

# Green Bank telescope has eye on Voyager

By Rick Steelhammer  
Staff writer

On the same day NASA officials announced that Voyager 1 had become the first spacecraft to leave the solar system, the National Radio Astronomy Observatory announced that its Green Bank Telescope had pinpointed Voyager's radio signal more than 11 billion miles away.

On Thursday, NASA announced that 36 years after its launch, the plutonium-powered spacecraft had passed through the heliosphere — the hot plas-

ma bubble surrounding the solar system — and escaped the sun's influence.

Voyager 1, headed away from the sun at a speed of about 38,000 miles per hour, will continue to observe exotic particles from never-explored parts of the universe, and radio data back to Earth.

While NASA's Jet Propulsion Laboratory continually tracks Voyager using a network of antennas and communication facilities located in California, Spain and Australia, NRAO astronomers believe they can locate

Voyager's position on the sky with unprecedented precision.

Although Voyager's main transmitter operates at only 22 watts — about the same power used by a car-mounted police radio or a refrigerator light bulb — its signal is extremely strong when compared to most natural objects studied by radio telescopes.

West Virginia's Green Bank Telescope easily detected Voyager's signal, picking it out from background radio noise in less than one second, according to the NRAO.

"Voyager is the first man-made object to penetrate the interstellar medium, and we really want to be able to receive the data from this new frontier," NRAO scientist Toney Minter, who oversaw the Green Bank observations, said in a news release. "This information will provide many clues about how the interstellar medium behaves and how the sun interacts with it."

Scientists using the NRAO's Very Long Baseline Array, a network of 10 radio antennae stretching from Hawaii to the

Virgin Islands, also pinpointed Voyager's position. The VLBA, which operates as a single telescope, spotted the spacecraft very near its predicted location.

Observations by the VLBA taken of Voyager after it passed through the heliosphere earlier this year may have been accurate to the milliarsecond level, with one milliarsecond equaling an area about 50 miles across, when taken from a distance of 11.5 billion miles.

"The ability to pinpoint the location of Voyager and other spacecraft is critical as we ex-

plore the inner solar system and beyond," said Walter Briskin, the NRAO scientist who directed the VLBA observations.

Last year, a National Science Foundation committee included both the Green Bank Telescope and the VLBA in a list of observatories to be cut off from NSF funding by 2017 in an effort to cut costs while achieving as many scientific goals as possible.

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## A WEIGHT LIFTED



CHIP ELLIS | Gazette

After suffering a stroke, James Butch undergoes physical therapy at Thomas Memorial, where therapist Kelly McGrew works with him with the unweighting system.

## Device helps patients learn to walk again

By Lori Kersey  
Staff writer

James Butch was recovering from an April 2011 stroke, but when his progression had slowed earlier this year, his physical therapist, Kelly McGrew, made a suggestion.

"Kelly got me walking pretty good with the cane, but I wasn't walking very fast," Butch recalled. "She said, 'I know what we need to get you walking faster. We need to get you a treadmill you can't fall down on.'"

Butch's stroke had rendered him unable to use his left leg. He had started walking with physical therapy at Thomas

Memorial Hospital. The hospital didn't have the equipment McGrew thought he needed to improve even more — an unweighting system.

The system allows patients to be harnessed above a treadmill or elsewhere. The harness supports some of a patient's weight while they're learning to walk again. A computer system tracks the patient's speed and other measures of progress.

"[The unweighting system] gets you to the next level because it's repetition," McGrew said. "With strokes, you want to do repetition, repetition, repetition because that's how they recover."

The hospital's budget didn't have the money for the \$20,000 equipment. But, McGrew told Butch, they only needed \$5,000 — the Foundation for the Thomas Memorial and Saint Francis Hospitals would pay the rest.

"So I made arrangements to hand them a \$5,000 check," said Butch, the president of Eagle Research Corp.

Butch is a frequent donor to Thomas Memorial, he said. "Good people doing good work need to be supported," he said.

South Charleston's Thomas Memorial got the Biodex Unweighting System about four months ago and is the only hos-

pital in the area with one, said Donna Gorton-Childers, director of physical therapy for the hospital.

Charleston Area Medical Center has a similar system for inpatient therapy and may get a system for outpatient therapy, spokesman Dale Witte said.

The system is fairly new, Gorton-Childers said. It's been on the market for only about two years.

The system is safer both for the patient, who has no risk of falling, and the physical therapist, who no longer has to support the patient while he or she

SEE UNWEIGHT, 8A

## Safety tops design requirements for school buildings

By Mackenzie Mays  
Staff writer

As the School Building Authority continues to design West Virginia's newest schools and take on other projects, the agency is now required to consider a major factor more than ever before: safety.

At the top of the SBA's priority list for new schools in West Virginia is shatterproof glass and lockdown buttons.

Every new school being built in the state will be equipped with a protective window film that prevents glass from being busted out, in addition to other safety factors such as a single point of entry.

At Monday's quarterly meeting, School Building Authority Executive Director Mark Manchin urged staff to take these precautions one step further and incorporate the new safety features not only in new schools being built but in any ongoing projects where extra funding is available.

The SBA is looking into ongoing projects across the state where design layouts and funding allows for the installation of new safety features.

"There have been incidences obviously, and I think in the world we live in we have to be ever vigilant in providing the safest schools we can for the state of West Virginia and in the United States," Manchin said Monday morning.

In addition to shatterproof glass "that will withstand a shotgun blast" and would allow at least three to five minutes for school staff to alert police in case of an intruder, Manchin said, the SBA is also implementing school safety features such as:

- At least one button in an "inconspicuous place" that when pushed will immediately dial 911 and alert police to the school.

- A single, designated and secure point of entry.

- "Man traps" that deter visitors from gaining access to the main part of the building. "[School staff] will literally have to look at the individual before they get into the rest of the building," Manchin said.

- High curbs or bollards — concrete barriers to assist traffic — that will "stop a vehicle from being able to drive directly into a school."

"Every new school built in every county in West Virginia at the very least will have shatterproof glass that will withstand a shotgun blast or a direct shot," Manchin said. "It would not allow for an individual to enter a building and will allow at least three to five minutes regardless of what that individual chooses to do once they enter the building."

The School Building Authority first announced its newest plans for increased security during a school safety summit in Charleston in February following the Sandy Hook Elementary School massacre in Newtown, Conn.

Nearly all of the state's 683 schools already have keyless door locking devices, thanks to \$30 million appropriated by the Legislature for school safety in 2010.

As of February, only about 30 percent of schools had one designated secure entrance.

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## Putnam opens new health department facility in Winfield

By Lydia Nuzum  
By Staff Writer

WINFIELD — After months of financial struggle and uncertainty, the Putnam County Health Department has established a new home at 3282 Winfield Road, in Winfield.

The facility, which opened Monday, is housed in an office building directly across from Winfield Middle School.

According to Ashley Meadows, a licensed practical nurse for the Kanawha-Charleston Health Department who has volunteered to work shifts at the Putnam agency, the new department is currently only offering vaccinations in Winfield, but Kanawha-Charleston administrators hope to expand its capabilities in the near future.

"Today was our first day, so word is still kind of getting out that we're here, but we're hoping people will drive by, or that they've heard we've moved and see if they can find us," Meadows said.

Members of the Kanawha-Charleston agency's staff have volunteered to work different days to fill the need in the Putnam agency, Meadows said, and she only knows what her schedule will look like the week it is given to her.

"I wanted to be able to help and to be able to fill the need here," she said. "I thought it

would be good to do this for all of the people who don't have the transportation or the means of getting to Kanawha-Charleston or another county to have access to care."

The new facility has a waiting room, an administrative area, storage space for patient files and an exam room.

While the department's former space in Scott Depot had three to four exam rooms at a given time, at least two were perpetually "inactive," according to Lolita Kirk, administrator for the Kanawha-Charleston Health Department and interim administrator in Putnam County, and she believes the new facility will be able to keep up with demand.

"It comes down to managing your appointments and managing your space effectively. You can do a lot with very little space, actually," Kirk said. "I think we can handle the volume."

According to Kirk, rent for the space is "significantly less" than what the Putnam Health Department paid for its previous location. The building the Health Department has moved into is up for sale, but Kirk said it has been on the market for a long time and she does not foresee major complications if it is sold.

SEE HEALTH, 8A

## Students attend Culture Center citizenship program

By Paul J. Nyden  
Staff writer

In May 1787, a group of leaders gathered in Philadelphia to begin discussing and drafting the U.S. Constitution. They completed their task 226 years ago today, ending the five-month Constitutional Convention.

U.S. Attorney Booth Goodwin spoke about the Constitution at the Culture Center during Monday's annual Citizenship Day program attended by students from five high schools.

"Only a small number of men were there: 55 came to the Constitutional Convention, but only 41 stayed to the end. Their average age was 43," Goodwin said.

Thirty-nine ended up actually signing the Constitution. "They met in the same room where the Declaration of Independence was signed 11 years earlier."

The Constitution's ability to endure was a direct result of the time when it was created, Goodwin said.

"People had fought a long war to become independent. We needed to create a national character. . . .

"There had been nothing like it before. The government had three branches — each designed to check the other [branches]."



LAWRENCE PIERCE | Gazette

Jake Gance, public-relations director for Secretary of State Natalie Tennant, talks about the West Virginia and U.S. constitutions with Raleigh County students.

The Founding Fathers also partially avoided some issues, like slavery. They approved the end of all slave importation in 1808, "But the slavery issue would have to be settled sometime in the future," Goodwin said.

"The Constitution has been tested many times. Perhaps its greatest threat was during the Civil War, when our state was born. Then 50 years ago, it was

tested again during the civil-rights movement.

"We must continue to aspire to a more perfect union and establish justice where there is not justice," Goodwin concluded.

Students came to Citizenship Day from Cabell-Midland High School, Roane County High School, Liberty High School in Clarksburg, and Woodrow Wilson and Shady Spring high schools in Raleigh County.

The Roane County High School band played "America the Beautiful" and the Horace Mann Middle School Girls Chorus, from Kanawha City, sang "The Star-Spangled Banner."

After the main event, students broke into groups to participate in three other programs: a tour of the West Virginia State Museum, a West Virginia Constitu-

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