



Deep Sky Section

NGC 6210 – A forgotten planetary nebula in Hercules



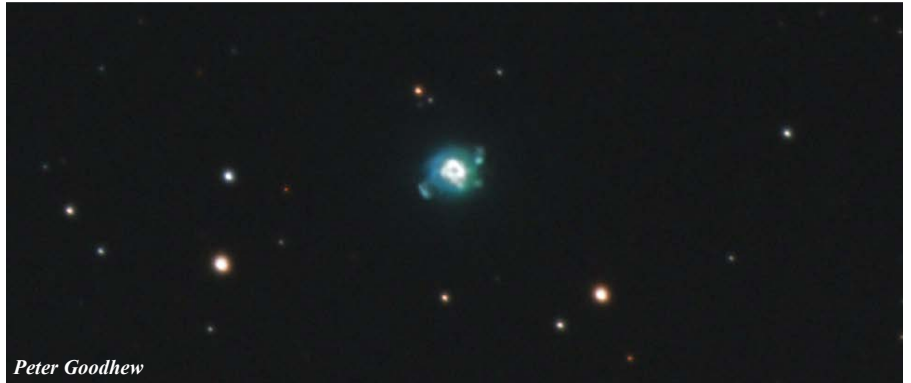
Stewart Moore
Director, 2004–2013

For such an important mythological figure, Hercules is represented in the sky by rather a faint constellation. It may be the fifth-largest in the sky, but being composed mainly of stars in the magnitude range 2.8 to 3.5, it is not at all prominent. Under a dark sky it can be difficult to locate compared to some of its companion constellations, with their first-magnitude marker stars. To compensate, it does lie almost overhead on late-spring and early-summer nights, and well away from Milky Way interference. To most deep-sky observers, Hercules means the globular clusters M13 and M92, but there are many other delights within its boundaries, including numerous double stars visible in small telescopes.

One such forgotten object is the planetary nebula NGC 6210. It is listed in most observing guides, including the *Webb Society Deep-Sky Observer's Handbook, Volume 2* and Stephen O'Meara's *Deep Sky Companions – Hidden Treasures* (where it is hidden treasure number 78). However, it somehow fails to attract the attention of many observers and there are few images in the Section's archive. Possibly its lack of appeal to imagers is due to many deep-sky photographers using wide-field telescopes, not particularly suitable for imaging small, arcsecond-size planetaries.

Listed as a star by Lalande in 1799, its nebulous nature was discovered by the great observer Wilhelm von Struve in 1825 while he was searching for double stars. At a distance of some 6,000 light-years, it lies at RA 16^h 44^m 29.5^s and Dec 23° 48' 00", which puts it just over four degrees north-east of the magnitude 2.8 yellow giant star beta Herculis. At magnitude 8.4, it is a bright object and it is surprising that its discovery was missed by earlier observers.

Determining the size of nebulous objects with diffuse outer envelopes is difficult, as it depends to a large extent on both the size of telescope being used to make the measurement and the steadiness of the atmosphere. NGC 6210 is generally listed as being around 20×15 arcsec and elongated east–west, although it often appears considerably smaller than that. Such a small object would almost certainly have appeared star-like to Charles Messier and his comet-seeking colleagues, so it is understandable why they did not discover it, but it could well have been seen by William Herschel with his larger telescopes. Following Struve's discovery, it was observed by William's son John, who reported it as 'very bright, 8 arcsec in diameter and of uniform light but with edges boiling and ragged'. It was also observed by the Rev Thomas William Webb, who saw it as 'small and like an out-of-focus star' – a description most visual observers, including the present writer, would agree with.



Peter Goodhew



Bob Garner



Fred Stevenson



Andrea Tasselli

Many deep-sky objects, particularly nebulae, have become personalised nowadays by having popular names attached to them. Often based on deep images obtained with large telescopes, in many cases they require a certain amount of imagination to see the attributed figure. Not so with NGC 6210, which following imaging by the *Hubble Space Telescope* in 1997 (right) has been rightly named the Turtle Nebula – complete with a stomach full of still-to-be-digested shellfish.

Planetary nebulae are renowned for the range of shapes they produce as the dying star responsible for creating the nebula goes through its death throes and stellar winds, emitted at ever increasing speeds and temperatures, catch up with and break through the earlier-expelled outer envelope. Despite its small size, Bob Garner, Andrea Tasselli, Fred Stevenson and, more recently, Peter Goodhew have all attempted to image this tiny planetary. Their images are reproduced above.

Bob Garner used his 350mm Newtonian and SBIG 2000XM camera, binned 2×2, with exposures of 10×2min CLS and 8×2min H-alpha, OIII and H-beta. Andrea Tasselli used his Intes-Micro M809 8-inch *f*/10 Maksutov–Cassegrain with an SXV-H9 camera and a total exposure of 75min, through RGB and H-alpha filters. Fred Stevenson's image was taken through his 14-inch Meade LX200 with a DSI Pro III CCD camera. Total exposure time was 82min (CLS, H-alpha, OIII and SII). In 2022 February, at the writer's request, Peter Goodhew imaged it from his remotely operated observatory in southern Spain.

Telescopes used were twin APM LZOS 152 refractors fitted with QSI 6120 CCD cameras. The filters were Astrodon RGB, H-alpha 5nm and OIII 3nm. Exposures were RGB 47×60s, H-alpha 45×120s and OIII 43×120s.

Although none of these images could claim to show any turtle features, some structure is visible in them. Both Andrea Tasselli's and Peter Goodhew's images hint at how complex the nebula is internally. (Peter remarked that this planetary proved to be a real imaging challenge, due to its small size and high dynamic range.)

Visually, this planetary is one of the few to show colour, appearing bright blue. This is largely lost on this colour-blind writer, who observed it in 1993 in his 8¾-inch *f*/5.8 Newtonian, under a magnitude 5.1 sky (I am slightly embarrassed to say that I have not observed it since). At ×50 it was visible as a small disc of indeterminate size, easily held with direct vision, while increasing the power to ×173 it was very obvious as a well-defined grainy disc that appeared slightly flatter on the north side. The central star (magnitude 13.7v) was not seen at any power and the use of an OIII filter showed no extra detail.

I always find tracking down and observing small planetaries both challenging and very satisfying. If you do too, there is another planetary in Hercules to test you: NGC 6058, which is similar in size and appearance to NGC 6210. As always, if you observe any of these objects, do send your results to the Deep Sky Section or post them on the BAA website. 📧

