

Antennae galaxies discovered by William Herschel

The Antennae galaxies are a pair of interacting spiral galaxies located 60 million years away in the constellation Corvus. These galaxies are currently in the process of colliding and merging. They were discovered by William Herschel in 1785, who described them as two nebulae very faintly joined. In the 1920s Edwin Hubble proved that these nebulae were actually galaxies.

The galaxies resemble an insect's antennae with long



Carlos Rotellar

tidal arms of stars, gas, and dust that extend out from the galaxies, as a result of their collision. NGC 4038 and NGC 4039 were two separated galaxies some 1.2 billion years ago. The two galaxies started approaching each other about 900 million years ago. In a few billion years the galaxies will merge into a single large core, with a supermassive black hole in the center.

When the Milky Way and Andromeda Galaxy collide in 8 to 10 billion years from now, they will look similar to the Antennae galaxies during at least one point of their interaction. Galaxies are not solid objects and there is a lot of



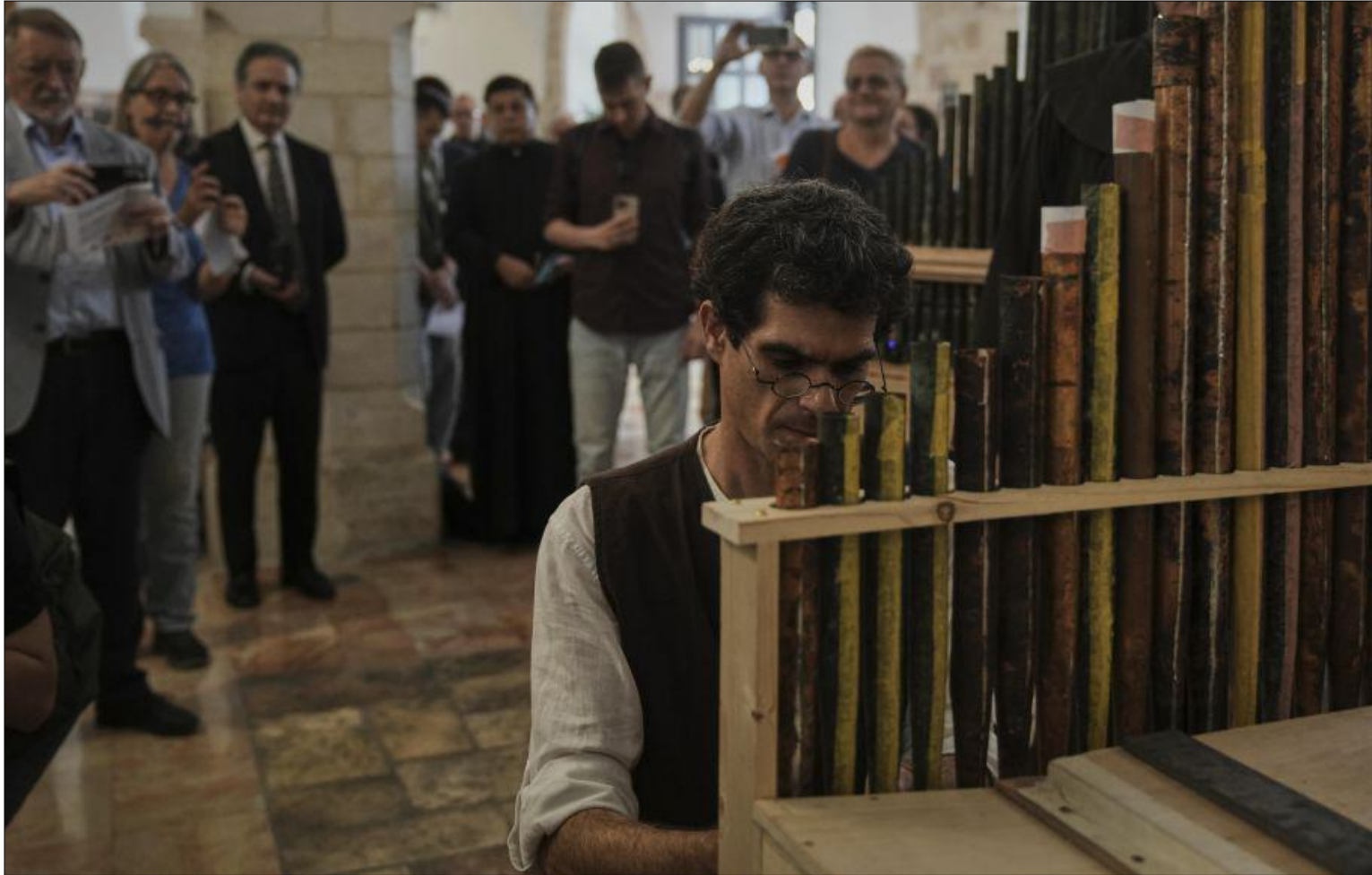
CARLOS ROTELLAR

The Antennae galaxies are a pair of interacting spiral galaxies located 60 million years away.

empty space within them. When two galaxies collide, it is not a onetime crash, but rather several close encounters until they settle into a giant galaxy. The Milky Way contains about 200 to 300 billion stars and the Andromeda

Galaxy about 1,000 billion stars. However, because of the vastness of space, the chance that during their collision stars will hit each other is very small. To put this collision into perspective; if you had 30 bumblebees flying around the continental United States of America, there would be a better chance of two bees running into each other, than two stars colliding during the merge of two galaxies.

– Dr. Carlos Rotellar is a Bowling Green nephrologist who has had an interest in astrophotography and has been taking images of the universe from his driveway for several years. Website: Skyastrophotos.com.



MAHMOUD ILLEAN / AP

David Catalunya, a Valencian musician and musicologist plays an 11th-century organ that researchers say is the oldest in the Christian world was played for the first time in 800 years after restoration, in Saint Savior's Monastery of Jerusalem's Old City, Tuesday.

BACK TO LIFE

Oldest pipe organ in Christian world sounds after 800 years of silence

By JULIA FRANKEL
Associated Press

JERUSALEM — After 800 years of silence, a pipe organ that researchers say is the oldest in the Christian world roared back to life Tuesday, its ancient sound echoing through a monastery in

Jerusalem's Old City. Composed of original pipes from the 11th century, the instrument emitted a full, hearty sound as musician David Catalunya played a liturgical chant called Benedicamus Domino Flos Filius. The swell of music inside Saint Saviour's Monastery

mingled with church bells tolling in the distance. Before unveiling the instrument Monday, Catalunya told a news conference that attendees were witnessing a grand development in the history of music. “This organ was buried with the hope that

one day it would play again,” he said. “And the day has arrived, nearly eight centuries later.” From now on, the organ will be housed at the Terra Sancta museum in Jerusalem's Old City — just kilometers (miles) from the Bethlehem church where it originally

sounded. Researchers believe the Crusaders brought the organ to Bethlehem, the birthplace of Jesus, in the 11th century during their period of rule over Jerusalem. After a century of use, the Crusaders buried it to protect it

See ORGAN, 3C

'I have a story for you, Sean'

“I have a story for you, Sean,” the email began. She was a cleaning woman. Two kids. One cat. She was going under, fast. She could not afford this month's rent. The landlord was already preparing to kick her out.



Sean Dietrich

She was working from can to can't. Sunup to sundown. Just making ends meet. But the ends weren't meeting. Her oldest son, 14, was also working to pick up the slack. He bussed tables in a local bar-slash-restaurant. Each evening, after the woman finished cleaning hotel rooms, she joined her son at the restaurant to wash dishes until 1 a.m.

It was during one such late shift that our story begins. They had just gotten off work. Mom was tired, dragging with exhaustion. And even though it was past midnight, Mom and son sat on the curb to eat their complimentary to-go suppers.

See STORY, 3C

Schools are still recovering years after California wildfires

By CAROLYN JONES of CalMatters, MEGAN TAGAMI of Honolulu Civil Beat and SHARON LURIE The Associated Press

PARADISE, Calif. — Nearly seven years after Paradise was ravaged by wildfire, the foothill town smells like pine trees again. New homes are sprouting up on once-scorched lots. Construction trucks rumble through neighborhoods. An ice cream shop recently opened around the corner from the newly rebuilt high school.

But in the town's classrooms, recovery has been more complicated — and much slower. Even as Paradise gradually rebuilds schools lost to Cali-

fornia's 2018 Camp Fire, officials have found getting kids on track academically — and recreating a tight-knit, thriving school community — is a lot tougher than just flipping on the lights at a new campus.

“We'll get there, but we have not yet recovered,” said Superintendent Tom Taylor before he retired in May. “We're not yet where we want to be.”

One of the deadliest wildfires in U.S. history, the Camp Fire is among the many natural disasters that have upended student learning over the past decade. Damaged schools, lost homes and layers of trauma have left a mark on thousands of children — a scenario sure to continue as climate change makes these events more fre-



NOAH BERGER / AP

The sun sets over Valley Ridge Drive in 2023 in Paradise, California

quent and more intense. The challenges that persist in Paradise are a reminder of how long learning recovery can take — and a lesson on how schools can give traumatized kids a better chance of thriving long term.

It's also a lesson on how to balance mental health and academics in the years following a disaster. For most students, the Camp Fire and its aftermath made it almost impossible to focus on schoolwork. Schools pushed academics aside in favor

of mental health, a move that most agreed was necessary but set students back months if not years academically.

“People think, natural disaster — mental health. They don't think about the academic component to it,” said Carrie Dawes, health and wellness coordinator for Paradise Unified. “You put that aside when you have a little kiddo crying because they don't have a house to live in. You're not going to say, ‘OK, snap out of it. We've got math to do.’”

CAMP FIRE LEFT STUDENTS IN A LINGERING ACADEMIC MALAISE

In the Paradise disaster's wake, students found themselves moving frequently.

See SCHOOLS, 3C