

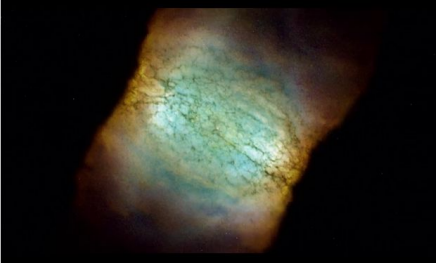




ESO, Karl-Schwarzschild-Str.2
D-85748 Garching bei München,
Germany
Telephone: +49 (0)89 3200 6855
Telefax: +49 (0)89 3200 6480
hubble@eso.org

www.spacetelescope.org

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Hubblecast Episode 86: The wings of the Twin Jet Nebula	Visual notes
<p>00:02 [Narrator] 1. Shimmering colours in this new image show off the remarkable complexity of the planetary nebula PN M2-9, better known as the Twin Jet Nebula.</p> <p>The new view from Hubble highlights the nebula's shells and knots of expanding gas in striking detail.</p>	
<p>00:25 2. Intro</p>	
<p>00:42 [Narrator] 3. Planetary nebulae have been the subjects of some of Hubble's most stunning images.</p> <p>Despite their name, these picturesque objects have nothing to do with planets. The early astronomers observing them knew they weren't planets — they didn't</p>	

move across the sky — but they were given the name as they resembled distant planets in the telescopes of the day.

When better telescopes came along, astronomers were able to see their more intricate structure and reveal their true nature. They are huge shells of gas formed when Sun-like stars run out of fuel, and throw off their outer layers.

These shells are then heated up, ionised and illuminated by the fierce ultraviolet radiation from the star's hot core, which remains at the nebula's heart — resulting in spectacular light shows like the one seen here.

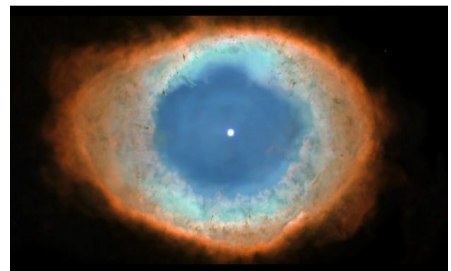


02:07

[Narrator]

4. These nebulae glow in all manner of beautiful colours, due to the presence of different gases.

The famous Ring Nebula, for example, glows in vibrant blue-greens, reds and oranges — caused by regions of glowing oxygen, hydrogen and nitrogen.



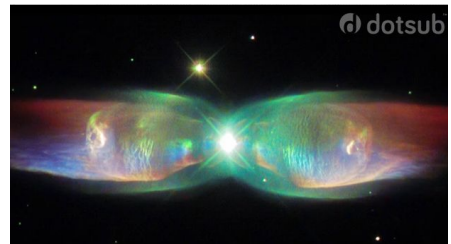
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[Narrator]

5. The Twin Jet Nebula has a rather different appearance from the Ring Nebula with two iridescent lobes of material stretching outwards from the nebula's centre.

The reason for this odd structure is hidden at the nebula's core.

The Twin Jet Nebula is a bipolar nebula and the



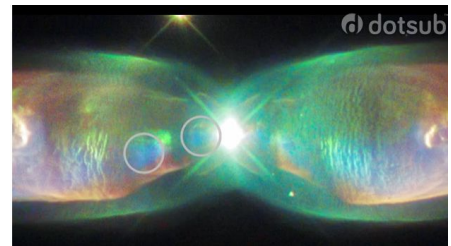
characteristic shape is thought to be caused by there being not one, but two stars at its heart.



03:10

[Narrator]

6. Within the lobes, starting from the star system and extending horizontally outwards like veins, two faint blue-hued patches are visible. These are intense twin jets of gas streaming out into space.

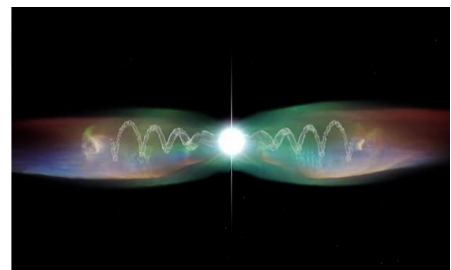
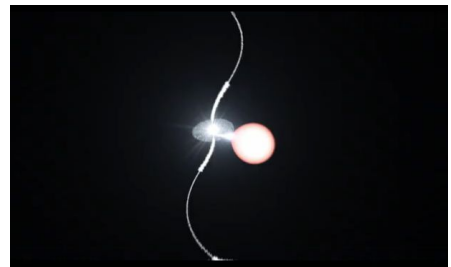


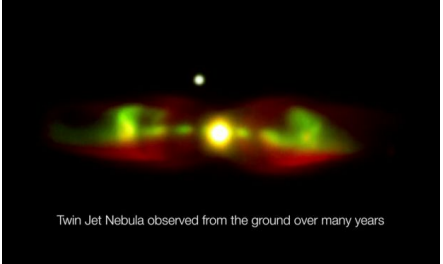

03:28

[Narrator]

7. The jets are hurtling away from the star system at speeds in excess of one million kilometres per hour. As they travel they slowly change their orientation over time, twisting slowly through space like water from a garden lawn sprinkler.

This phenomenon is again thought to be attributable to the duo of stars orbiting at the nebula's centre.



	 <p>Twin Jet Nebula observed from the ground over many years</p>
<p>04:00 [Narrator] 8. Despite the clarity of this image, binary star systems and their nebulae are still mysterious. Hubble has much to explore — but for now, we can continue to enjoy their beauty from afar.</p>	

Ends 05:13