requirement for cars and light trucks (SUVs) will increase annually to a target company fleet [average of 50.4 mpg by model year 2031](#) - could be partially met by offering more EV models.
- [First US Production Line Test for Lithium-Sulfur EV Batteries](#) - Stellantis announced an investment in development of the Lyten lithium-sulfur battery in May 2023. Now [Lyten](#) (San Jose CA) has [shipped lithium-sulfur \(Li-S\) batteries to Stellantis and others for testing](#) - 3D graphene-structure cathode, lithium metal composite anode rather than traditional graphite, no need for nickel/cobalt/manganese in the cathode, standard lithium-ion manufacturing equipment and practices with 65% lower carbon footprint, supply chain that can be fully sourced in the US or EU at scale, [\\$4 million grant](#) from US Department of Energy. Promising.
- [Grid Scale Nanning China Sodium-Ion Battery Energy Storage Station Now Online](#) - Initial storage capacity 10 MW hours (MWh), eventually 100 MWh, charges to 90% in 12 minutes. The [fully](#)

[developed facility can power 35,000 households](#) at a conversion efficiency of 92%, and reduce carbon dioxide emissions by 50,000 tons annually.

- [Geothermal Energy Storage](#) - See three excellent videos from Sage Geosystems (Houston TX) showing how this type of energy storage works, [here](#) [white arrows in red boxes].
- [US Company is Now World's Most Valuable Solar Equipment Manufacturer - First Solar](#) (Tempe AZ) has taken the lead formerly held by a Chinese company, [here](#). First Solar, and other US solar panel manufacturers will benefit from recently announced US solar panel import tariffs. The company's entire supply chain is in the US, so the company *and its US clients* will also be eligible for tax credits from the 2022 US Inflation Reduction Act.
- [US 2-Year Tariff Moratorium on Import of Solar Panels Manufactured in SE Asia Expired on June 6](#) - and the estimated 35 GW of [panels stockpiled in US warehouses must be used within 180 days or the tariff must be paid](#) on them. 35 GW is about the entire US capacity to be installed in 2024. [Installation rush?](#) Price cuts?
- [Cross Laminated Timber \(CLT\) Products for Construction](#) - Softwood sourced CLT is already used in place of concrete and steel for certain types of construction - potential to reduce Carbon emissions by 13-26%. Researchers at Michigan Technological University (Houghton MI) are now working on [developing construction materials sourced from hardwoods](#) native to the Michigan Upper Peninsula. New resins will need to be developed. [Details](#).
- [Long Distance US Electrical Grid Connection Log Jam](#) - Currently, [260,000 megawatts of power generation are waiting to connect](#) - double the current fleet of power generators, and [almost all of that waiting generation is renewable energy](#) ... solar, wind, battery storage. That's the problem the newly issued final rule from the Federal Energy Regulatory Commission was designed to address. Hard work, for a very important cause.
- [The Federal Energy Regulatory Commission \(FERC\) Approves \\$796 Million Maryland Grid Capacity Expansion](#) - The [FERC overruled the Maryland Public Services Commission](#), and approved PJM Interconnection's \$796 million plan for making [transmission upgrades](#) - primarily by Exelon utilities Baltimore Gas and Electric, [PECO Energy](#), and Potomac Electric Power. Costs will be passed through to ratepayers. The upgrades will accommodate the 6/1/25 retirement of Talen Energy's 1,282 MW Brandon Shores coal plant near Baltimore.
- [Agrivoltaics Come to Ohio](#) - The Ohio Power Siting Board has [authorized](#) Oak Run [Solar Project](#): 800 MW solar-electric generation facility (power for 170,000 homes), rack mounted solar panels with sun-tracking, two 3.5-mile long transmission lines, 300 MW battery energy storage facility, incorporates both livestock grazing and row crops, 4,400 acre project on a 6,050 acre site, Madison County OH [[map](#), west of Columbus OH]. The project is said to be the largest of its kind in the US, and includes a research cooperation with Ohio State University. [Considerable disinformation](#) was overcome. [Harvey B.]
- [World's Largest Solar Farm Now Grid Connected](#) - The 3.5 GW, 33,000 acre solar farm near Urumqi, Xinjiang Province China [just got connected](#) into China's electrical grid. China now has the three largest, up and running, grid connected solar farms in the world. The other two each have a 3 MW capacity. Big!!
- [China Has Now Installed the World's First 18 MW Wind Turbine](#) - This *one* turbine in Guangdong Province China will provide [enough power for 36,000 homes](#) - 18 MW, rotor diameter 853 feet, sweeps an area of 570,000 square feet ([seven football fields](#)). Also big!
- [Virginia Legislature Broadens Coverage by Community Solar Programs in Virginia](#) - [Details](#). The Dominion Energy program will expand from 200 MW to 350 MW, with half of the additional capacity designated for lower-income subscribers. Appalachian Power will start a 50 MW program. Well done in Richmond VA ... and a [recent \\$156 million EPA grant](#) for residential solar programs serving marginalized communities in VA helped.

- [Federal-State Modern Grid Deployment Initiative](#) - 21 states (including [Maryland](#)) have [joined](#) with the [federal government](#) to drive grid modernization. Participating states will be offered the opportunity to receive technical and financial assistance through this channel.
- [South Brooklyn Marine Terminal Reinvented as Off-Shore Wind Port](#) - [Skanska](#) (Stockholm Sweden) has been awarded a \$861 million contract to convert this 73 acre unused facility in New York City into the [support base for the 2.1 gigaWatt Empire Wind project](#) located just off the coast of New York - 147 wind turbines, [power for over 1 million households](#), located between 29th and 39th streets in the Sunset Park and Greenwood Heights neighborhoods. The new facility will be capable of receiving, storing, and pre-assembling massive offshore wind turbine components, and will serve as the operations, maintenance and power distribution hub for Empire Wind.
- [The Electric Semis are Coming](#) - and [ChargePoint](#) (Campbell CA) will be ready for them with its Megawatt Charging System - part of its [Express Plus](#) DC fast charging system. It will charge at 1.2 MW initially (power for 1,000 homes), and is designed to eventually reach 3 MW. Photo and details, [here](#).
- [Sysco Plans to Deploy 800 Class 8 Battery-Electric Semi Tractor/Trailer Trucks by 2026](#) - The food service company already has [120](#) Daimler Truck North America battery/electric '[Freightliner eCascadia](#)' trucks in service, and plans more (including from Tesla) - [2,500 by 2030!](#) First deployment in Houston. [Mike/Jacqui K.]
- [Germany Powers Down 15 Coal Burning Power Plants](#) - [7 already closed](#) this year (Rhenish mining area and Brandenburg), and 8 more to follow soon. Most of the power has been replaced by solar and offshore wind. The UK will close the 'Ratcliffe-On-Soar Power Station' this year, its last UK coal burning plant. Progress!
- [US Solar Power Generating Capacity is Zooming](#) - 75% of all new US electrical generating capacity added to the grid in the first quarter of 2024 was solar - [11 gigaWatts!](#) The total US solar capacity is now 200 gigaWatts.
- [Silencer for Your Leaf Blower](#) - Undergraduate engineering students at Johns Hopkins University have had their [design](#) licensed by lawn equipment company Stanley Black and Decker, which plans to bring it to market in about two years - 37% less noise in the audible spectrum. [JD W.]

Other Science News -

- [Space Plane Pre-flight Testing Successful](#) - The [Sierra Space](#) (Broomfield CO) space plane [Dream Chaser](#), and its cargo counterpart Shooting Star, have completed an intense shock, vibration, and thermal vacuum testing [\[video\]](#) at the NASA Armstrong Test Facility in Sandusky Ohio. They will now be moved to the NASA Kennedy Space Center for final testing to prepare for launch to the International Space Station later this year. [JD W.]
- [Blue Origin Takes 6 More Tourists to Space](#) - and home safely in the 'New Shepard' crew capsule ... 10 minutes later ... even though one of the three landing parachutes failed to open [\[photo\]](#). Ticket price undisclosed.
- [US DARPA Selects 6 Candidates for Uncrewed VTOL Drone](#) - The US Defense Advanced Research Projects Agency (DARPA) has chosen these 6 designs to compete for both military and civilian applications. [\[photos\]](#).
- [Severe Drought 4,200 Years Ago](#) - caused a 40 mile long branch of the Nile River, the Ahramat, to dry up, fill with silt, and disappear. It has been lost all this time, but a recent [study](#) using satellite-based ground penetrating radar imagery, geophysical surveys, and sediment cores has rediscovered and mapped the missing watercourse along the edge of the Western Desert. It now becomes clear why a group of the most famous Egyptian pyramids were placed out in the

desert so far from the Nile ... as early as 4,700 years ago. Knowing the former course of the ancient river will help archeologists discover previously unknown settlements along the Ahramat, and the mystery of how huge blocks of stone in the pyramids were moved long distances from quarries may also have been solved. Barges, not camels? [Alejandro and Enrique F.]

- High Tech Tools Reveal Previously Unknown Subsurface Structures Near the Great Pyramid of Giza - Using Ground Penetrating Radar, and Electrical Resistivity Tomography, researchers from Higashi Nippon International University, Tohoku University, and Egypt's National Research Institute of Astronomy and Geophysics have discovered two new types of subsurface structures. [Details](#). [Publication](#).
- High Energy Particles Emitted by Occasional Solar Storms Generate Spikes of C-14 - Dozens of solar storm events dating back thousands of years have been identified. These local time markers can benchmark conventional Carbon dating techniques that otherwise wouldn't be sufficiently precise. [See the application](#).
- US Military Grants Go to Two Canadian Scarce Minerals Mining Start-Ups - An [historic first](#) use of the 74 Year Old US Defense Production Act for this purpose, will allow the US military to go to the head of the customer line for the mines' products in case of a national emergency - copper, bismuth, gold, [graphite](#) and cobalt otherwise supply-denominated by China and Russia. Construction starts within two years, with first production in 2027.

Nice Thing - [full screen, skip ad]

Carousel - Rodgers and Hammerstein - Broadway Musical - 1945

- June is Bustin' Out All Over - from the 1956 film version, [here](#).