Did William Herschel Discover The Rings Of Uranus In The 18th Century?

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In a paper presented at the National Astronomy Meeting in Preston from 16 – 20 April, Dr Stuart Eves of Surrey Satellite Technology Limited will challenge the orthodox view that the rings around the planet Uranus were first detected during an occultation experiment in 1977.

Remarkably, a paper presented to the Royal Society in December 1797 by the then King's Astronomer, Sir William Herschel, (who had discovered Uranus in 1781), includes a description of a possible ring around the planet. Dr Eves believes this is the first observation of the rings that were not seen again for almost two hundred years.

Even Herschel was unable to confirm his possible sightings, and they were not repeated by several generations of astronomers who came after him. (Prior to 1977, when astronomers thought that Uranus lacked rings, Herschel's claims were dismissed as "clearly erroneous". And even after 1977, when the existence of the rings was finally established, it was suggested that the rings were far too dim to have been detected by Herschel's telescopes, and so his claim to priority was ignored).

However, a recent re-evaluation of Herschel's 1797 paper by Dr Stuart Eves of Surrey Satellite Technology Limited, suggests that Herschel's claim to have seen one of the rings may well have been correct.

"Herschel got a lot of things right", notes Dr Eves, "He has a ring of roughly the correct size relative to the planet, and he also has the orientation of this ring in the right direction. In addition, he accurately

describes the way the appearance of the ring changes as Uranus moves around the Sun, and he even gets its colour right. Uranus's Epsilon ring is somewhat red in colour, a fact only recently confirmed by the Keck telescope, and Herschel mentions this in his paper."

But if Herschel could see the Epsilon ring in the late 1700's, why did no-one else follow up his observations in subsequent years as the telescopes astronomers used improved? "There are several mechanisms that could account for this", suggests Dr Eves, "The current Cassini satellite mission to Saturn is telling us that its rings are becoming darker and also expanding, (becoming more diffuse), over time.

If these same mechanisms are also operating at Uranus, then the appearance of its rings could have changed quite markedly over 200 years, making them much harder to detect." Herschel's observations could thus be proof that planetary ring systems in our solar system are far more dynamic than has previously been supposed.

Source: Royal Astronomical Society