

Astronomy Talk 11th February 2020

William Herschel and the rings of Uranus

Stuart Eves talked about whether Herschel had detected Uranus's rings. Herschel initially thought Uranus had 6 moons in his 1787 paper, but 4 of them turned out to be distant stars. He also noted rings in 1789 and 1792.

The rings were seen by Voyager in 1977, and it was thought detection of the brightest epsilon ring was far beyond the capability of Herschel's telescopes. The pictures Herschel drew did have the correct orientation for the time and he also noted the ring as having a reddish hue, which again was correct.

It is probable that Herschel used his 20' telescope, and if the ring then had the same brightness as now, it would indeed have been undetectable. No further reports were made at the time, and no doubt Herschel's eyesight would have been deteriorating as he got older.

Why weren't his observations repeated by others? It's possible the amount of volcanic activity through to the mid 19th century may have made observation of dim objects very difficult. This is illustrated by the fact that after the first 4 asteroids discovered at the start of the 19th century, none were discovered for another 40 years.

The question remains whether the rings were brighter when Herschel looked at the planet. Stuart gave a list of 16 reasons why that might be so and showed a further picture Herschel drew with a ring nearer to a polar orbit. If that was correct it would have broken up, would have been formed by a recent collision and may have contributed to the ring's brightness.

This was a very detailed study, and Stuart gave his reasoning in a paper to the Royal Astronomical Society. He was pleased to see the expression "rediscovered in 1977" has now been used, though not everyone is yet on board with it. Stuart clearly thinks Herschel did see the epsilon ring!