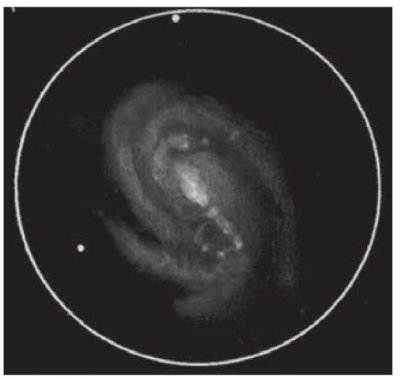
NGC 2903 – the galaxy Messier missed

Although Charles Messier and his colleagues recorded most of the bright northern deep sky objects when searching for comets, a few escaped their gaze and one of their brightest misses was galaxy NGC 2903 in Leo, discovered in November 1784 by William Herschel. At RA 9h 32.2m and Dec +21° 30' (2000.0) the galaxy lies 1.5° due south of lambda Leonis, the magnitude 4.3 star which forms the top of the Sickle asterism and which juts out westwards from brighter epsilon. On a clear night from a dark location with Leo high in the sky it can be seen in 10×50 binoculars as a small patch of faint nebulosity, but a telescope of 15cm aperture or greater is needed to show any detail and do justice to the galaxy.



Dale Holt

NGC 2903 is a barred spiral oriented to our line of sight at 24° from edge-on, and similar in many respects to our own Milky Way galaxy. It lies at a distance of around 25 million light years in the Leo spur of galaxies with a mass estimated at 60 billion Suns, and subtends an angular size on the sky of 12×5.6 arcminutes. When William Herschel first observed this galaxy he recorded it as a double nebula and gave it two numbers – 56 and 57 in his class I (bright nebulae) category, possibly confused by brightness concentrations from HII regions in the central bar structure. Because of this it was subsequently given two numbers by Dreyer, NGC 2903 and NGC 2905, when he compiled the New General Catalogue. It was Lord Rosse and his team with the 72-inch Birr reflector who first determined the galaxy's spiral structure, showed detail in the central bar and confirmed it was all one object.

Martin Mobberley

NGC 2905 is now designated as a bright knot in the galaxy's north eastern spiral arm. Interestingly, both Smyth and Webb also saw

Bonifacio et *al.*: João de Moraes Pereira *(continued from previous page)*

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Grant Privett

Paul Downing

the galaxy as a double nebula (were they influenced by Herschel's observations?) whereas later observers have tended not to. Walter Scott Houston discussed this in one of his 'Deep-Sky Wonders' columns in *Sky & Telescope* some years ago, and suggested experimenting with a long focus telescope at medium to high magnification and gradually reducing the aperture until the galaxy becomes almost invisible, in the hope of inducing a double appearance.

As with most galaxies, increasing the aperture will show greater detail and also a bigger outer halo. While a 10 to 15cm telescope will show a 8×4 arcmin halo elongated NNE–SSW with a concentrated core, 30cm aperture will extend this to around 10×5 arcmin and also show some mottling over the surface. However, if you want to see the spiral nature of the galaxy, you will need a telescope in the half-metre class. Observing from Tenerife at 2,300m altitude in 2007 March with a 60cm telescope, the Director and Owen Brazell recorded detail visually comparable to some of the images shown here. Large ground based professional telescopes have obtained some stunning images of this object. See, for example, Astronomy Picture of the Day for 2007 July 6: **http://antwrp.gsfc.nasa.gov/apod/ap070706.html.**

Observations of NGC 2903 have been sent to the Section by Martin Mobberley, Bob Garner, Jeremy Shears, John Moore, Fred Stevenson, Grant Privett, Andrea Tasselli, Dale Holt, Carl Knight, Paul Downing and Peter Grego, and some of the images and sketches received are shown here. Both Martin Mobberley's and Paul Downing's images were obtained through 35cm Celestron C14 Schmidt–Cassegrain telescopes, Paul's from his observatory in southern Spain and Martin's from his in Cockfield, Suffolk. Martin's exposure (2×180s) was obtained with an SBIG ST9XE CCD while Paul's LRGB image (50, 40, 40, 40 mins respectively) was made with a SBIG ST10-XME camera. Grant Privett's image (200×30s) was made using a 25cm Newtonian on a Super Polaris mount fitted with a Starlight Xpress MX-716 camera. The image was processed to show both the core of the galaxy and the spiral structure. Also shown in Grant's image (near the bottom left hand edge) is the hazy glow of 12th magnitude NGC 2916, which lies 40 arcmin east of NGC 2903.

Dale Holt is a visual observer who combines modern instrumentation (Watec 120N video camera) with traditional sketching techniques. This enables him to see detail in deep sky objects that his 35cm Newtonian and Hertfordshire location would otherwise preclude. His view of NGC 2903, sketched from the monitor screen, shows great detail in the central bar structure, along with clear spiral arms.

With Leo lying due south in April evenings and the temperature, hopefully, much warmer than the in deep winter NGC 2903 is currently well displayed. If you observe this, or any of the other excellent galaxy targets around the Sickle of Leo, please send your observations to the Deep Sky Section.

Stewart L. Moore, *Director, Deep Sky Section*

Imaging Venus in the ultraviolet: a new development

Arnaud van Kranenberg (Vlaardingen, Netherlands) has sent some extremely useful imaging data to the Mercury & Venus Section during the past four years, and now he has contributed the following note for observers intending to image Venus in the ultraviolet.

'Nowadays Venus, a planet nearly devoid of visual details, is routinely imaged by amateur astronomers in ultraviolet (UV) light to reveal atmospheric markings.

Figure 1. The finished UV corrector.

'Imaging at UV wavelengths is more daunting compared to the visual or near infrared (IR) part of the spectrum. The amateur telescope was never designed to be used for wavelengths shorter than blue-violet light, and many designs suffer from image degradation in UV due to correction errors. In addition, the Sun is less luminous at wavelengths shorter than 400nm, so the reflected light received from a planetary body is also less luminous. The Earth's atmosphere, especially at low altitudes, attenuates UV more effectively and the seeing conditions in UV are often very bad, worse than in the visual or near IR range.

'A very popular telescope used in amateur imaging is the Schmidt–Cassegrain (SCT) telescope. The standard SCT consists of two spherical mirrors whose aberrations are compensated by a Schmidt plate to give a corrected image in the visual range (400–700nm). This correction does not extend into the relevant UV part of the spectrum, where compensation is more difficult. In addition, many Barlow lenses (used for necessary focal extension) and corrector plates are coated with anti-reflection (AR) coatings that significantly reduce UV throughput. Therefore the