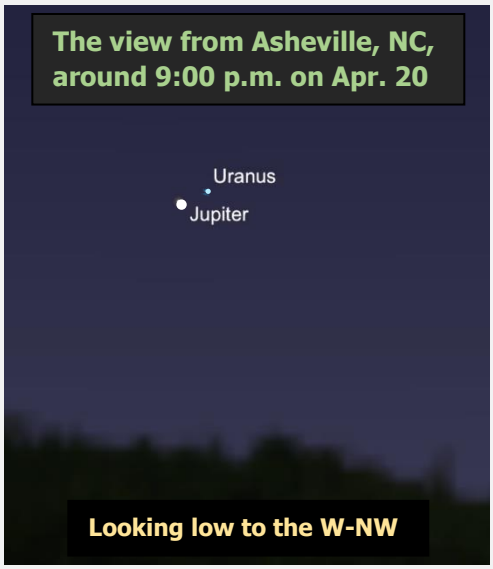
Astronomy Club of Asheville
April 2024 Highlight
A Jupiter Conjunction with Uranus

From **April 18-22**, you will have an opportunity to observe two outer planets – Jupiter and Uranus – trade positions in the early evening sky. Located along the ecliptic in the constellation Aries, the Ram, speedier Jupiter, with its 12-year orbital period, overtakes Uranus. Uranus occupies an outside lane in the solar system track, and it takes about 84 years to complete a lap.
As Jupiter moves counterclockwise, it will appear as close as 30 arc minutes (the approximate diameter of the full Moon in our sky) away from Uranus around April 20th. Jupiter is very bright and easy to spot in clear skies, but you will need binoculars to catch Uranus in this juxtaposition.



You may notice that Uranus has a pale blue tint. Like Neptune, Uranus has an upper atmosphere with significant methane gas (CH_4). Methane strongly absorbs red light; thus, the blue end of the light spectrum, from the reflected sunlight, is what primarily passes through to our eyes, when observing this distant planet.

Uranus' Discovery

Uranus was the 1st solar system planet to be discovered! British astronomer William Herschel, using a telescope, observed its bluish disk in 1781, quite by accident. He was surveying all stars of magnitude 8 or brighter, when this small blue dot appeared in his eyepiece. During follow-up observations, its position changed against the background stars. This movement made it a candidate to join the ranks of the "planets"!

NASA image

The name "Uranus" wasn't universally in use until 1850 when Her Majesty's Nautical Almanac Office in Britain finally switched from calling it Georgium Sidus, or George's Star.
Its discoverer, William Herschel, named it for his patron, King George III.

- Continue to next page

Unsurprisingly, the name didn't gain traction outside of England. German astronomer Johann Bode proposed Uranus, the father of Saturn, which ultimately proved a better fit.

Uranus' orbit had an unexplained problem – a deviation that astronomers called a "perturbation" – that led to the discovery of Neptune.

Johannes Kepler's laws of planetary motion and Isaac Newton's laws of motion and gravity could not adequately explain this perturbation in Uranus' orbit. They suspected that a massive object, out beyond Uranus, was "pulling" on the planet. Mathematicians John Adams and Urbain Le Verrier each independently calculated the approximate celestial position of a solution. Subsequently, using a 9-inch refractor telescope at the Berlin Observatory, Johann Galle, by moving the telescope to the mathematically calculated coordinates, discovered Neptune in 1846 – problem solved!

Although Neptune was "discovered" by Johann Galle in 1846, he was not the first person to lay eyes on the planet's blue disk! On two different occasions, in 1612 and 1613, Galileo recorded Neptune's position while he was observing much brighter Jupiter. However, using his modest telescope, Galileo did not recognize it as a planet. He likely thought it was a faint background star.

Find out more about the planet Uranus at this NASA link.