

Is Pluto a Planet?

The Great Planet Debate

- Dov Levy

For nearly half a century after its discovery, Pluto was considered the ninth and farthest planet in our solar system. However, advances in science led some astronomers to challenge that notion. In response to a series of revelations about our solar system in the early 2000s, the word “planet” was redefined in 2006. The highly contentious decision excluded Pluto from the list of planets. The debate continues to rage, however, and scientists today are no closer to a consensus. Read the surprisingly heated history of the ice planet (or non-planet) Pluto.

Clyde Tombaugh was sitting in his home near Las Cruces, New Mexico, when the telephone rang. The caller introduced himself as Robert Staehle. Staehle explained that he worked for NASA's Jet Propulsion Laboratory (JPL) near Pasadena, California. He was calling to discuss a new project.

It was August 1992 and astronomer Tombaugh was 86 years old. After retiring from a career that had made him internationally famous, Tombaugh remained very active in his field. Now the unexpected call piqued Tombaugh's curiosity.

"How can I be of help?" Tombaugh asked.

"I would like to request your permission to visit your planet," was Staehle's reply.

The strange request took Tombaugh's thoughts back to a day 62 years earlier. As a young amateur with a brilliant mind, his avid interest in space had landed him at the forefront of a major astronomy project. Early in 1930 Tombaugh became the one who discovered the heavenly body known as Pluto.

Now, in a courtesy gesture that appealed to Tombaugh's playful nature, Staehle notified the elderly astronomer that NASA was preparing to explore "his" planet.

A Young Amateur

Clyde William Tombaugh was born on February 4, 1906, in Streator, Illinois. In 1922, the family moved to a farm near Burdett, Kansas. Tombaugh had an extraordinarily active and curious mind, and he was always on the lookout for challenges to stimulate his brain. Describing this period of his childhood, Tombaugh said, "Can you imagine young people nowadays making a study of trigonometry for the fun of it? Well, I did."

In 1925, Tombaugh graduated from high school. He dreamed of going to college and pursuing a more exciting career than farming. However, a hailstorm that destroyed the farm's crops also wiped out the family's savings. Tombaugh was forced to face the



Left: Clyde William Tombaugh, the man who discovered Pluto. Right: A young Clyde Tombaugh with the nine-inch telescope he built.



Percival Lowell, founder of the Lowell Observatory, looms at Venus through the observatory's telescope.

harsh reality that he could no longer afford a higher education.

From his father, Tombaugh learned to appreciate engineering, but it was his uncle who introduced him to astronomy. When his uncle lent him a telescope, Tombaugh became hooked for life.

In 1926, when Tombaugh was just 20, he built a telescope. Dissatisfied with the quality of his optics, he studied the art of lens-making. Grinding his own glass and mirrors, he built two more telescopes over

the next two years. The final one, with a nine-inch lens, was completed in 1928. Despite being completely homemade, using spare parts taken from farm equipment and a shaft from his father's 1910 Buick, this telescope proved to be of superior quality.

Using his telescope, Tombaugh eagerly explored the skies. He made detailed sketches of what he saw on Mars and Jupiter. Curious about what the professionals would say, he sent copies of these drawings to the Lowell Observatory in Flagstaff, Arizona. Astronomers at the observatory were extremely impressed by the amateur's work.

As Tombaugh explained, "The planets are never the same twice; they're always different. So they could compare the markings I had drawn with their current photographs, and they knew I was drawing what I was really seeing and it wasn't copied from somewhere."

In 1929, Tombaugh received a reply letter from the observatory that was probably the last thing he expected. The director, Dr. Vesto Melvin Slipher, wrote to offer Tombaugh an immediate position at the Lowell Observatory. He was to conduct planet-search photography using the observatory's brand new 13-inch telescope.

It was the big break Tombaugh had been dreaming of. He would spend the next 14 years working for the observatory.

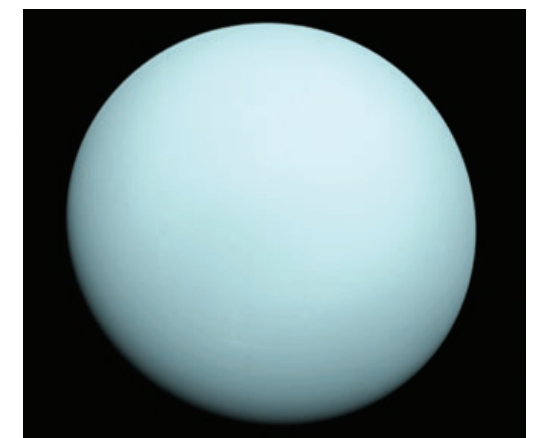
New Discoveries

Since the beginning of time people have been busy observing the skies. The ancient stargazers of Mesopotamia, Egypt and China and the Mayans of Central America avidly studied the nighttime sky, laying the foundations for modern astronomy. They noticed that while stars remain fixed in one place in the sky, some heavenly bodies appeared to be in motion. In addition to the sun and moon, five other moving bodies were plainly visible to the naked eye. These five moving bodies—Mercury, Venus, Mars, Jupiter and Saturn—became known as the

classical planets. In fact, the word *planet* comes from the Greek word *planetes*, meaning "wanderer."

This view of the sky remained largely unchanged for thousands of years. Then, on March 13, 1781, English astronomer Sir William Herschel changed everything by identifying a new planet. Called Uranus, this planet effectively increased the known size of our solar system by over 90 percent. While Saturn orbits at a distance of less than one billion miles from the sun, the distance to Uranus averages 1.79 billion.

Astronomers plotted the path of Uranus' orbit according to the rules of physics. As they observed Uranus over the following decades, however, they found that their calculations were off by thousands of miles.



Sir William Herschel, the English astronomer who discovered Uranus. Bottom: Uranus, the first "new" planet to be discovered. This image was made in 1986 by the Voyager 2 spacecraft.