

# SPACEWATCH

the newsletter of the Abingdon Astronomical Society

**Next Talk**  
**13<sup>th</sup> April 2015**  
**Dr Martin Griffiths**  
**(University of South Wales)**  
**'Consequences of Contact'**

## THE NIGHT SKY THIS MONTH

by **Bob Dryden**

**Sun:** March 20th, at 22.45 UT is the moment of this year's spring equinox, and the days become longer than the nights for a few months.

**Mercury:** Mercury is very poorly placed in the morning sky this session, and will be very hard to see by the third week of March. Currently it rises just 30 minutes before the Sun, shining at -0.1 magnitude. As the planet is moving towards the Sun, observing conditions only get worse from here on. Superior conjunction occurs on 10th April.

**Venus:** Shining at -4.0 magnitude, Venus is hard to miss in the evening sky. It is still moving away from the Sun (reaching an elongation of 39° by mid April) and gaining height. At the moment, Venus is 25° above the horizon at sunset and sets three hours later. By mid April it is 33° high at sunset and sets 3.5 hours later.

Venus starts this session in Pisces, but moves in to Aries on 16th March, and then Taurus on 7th April. On the 11th, 12th, and 13th April Venus slides past the Pleiades star cluster. On the evening of 22nd March the crescent Moon will be just below Venus.

**Mars:** The red planet is only on view for a short while now in the evening sky. Shining at +1.4 magnitude, Mars is just 20° high in the west at sunset and sets 2 hours later. Presently in the constellation of Pisces, it moves into Aries on 29th March. By mid April the planet is setting just 90 minutes after the Sun and will be increasingly hard to see.

While Mars starts this session about 5° below Venus, the two planets are rapidly moving apart. On 21st March the crescent Moon will be just below Mars, helping to pinpoint it for you.

**Jupiter:** Jupiter is in Cancer, about 5° east of the open cluster M44, and is on view for the best part of the night. You can hardly miss the planet as it is a very bright -2.4 magnitude, and easily the brightest 'star' in the sky once Venus has set. It is already 30° high in the east at sunset and reaches its highest altitude of 55° around 22.00 UT. As the Sun sets in mid April, Jupiter is already culminating in the south and actually sets in the west around 03.00 UT.

**Saturn:** Presently still on view in the morning sky, Saturn shines at -0.4 magnitude in the constellation of Scorpius. The rings are at an angle of approximately 25° making them an easy target for a small telescope. Saturn rises at about 01.00 UT and culminates around 05.00 UT at a height of just 19°. By mid April it culminates at 03.00 UT after rising at 23.00 UT. By then, as dawn approaches Saturn is just 12° above the south western horizon.

On the morning of 12th March the Last Quarter Moon is a couple of degrees away from Saturn.

**Uranus & Neptune:** Uranus is just 20° high in the west at sunset and sets 2 hours after the Sun. As it is just +5.7 magnitude, combined with the low altitude, it means that Uranus will be a difficult object to see. Certainly, by the third week of March the planet will be too close to the Sun to see.

Neptune is already too close to the Sun and cannot be seen this session.

**Eclipse:** Mark the 20th March on your calendar, because that morning there is a partial eclipse of the Sun (and there will not be another one visible from the UK until 2026). The eclipse starts at 08.25 UT when the Sun will be 20° high. Maximum eclipse occurs at 09.31 UT when 87% of the Sun will be covered. At 10.41 UT the eclipse ends with the Sun at an altitude of 35°.

**Asteroids:** 1 Ceres continues to brighten, if only slightly. It starts at +9.2 magnitude and ends the session at +9.0 magnitude. The dwarf planet is currently in Sagittarius and enters Capricornus on 26th March.

3 Juno is in Cancer, but fades to +9.7 magnitude by mid April after starting at +9.0 magnitude.

7 Iris is also fading, going from +8.9 magnitude in mid March to +9.7 magnitude by mid April. This one is crossing the constellation of Sextans.

**Comets:** Although past its best, comet C/2014 Q2 Lovejoy is still there, and still visible in a small telescope. It starts this session at +7.3 magnitude, but fades to +9.8 magnitude by mid April. It is crossing Cassiopeia throughout the session.

### *Editors Note*

*Imagers may like to see if they can pick up the dust trail from Comet C2015 D1 SoHO. This was a small comet that rounded the Sun and then disintegrated. Information and charts can be found at*

[http://www.skyandtelescope.com/observing/how-to-catch-a-ghost-comet-that-is03042015/?et\\_mid=730881&rid=246428972](http://www.skyandtelescope.com/observing/how-to-catch-a-ghost-comet-that-is03042015/?et_mid=730881&rid=246428972)

*This will only be possible in the next week or so and is very faint*

## LAST MONTH'S TALK

by Gwyneth Hueter

Yet another opportunity for our own Owen Brazell to cover for our planned speaker, who had to cancel. 'Observing Planetary Nebulae' was this well-polished offering.

The first one to be observed by human eye was M27 (the Dumbbell), by Charles Messier. M57 was incorporated by Messier into his catalogue, but it was first observed by Antoine Darquier, who described it as a 'fading planet'

William Herschel could not make sense of them either and kept hoping that he could resolve them into stars if he could make a telescope big enough, but he failed to do so and decided they must be a fluid around a star condensing as it is being born. He discovered about 45, impressive stuff as the NGC has only 94!

Even Lord Rosse thought and said you could resolve a lot of them. (He of the Leviathan of Parsonstown fame)

William Huggins finally confirmed that they were nebulae when he produced a spectrum of the Cat's Eye nebula (NGC 6543) and found it to be continuous.

Owen then explained how planetaries are formed, by stars nearing the end of their lives and throwing off their outer layers as their cores collapse to produce a white dwarf. The expanding nebula will then dissipate over 20-70 thousand years. The Boomerang nebula is the coldest area in the universe that we have so far seen, at 1 kelvin.

Planetaries are some of the few astronomical objects to show colour, usually a greenish hue. Filters and high magnifications help a lot. The O III filter passes light in the green area of the spectrum. The O III line is one of the few emission lines you will see in their spectra and that can be used as a distance marker for planetaries in other galaxies. This line was first identified as belonging to doubly ionised oxygen by Ira Bowen in 1927. Interestingly, he was mentioned in January's talk – he conducted research with telescope eyepieces in order to work out optimum magnifications for various exit pupil sizes.



*Imager of the planetary nebula Abell 24 in CMI by Clifford Marcus*

## NEW INFRARED VIEW OF THE TRIFID NEBULA REVEALS NEW VARIABLE STARS FAR BEYOND

A new image taken with ESO's VISTA survey telescope reveals the famous Trifid Nebula in a new and ghostly light. By observing in infrared light, astronomers can see right through the dust-filled central parts of the Milky Way and spot many previously hidden objects. In just this tiny part of one of the VISTA surveys, astronomers have discovered two unknown and very distant Cepheid variable stars that lie almost directly behind the Trifid. They are the first such stars found that lie in the central plane of the Milky Way beyond its central bulge.

As one of its major surveys of the southern sky, the VISTA telescope at ESO's Paranal Observatory in Chile is mapping the central regions of the Milky Way in infrared light to search for new and hidden objects. This VVV survey (standing for VISTA Variables in the Via Lactea) is also returning to the same parts of the sky again and again to spot objects that vary in brightness as time passes.

A tiny fraction of this huge VVV dataset has been used to create this striking new picture of a famous object, the star formation region Messier 20, usually called the Trifid Nebula, because of the ghostly dark lanes that divide it into three parts when seen through a telescope.

The familiar pictures of the Trifid show it in visible light, where it glows brightly in both the pink emission from ionised hydrogen and the blue haze of scattered light from hot young stars. Huge clouds of light-absorbing dust are also prominent. But the view in the VISTA infrared picture is very different. The nebula is just a ghost of its usual visible-light self. The dust clouds are far less prominent and the bright glow from the hydrogen clouds is barely visible at all. The three-part structure is almost invisible.

In the new image, as if to compensate for the fading of the nebula, a spectacular new panorama comes into view. The thick dust clouds in the disc of our galaxy that absorb visible light allow through most of the infrared light that VISTA can see. Rather than the view being blocked, VISTA can see far beyond the Trifid and detect objects on the other side of the galaxy that have never been seen before.

By chance this picture shows a perfect example of the surprises that can be revealed when imaging in the infrared. Apparently close to the Trifid in the sky, but in reality about seven times more distant a newly discovered pair of variable stars has been found in the VISTA data. These are Cepheid variables, a type of bright star that is unstable and slowly brightens and then fades with time. This pair of stars, which the astronomers think are the brightest members of a cluster of stars, are the only Cepheid variables detected so far that are close to the central plane, but on the far side of the galaxy. They brighten and fade over a period of eleven days.



VISTA views the Trifid Nebula and reveals hidden variable stars. Credit: ESO

Further information about the mailing list can be found on the abingdonas webpage at : <http://groups.yahoo.com/group/abingdonas/> .

### NOTICE OF ANNUAL GENERAL MEETING

The Annual General Meeting for 2014/15 will take place on Monday 11th May 2015 at All Saints' Methodist Church Hall, Dorchester Crescent, Abingdon at 8 p.m., and will be followed by a talk on the Ries crater, Europe's youngest impact crater.

### DATES FOR YOUR DIARY

**23rd March** 8pm Beginners' Meeting in the Perry Room.

### FURTHER DISCUSSION

Why not take a look at our website? It's at: [www.abingdonastro.org.uk](http://www.abingdonastro.org.uk) .

If you are not already on our internet mailing list, then why not log on to YahooGroups. The list is called 'abingdonas'. Members use the list to alert each other about celestial events and to chat about amateur astronomy. The list is quite active, with several messages most weeks. To read through previous messages click on: <http://groups.yahoo.com/group/abingdonas/> .

To join the abingdonas list, please go to <http://www.yahogroups.com> . You can also unsubscribe from the list here.

To post messages to the list, please send them to [abingdonas@yahogroups.com](mailto:abingdonas@yahogroups.com) . Please note that you will need to sign up with a YahooID if you do not already have one. You can do this on the above page.

### Observing evening FCN 16<sup>th</sup>-18<sup>th</sup> Mar at White Horse Hill

The editor of "SpaceWatch" is Owen Brazell, who would very much appreciate your stories & contributions. In particular whilst many fine images are being posted on the discussion group it would be nice to have some in the SpaceWatch. Please send any news, observations, photos, etc. to:

Mail: Owen Brazell, 15 Spinage Close, Faringdon, Oxfordshire SN7 7BW  
E-mail: [owen@online.rednet.co.uk](mailto:owen@online.rednet.co.uk)

### MOON PHASES:

March 2015						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
1  Sun: 06:51 17:45	2  Sun: 06:49 17:46	3  Sun: 06:47 17:48	4  Sun: 06:45 17:50	5  Sun: 06:42 17:52	6  Sun: 06:40 17:53	7  Sun: 06:38 17:55
8  Sun: 06:36 17:57	9  Sun: 06:33 17:59	10  Sun: 06:31 18:00	11  Sun: 06:29 18:02 Moon: — 08:54	12  Sun: 06:27 18:04 Moon: 00:11 09:31	13  Sun: 06:24 18:05	14  Sun: 06:22 18:07 Moon: 02:09 11:09
15  Sun: 06:20 18:09 Moon: 03:00 12:11	16  Sun: 06:18 18:11	17  Sun: 06:15 18:12	18  Sun: 06:13 18:14	19  Sun: 06:11 18:16	20  Sun: 06:08 18:17	21  Sun: 06:06 18:19
22  Sun: 06:04 18:21	23  Sun: 06:02 18:22	24  Sun: 05:59 18:24	25  Sun: 05:57 18:26 Moon: 09:02 —	26  Sun: 05:55 18:28	27  Sun: 05:53 18:29	28  Sun: 05:50 18:31 Moon: 11:41 02:23
29  Sun: 05:48 18:33	30  Sun: 06:46 19:35	31  Sun: 06:43 19:37	1  Sun: 06:41 19:38	2  Sun: 06:39 19:40	3  Sun: 06:36 19:42 Moon: 18:50 06:11	4  Sun: 06:34 19:43
5  Sun: 06:32 19:45	6  Sun: 06:29 19:47	7  Sun: 06:27 19:48	8  Sun: 06:25 19:50 Moon: — 08:31	9  Sun: 06:23 19:52	10  Sun: 06:21 19:53	11  Sun: 06:18 19:55 Moon: 01:56 11:01



# STAR CHART

The night sky at 10 pm (GMT) on Wednesday 18<sup>th</sup> March 2015

