

# Unlikely champions of a cosmic underdog

A scientific outcast, an 11-year-old girl and a penniless farm boy loved Pluto long before its hapless charm melted our hearts

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The morning of March 14, 1930, was a fairly ordinary one in the home of 11-year-old Venetia Burney in Oxford, England. The schoolgirl was eating breakfast in the dining room while her grandfather, Falconer Madan, paged through that day's edition of the Times of London.

But fate lay on page 14: a story about a newly discovered planet found at the far reaches of the solar system.

Madan read the story aloud to his precocious granddaughter, who had studied the planets in school by arranging lumps of clay in the university park to model the distances between celestial objects. Young Venetia also had a penchant for classical mythology (all the major celestial objects in our solar system are named for Greek and Roman gods), so when Madan speculated about the new planet's name, she had a suggestion up her sleeve.

"We all wondered," she recalled in the documentary *Naming Pluto*. "And then I said, 'Why not call it Pluto?' And the whole thing stemmed from that."

Venetia's grandfather, the retired head of the historic Bodleian Library at Oxford University, passed the idea along to an astronomer friend of his, who responded, "I think PLUTO excellent!" according to the New York Times. (There's nothing like a new planet to get dignified British professors to use excessive punctuation and all caps.)

The astronomer telegraphed his colleagues at the Arizona observatory that had discovered the new planet and they voted unanimously in favour of the name. Pluto, the solar system's ninth planet, was born.

We all know what happened 75 years later: new discoveries in astronomy and a debate about the true definition of a planet resulted in Pluto being stripped of its title.

Pluto may no longer be a planet. It may be small and obscure. But it is capable of captivating us with its hapless charm despite distance and darkness and years of scientists slowly chipping away at its status. And its champions, like 11-year-old Venetia, come from the unlikelyst of places. They include a scientific outcast and a penniless farm boy, along with the thousands of ordinary astronomy lovers who cheered when NASA's New Horizons spacecraft whizzed past on Tuesday morning, sending back the best image yet of everyone's favourite planet-that-isn't.

There it was, all rocky brown and beige. And in its lower hemisphere was an almost-perfect heart. How could ours not melt?

It was a long way from the very first photograph of Pluto, taken by Percival Lowell almost exactly 100 years earlier. Lowell was a turn-of-the-century American astronomer infamous for speculating that aliens had built canals on Mars.

Somewhat cast out from the space community for his admittedly zany notion, Lowell dedicated the remainder of his life to yet another thankless task: the search for Planet X, an elusive rocky body at the very outer reaches of our solar system.

Using a primitive camera and a borrowed telescope, he spent more than a decade diligently photographing the night sky hoping to find evidence of a planet whose existence had been theorized since the 1840s but never proved.

In the spring of 1915, Lowell's camera finally caught what it had been searching for: two faint images of a small sphere of space rock more than 4.8 billion kilometres from the sun. But for reasons we many never know — maybe Lowell never saw the images; maybe he did and didn't recognize their significance — Lowell never realized that he'd finally found the ninth planet. He died a year later and those first photographs faded into obscurity.

Lowell's death in 1916 left a gap in the ninth planet search effort, one that remained mostly empty until 1929, when a 23-year-old named Clyde Tombaugh arrived at the observatory Lowell had founded in Flagstaff, Ariz.

Tombaugh was the son of farmers from Kansas, and his dream of going to college were dashed when a hailstorm destroyed his family's crops, according to a biography on the Academy of Achievement website. Undaunted, he taught himself trigonometry and geometry and began building his own telescopes. The sketches of planets he drew with his homemade equipment were so impressive that, when he sent them to the observatory in Flagstaff, astronomers there invited him to work for them.

"I was rather unnerved by it all, everybody were strangers, 1,000 miles from home, and not enough money in my wallet for a return ticket home," Tombaugh wrote of his first day there, according to the Kansas Historical Society.

Upon his arrival, Tombaugh was put to work on Lowell's old task — searching for the elusive "trans-Neptunian object." Though the technology was slightly better, the technique for seeking out a distant planet hadn't changed much. Tombaugh spent hours in an unheated dome snapping photos of the sky, then examined the exposures to determine whether any of the pinpricks of light in them seemed to move over the course of days. Objects that remained stationary were stars, the logic went. But if it moved, it might be a planet.

After nearly a year of searching, he found it — a tiny speck that crept across several of his photos. "That's it!" he recalled exclaiming. Tombaugh and his colleagues spent more than a week studying the moving speck and confirming its validity, then announced their finding to the world on March 13, 1930. It would have been Lowell's 75th birthday.

The discovery transformed Tombaugh from an anonymous researcher into an international astronomy sensation. He was offered a scholarship to the University of Kansas, became a military researcher and astronomy professor, and is credited with discovering several new asteroids and hundreds of stars. An ounce of his ashes, saved after he died in 1997, was on board New Horizons when it launched in 2006.



WIKIPEDIA

Venetia Burney was 11 when she suggested the newly discovered Pluto be named after the Roman god of the underworld. She was adamant that the Disney dog, which debuted the same year, was not her inspiration.

Thousands of miles across the Atlantic, the news of the discovery reached young Venetia Burney. She thought that Pluto, the Roman god of the underworld, was a fitting namesake for the darkest and most distant planet. The name had the added bonus of beginning with the same letters as Percival Lowell's initials.

When the news went public, Venetia said in a 2006 interview with the BBC, her grandfather rewarded her with a five-pound note.

In the interview, she was modest about her stroke of genius — she came up with Pluto mostly because the other major names from classical mythology had already been taken, she said.

But she was adamant on one point: she did not name the planet for Pluto the dog, a Disney character that debuted the same year. "It has now been satisfactorily proven that the dog was named after the planet, rather than the other way round," she said. "So, one is vindicated."

Burney, who became Venetia Phair after she was married, went on to become a schoolteacher and minor astronomy celebrity — an asteroid has been named for her, as has a dust-measuring instrument on board New Horizons. She died in 2009, three years after the spacecraft launched and six years before it would reach the planet she named.

This week, the spacecraft New Horizons captured one of Pluto's most endearing features: an almost perfect heart in its lower hemisphere.

NASA/JHUAPL



In 1930, Clyde Tombaugh became an international astronomy sensation after spotting the elusive "Planet X."

Kuiper belt," in the words of Hayden Planetarium director Neil deGrasse Tyson, who in 2000 left Pluto out of the New York museum's planetary display.

The death knell for Pluto as a planet came in 2005, when astronomers discovered the space object Eris even farther from the sun than Pluto and seemingly even larger.

Appropriately named for the Greek goddess of chaos and strife, Eris sparked an uproar among astronomers. Either scientists had found a 10th planet or they had to reconsider what the term "planet" really meant.

The International Astronomical Union went with the latter option, deciding in 2006 to classify both Pluto and Eris as "dwarf planets." The rationale was that Pluto wasn't massive enough to "clear the neighbourhood" around its orbit (meaning that there are no other objects of comparable size in its orbit except those that are under its gravitational influence, such as satellites).

It was crushing news for the average Pluto enthusiast. But many of the people who study Pluto say that the affable, unflappable not-quite-planet is no worse off for its redesignation.

"Pluto is the granddaddy of the most populated region in the solar system, with the most to tell us about our history," Hal Levison, a scientist at the Southwest Research Institute who advocated for revising the planet classification criteria, told Slate last year. "It must not mind."

The "demotion" may even have worked in its favour.

"It's interesting, isn't it, that as they come to demote Pluto, so the interest in it seems to have grown?" Venetia commented to the BBC in 2006.

After all, everyone loves an underdog.



## 'This is not just a mosque for Muslims,' says leader

MOSQUE from IN11

"People said, 'A mosque is not required here, we're a transient society, we come and go.' I said, 'We go, but somebody else comes.'"

So in 2009, the Islamic Society of Nunavut was established, fundraising began and negotiations started with the territorial government over land acquisition and zoning.

Things moved slowly for a few years. But money was eventually raised (with a target of almost \$200,000), land was acquired and support was obtained from the same Winnipeg Islamic foundation that a few years earlier had shipped a pre-fab mosque to Inuvik, N.W.T.

As Syed explains, the construction in Iqaluit began in 2014 with the laying of a foundation. This year, work was contracted out around the local community. "We wanted to integrate everyone in this project. This is not just a mosque for Muslims," he said. "It's kind of a community place where everyone should come. The basic purpose is to do good for the community."

Syed, now 56, has since moved to Regina, but he remains president of



SYED ASIF ALI

Construction of the Iqaluit mosque began last year and has involved many in the community of about 100 Muslims.

Nunavut's Islamic Society and through his work travels frequently across the Canadian North.

In Iqaluit, support has been gratifying, he says. When the mosque's first wall was to be raised on a particularly

windy day this spring, the supervisor said he wouldn't do it without 24 people. The usual crew was just a handful of workers. In short order, Syed says, 28 volunteers from around town were at the site.

"The whole community got together behind us. They're so excited. Everyone has participated and rallied around. Our aim is to integrate everyone, get to know each other better, value each other's faith."



Syed Asif Ali is president of the Islamic Society of Nunavut and travels frequently across Canada's North.

Even this week, work continued during Ramadan, when observant Muslims fast between sunrise and sundown — which in the Far North at this time of year means almost an entire 24-hour day.

Muslims get used to it, explains Syed, who has three grown children. Some clerics have ruled that in remote locations, where there is not an established Muslim community, the faithful can govern themselves according to the sunrise and sunset in the nearest big city — which in this case, happily, is Ottawa.

"It's a matter of faith, you know. You believe in something and (the practice) just becomes part of you."

In any event, it's easier in Nunavut than in Pakistan to keep the fast, Syed adds. The cooler temperatures help keep thirst under control.

"You don't get dehydrated as much."