Astronomy Talk 17th May 2016
Pluto from myth to discovery

This talk was given by Graham Bryant, chairman of the Hampshire Astronomy Group. Graham touched briefly on the mythology, from Pluto abducting Persephone to explain the seasons, and covered the named moons of Pluto: Charon the ferryman, Nix who lured people to the underworld, Cerberus the 3-headed dog and Hydra the multi-headed monster killed by Heracles.

We then looked at the discovery of the outer planets. First Uranus by William Herschel in 1781, then Neptune whose location was calculated by Adams and Leverrier from perturbations of Uranus's orbit. The same logic was applied to perturbations of Neptune's orbit to hypothesise another outer planet, though it turned out there was no such effect.

Percival Lowell and William Pickering continued to look for another planet, but without success. They had all sorts of guesses about size and mass, and were looking for something much larger than Pluto turned out to be.

Vesto Slipher became director of the Lowell observatory after Lowell's death, and continued the search by hiring Clyde Tombaugh in 1929. He also installed a blink comparator that made looking for moving objects much easier. Tombaugh found Pluto only 10 months after starting his search, and it was announced in March 1930. Its name was proposed by an English schoolgirl, Venetia Phair aged 11.

We then looked at modern images including from Hubble and from the New Horizons fly-by in 2015. New Horizons, launched in January 2006, after a gravitational assist from Jupiter, passed Pluto travelling at 45,000 mph, so the instruments had to be positioned very exactly to get the results we have seen. The data comes back to Earth at 2,000 bits per second, so it's a 2-year programme to get it all back here.

Pluto has lots of water ice, and also CO, CH_4 and N_2 ices. It is surprisingly geologically active, with glaciers and cryovolcanoes. It has a layered atmosphere and reddish patched from tholins. Charon similarly has tholins on its north pole. Nix and Hydra seem to be pure water ice.

The probe is now moving on to the Kuiper Belt object 2014MU69, which it will reach in January 2019.