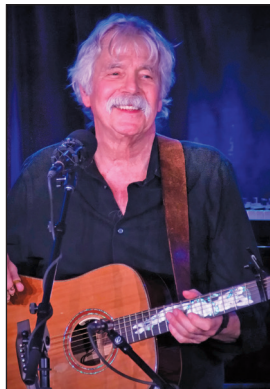


Tom Rush to play in RI

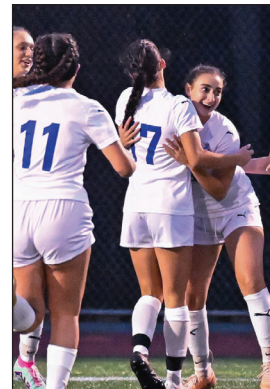
Folk legend brings songbook to Odeum

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Thursday, October 5, 2023



Clippers cruising along

Cumberland unbeaten after topping Rebels

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Photos by Ernest A. Brown

Biomufacturing Technology students, from left, Kore Moreau, Yuliana Perez and Ezequiel Barreira work at their microscopes while collecting DNA samples of Rhode Island and Southeastern Massachusetts insects in collaboration with Penn State and its Wolbachia Project at Davies Tech High School Tuesday.

Davies students research bug DNA for Wolbachia Project

By JON BAKER

jbaker@pawtuckettimes.com

LINCOLN – There's a Biomufacturing Technology class taking place at the William M. Davies, Jr. Career & Technical High School that's doing something no other from Rhode Island has ever done, according to teacher Katherine Sutton.

It has paired with Penn State University to collaborate on something known as The Wolbachia Project, which founder Dr. Sarah Bordenstein describes as "a deeply-immersive, hands-on experience that empowers students to identify the arthropod species in their communities, obtain DNA sequences to discover if the arthropods are infected with Wolbachia bacterial symbionts and examine the DNA to determine relatedness of the Wolbachia strain to other sequences in the national genetic database."

If that sounds too scientific? Biomufacturing Tech teacher Katherine Sutton breaks it down this way.

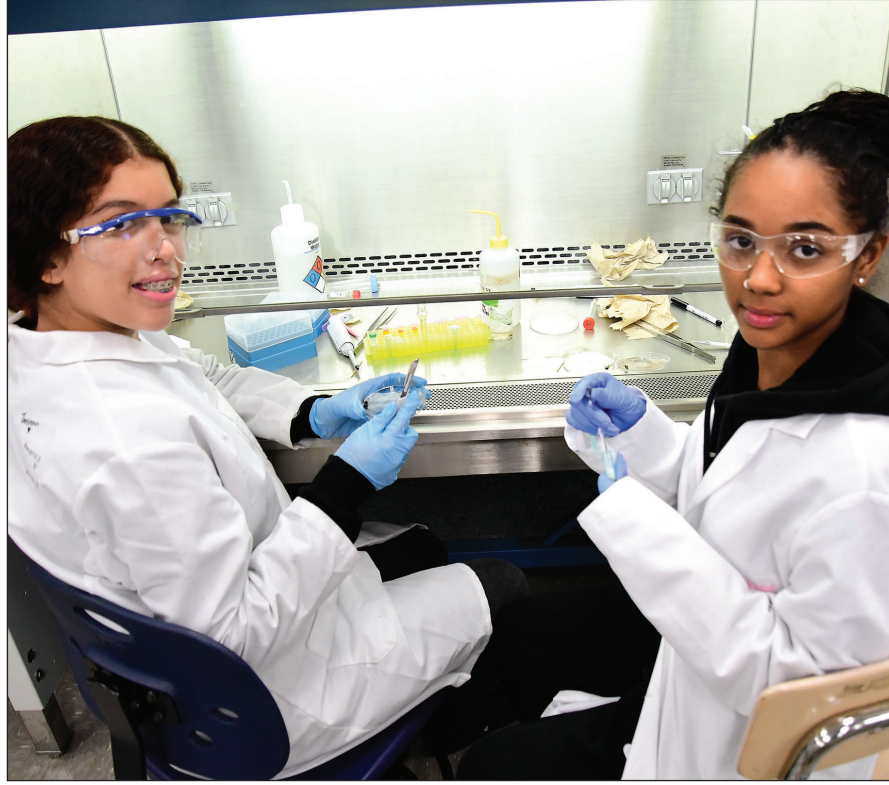
"These kids are doing actual DNA extraction from bugs they found out in the field, either on the Davies campus or CCRI next door," she said. "This is legit research they're doing right here with bugs, things like spiders, flies, bees, grasshoppers, etc. Each student has one insect they've collected from the field and they're looking for a specific gene – Wolbachia, which is a type of bacteria that infects insects."

"In essence, these kids are tracking whether the insects they're dissecting actually have Wolbachia in them? If they do, they will send that information to the world-wide data base. The critical thing is that insects with Wolbachia cannot transmit disease. They are using Wolbachia to bioengineer insects, like mosquitoes, and releasing

See DNA, page A2



Biomufacturing Technology student Yuliana Perez examines a black beetle under a microscope while collecting DNA samples of Rhode Island and Southeastern Massachusetts insects in collaboration with Penn State and its Wolbachia Project at Davies Tech High School Tuesday.



Biomufacturing Technology students Yuliana Perez, left, and Kelsy Espinal extract DNA from insects by mixing crushed bugs in a solution in test tubes while collecting DNA samples of Rhode Island and Southeastern Massachusetts insects in collaboration with Penn State and its Wolbachia Project at Davies Tech High School Tuesday.



Photo by Mark Turek

Jihan Haddad as Gail and Angela Brazil as Becky Nurse.

Trinity offers offbeat take on Salem history with 'Becky Nurse'

By KATHIE RALEIGH Contributing Writer

PROVIDENCE – Trinity Repertory Company opens its 60th anniversary season with two dark comedies associated with "The Crucible," Arthur Miller's play about the Salem Witch Trials.

"The Good John Proctor" opened first, and now Sarah Ruhl's "Becky Nurse of Salem" has joined it on stage; the plays run on an alternating basis through Nov. 12.

While "Proctor" was a prequel to "The Crucible," written from the point of view of the young girls who made claims of witchcraft in 17th century Salem, "Becky Nurse" is contemporary. It cen-

ters on the title character, a descendant of Rebecca Nurse, one of the women accused of being a witch.

"Proctor" has its humorous moments but thematically is the darker of the two plays. "Becky Nurse" deals with some serious issues, but because of Ruhl's offbeat way of looking at situations, director Curt Columbus' talent for comedy, and an outstanding performance by Angela Brazil as Becky, it's hilarious.

Becky Nurse lives in Salem and has worked for 20 years giving tours at the Salem Museum of Witchcraft -- despite disdain for Miller's historically inaccurate play, which

See TRINITY, page A2

Biden administration to bypass federal law to build border wall

By VALERIE GONZALEZ Associated Press

McALLEN, Texas — The Biden administration announced they waived 26 federal laws in South Texas to allow border wall construction on Wednesday, marking the administration's first use of a sweeping executive power employed often during the Trump presidency.

The Department of Homeland Security posted the announcement on the U.S. Federal Registry with few details outlining the construction in Starr Coun-

ty, Texas, which is part of a busy Border Patrol sector seeing "high illegal entry." According to government data, about 245,000 illegal entries have been recorded in this region during the current fiscal year.

"There is presently an acute and immediate need to construct physical barriers and roads in the vicinity of the border of the United States in order to prevent unlawful entries into the United States in the project areas," Alejandro Mayorkas, the DHS secretary, stated in the notice.

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\$1.2 billion Powerball drawing nears after 11 weeks without a winner

PINEVILLE, N.C. (AP)—A \$1.2 billion Powerball jackpot will again be up for grabs Wednesday night after an 11-week stretch without a big winner, but no matter how large the prize grows the odds stay the same — and they're terrible.

It's those odds of 1 in 292.2 million that make the jackpot so hard to win and that result in such giant prizes for the lucky player or players who manage to pick the game's six winning numbers. The latest Powerball jackpot is the world's seventh-largest lottery prize. The last time someone won the top prize was July 19.

GAME DETAILS

In most states, Powerball tickets cost \$2 and buyers can choose their own numbers and single Powerball or leave that task to a computer. Powerball drawings are held three times a week at 10:59 p.m. EDT on Mondays, Wednesdays and Saturday, with the numbers selected at the Florida Lottery in Tallahassee.

Once the numbers are chosen, it usually takes a couple hours to determine if there is a jackpot winner. If there isn't a winner, state lottery officials release a jackpot estimate for the next drawing. If there is a winner, the jackpot reverts to \$20 million and begins the long process of growing until there is another winner.

Gale Groseclose, who was buying Powerball tickets in Pineville, North Carolina, said a \$1 million prize would be plenty for her but that the \$1.2 billion jackpot certainly caught her attention.

"I don't usually do this on a regular basis, but like I said, when it gets to be, what is it? I don't even know what, over 1 billion dollars," Groseclose said. "It's exciting."

HOW IS THE JACKPOT DETERMINED?

The jackpot is based on revenue from ticket sales, so the more people who play the game, the faster the top prize grows. However, even though the current jack-

pot is advertised as \$1.2 billion, the lottery has less than half that amount available for the top prize. That's why the cash prize — which most winners take — would be \$551.7 million.

Players also can choose an annuity, in which that \$551.7 million would be paid to a company that would guarantee a return over 30 years of \$1.2 billion. If a winner dies before collecting all their money, the remainder would go to the winner's estate.

WHAT ABOUT TAXES?

State lotteries will immediately deduct 24% of jackpot winnings for federal taxes, and additional federal taxes may be required when filing federal tax returns. State taxes will vary as some states don't tax lottery winnings at all and others tax the money at different rates.

Players who buy winning grand prize tickets in a state different from where they live will pay taxes based on where

they bought the ticket.

DO POWERBALL ODDS CHANGE BASED ON THE NUMBER OF PLAYERS?

The game's odds remain 1 in 292.2 million regardless of how big the jackpot is and the number of people buying tickets. Those odds mean there are 292.2 million possible number combinations.

To put the immensity of that into context, note that for Monday's drawing players across the country chose just over 20% of those possible combinations. That means nearly 80% of the possible combinations were not selected, so the odds were pretty good that there wouldn't be a winner.

Typically, the larger the jackpot grows, the more people play and the more combinations are covered. People also usually buy more tickets on Saturdays, which increases the chance of a winner for those drawings.

Trinity

Continued from page A1

capitalizes on the town's history and makes Salem a tourist attraction.

"It's our g—mn Christmas pageant," Becky fumes.

Because of her Nurse family connection, Becky thinks she has the inside track on the truth of the witch trials and rebels against following the script endorsed by the museum director, an academic named Shelby.

After a particularly "original" and expletive-filled re-telling of the Salem story to a group of students, Becky is fired from her job. That only exacerbates the stress she already has raising her depressed granddaughter Gail; worrying about Gail and a boyfriend, Stan, of whom she doesn't approve; self-medicating with pills; and carrying a torch for Bob, a sweet, understanding — and married — friend.

Ironically, Becky turns to a modern, self-described

witch for help, and at first the crystals and spells seem give her some control. The magic, of course, doesn't last, and Becky's life takes some surprising turns.

Thanks to the triumvirate of Ruhl, Columbus and Brazil, Becky's travails are the fuel for all manner of comedy, from the slapstick way Becky carries out the witch's orders to situations that start plausible but devolve into exaggeration. Laughter comes steadily, uproariously on occasion, and often in surprising places.

The star turn, however, is Brazil's Becky. Her physical comedy, timing and expressions are perfect, right down to small idiosyncrasies, like the way she spits out the name Stan, dripping with contempt.

She has, moreover, great supporting-cast help from Jihan Haddad as Gail; Alexander Crespo-Rosario II as Stan; Dereks Thomas, in a sympathetic performance as Bob; and Meg Thalken as the wacky witch with a head for business.

Not to be overlooked are

colorful performances by Rachel Dulude as Shelby, Becky's frustrated boss at the museum, and Benjamin Grills as both a judge and a jailer.

Ruhl founders a bit in Act II, trying to bring out serious thoughts that underlie the comedy, including drug addiction as modern "possession," personally and in legal terms. The effort feels unnecessary; Ruhl has made those points well, even while we laugh through Becky's anger, worries and wrong turns.

That dark and well written comedy, coupled with wonderful performances, is more than enough reason to make sure you meet Becky Nurse.

Performances of "Becky Nurse of Salem" and "The Good John Proctor" alternate through Nov. 12. Tickets, plus information on discounted Neighborhood Nights, open-caption and sensory-friendly performances, are available at trinityrep.com, by calling the ticket office at (401) 351-4242, or in person at 201 Washington St.

Wall

Continued from page A1

The Clean Air Act, Safe Drinking Water Act and Endangered Species Act were some of the federal laws waived by DHS to make way for construction that will use funds from a congressional appropriation in 2019 for border wall construction. The waivers avoid time-consuming reviews and lawsuits challenging violation of environmental laws.

Starr County's hilly ranchlands, sitting between Zapata and McAllen, Texas, is home to about 65,000 residents sparsely populating about 1,200 square

miles (3,108 square kilometers) that form part of the Lower Rio Grande Valley National Wildlife Refuge.

Although no maps were provided in the announcement, a previous map shared during the gathering of public comments shows the piecemeal construction will add up to an additional 20 miles to the existing border barrier system in the area. Starr County Judge Eloy Vera said it will start south of the Falcon Dam and go past Salineño, Texas.

"The other concern that we have is that area is highly erosive. There's a lot of arroyos," Eloy Vera, the county judge said, point-

ing out the creeks cutting through the ranchland and leading into the river.

Concern is shared with environmental advocates who say structures will run through public lands, habitats of endangered plants and species like the Ocelot, a spotted wild cat.

"A plan to build a wall through will bulldoze an impermeable barrier straight through the heart of that habitat. It will stop wildlife migrations dead in their tracks. It will destroy a huge amount of wildlife refuge land. And it's a horrific step backwards for the borderlands," Laiken Jordahl, a southwest conservation advocate for the Center for Biological Di-

versity, said Wednesday afternoon.

During the Trump administration, about 450 miles of barriers were built along the southwest border between 2017 and January 2021. Texas Governor Greg Abbott renewed those efforts after the Biden administration halted them at the start of his presidency.

The DHS decision on Wednesday contrasts the Biden administration's posturing when a proclamation to end the construction on Jan. 20, 2021 stated, "building a massive wall that spans the entire southern border is not a serious policy solution."

U.S. Customs and Border Protection had no im-

mediate comment.

The announcement prompted political debate by the Democratic administration facing an increase of migrants entering through the southern border in recent months, including thousands who entered the U.S. through Eagle Pass at the end of September.

"A border wall is a 14th century solution to a 21st century problem. It will not bolster border security in Starr County," U.S. Representative Henry Cuellar said in a statement. "I continue to stand against the wasteful spending of taxpayer dollars on an ineffective border wall."

Political proponents of the border wall said the

waivers should be used as a launching pad for a shift in policy.

"After years of denying that a border wall and other physical barriers are effective, the DHS announcement represents a sea change in the administration's thinking: A secure wall is an effective tool for maintaining control of our borders," Dan Stein, president of the Federation for American Immigration Reform, said in a statement. "Having made that concession, the administration needs to immediately begin construction of wall across the border to prevent the illegal traffic from simply moving to other areas of the border."

DNA

Continued from page A1

them around the world to cut down on disease transmission, like EEE, malaria, Dengue fever, West Nile

Virus and more.

"These kids here are doing a lot of research right now on this bacterium and its ability to mitigate disease spread, and I think they're doing amazing!"

Sutton and teaching partner Louis Cirello, a North Smithfield resident and Coventry native, are most proud of the fact that should their students, 13 in all, discover Wolbachia in the bugs in which they're experimenting, they will have their findings published.

"They're all super-excited about this because it's hands-on, which kids love," Cirello said. "That's why they're here. They can see the purpose of what they're doing rather than just the normal pen and paper. This is real research with real results and real outcomes."

Truth be told, Sutton just sort of happened upon this project. She said she was going through some old files left behind by former legendary teacher Janet Butler, who retired a few years ago and founded the school's Biomanufacturing Technology, this summer.

"It was about the Wolbachia Project, and I thought, 'Oh, this is cool,' so I read more about it," Sutton said. "At the time, it was being done out of Vanderbilt University in Tennessee. I decided to Google search it on-line, and I discovered Dr. Bordenstein was in-

involved, so I called her.

"I asked her, 'What's the deal?' I explained that I had found this old literature and asked if she was still doing the project. I said, 'This sounds like it's right up our alley.' She said they were absolutely still doing it, and I explained our program here at Davies, what our students are being trained in, and she said, 'That sounds amazing! We've never had a school from Rhode Island involved, so even better.'"

"She also said they don't have any data from Rhode Island, and I said, 'We're going to try to change that.'"

Sutton and Cirello worked on the program together. When they told their kids about it, she said, they expressed enthusiasm and energy, not concern about failing.

"They love it," she said. "The big thing for them is if they get good results, they will have an actual published page. They will be considered published researchers, which is huge. They also will have their own URL, they're own link on-line, so they will get the credit."

In this particular classroom on this day, senior Yuliana Perez of North Providence spent time "grinding up" a pill bug, or a "Roly Poly" beetle-type insect.

"When this class project first started, I was a little

grossed about it because I was tearing apart an insect's insides, plus they've been outside, so who knows where they've been, but now I'm used to it," she said. "Now that I've started, this is fascinating."

"Wolbachia is something that's contracted by a male insect and it causes them to reproduce like a female; they can actually have babies," she continued. "Now we're taking out their reproductive systems and using goop to see if it has the DNA."

"It's pretty much the same concept as giving the flu or a cold to another human. If an insect has the Wolbachia bacteria, it will not spread disease. Like I said, this is fascinating; it's so fun. In science, there's always something more that you can learn. It's never-ending. I like the hands-on part the most."

Nearby, senior Ezequiel Barrera of Central Falls stood next to classmate Kore Moreau of Pawtucket, and both were riveted to using tweezers to carefully dissect their designated bugs in their respective petri dishes.

"We grabbed a bunch of insects from the wilds, collected them and brought them back here for dissection," Barrera said matter-of-factly. "We dissected their reproductive organs and now we have to take the scientific steps to see if they have Wolbachia in

them. We have to take out the DNA and then study it."

"This is so cool; I have such an appreciation for life, and doing stuff like this makes you realize just how much life is around you. We just started this process, so we have more steps to take."

Added Moreau: "I just love working with bugs! I just dissected a Daddy Long Legs, which is not a spider but a bug. I cut open the abdomen to extract the reproductive organs and then put them in a centrifuge tube and a reagent to break down the protein. The next step is to put it in a water bath of 56 degrees Celsius (132.8 degrees F). That helps speed up the process of the reagent doing its job to the protein."

"This is great; I'm loving it! When I first found out about this, I went and bragged to my sister. I knew it was right up my alley."

Cirello said his ultimate goal for the students is that each one has better lab skills than college seniors, since this is a college class.

"Both Ms. Sutton and I thought this was a fantastic idea because what we like to do with our seniors is give them real world research, and you can't get any more real world than looking for a certain protein to basically stop mosquitoes from passing, say, Yellow Fever, on to other beings."

LOTTERY NUMBERS

<p>Wednesday's RI Daily Mid-day: 1-5-1-4 Evening: 9-8-0-4</p>	<p>Tuesday's Mega Millions 3-19-32-39-59 Megaball 24</p>
<p>Wednesday's Mass. Daily Mid-day: 2-7-7-3 Evening: n/a</p>	<p>Tuesday's Mass Cash 2-5-27-31-35</p>

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