# STARDIS

**The Newsletter of the Tiverton and Mid Devon Astronomy Society**

Volume 1 Issue 4 March 2015

In this Issue :



March already and the beginning of the Northern Hemisphere's Spring. Observing should now start to get a little more pleasant with the warmer conditions, unfortunately, this starts to get offset by the shorter hours of darkness.

In this months STARDIS we have an interesting article by our member John Parratt who describes to us his method of astro-imaging using the various pieces of kit he has acquired and used over the years from his home observatory. I hope you find it interesting and maybe it will inspire some of you to write a similar article for inclusion into a future Newsletter, perhaps describing your observatory and how you use it or built it.

You will also find the results of the recent members survey are presented here by your Chairwoman and I hope you find them interesting reading. A couple of surprises there!

The Dawn Spacecraft has arrived and successfully gone into orbit around the Dwarf Planet, or to us older members the Minor Planet, (Asteroid), Ceres and has been sending back some pretty impressive pictures showing a heavily cratered surface with quite a few being unusually bright.

The European Space Agency had a successfully sub-orbital test flight of its IXV spacecraft. The craft blasted off from the launch site in French Guiana and reached an altitude of 420km before re-entry into the Pacific Ocean. The radical Lifting Body shape of the craft performed faultlessly and was recovered successfully. It is purely being used as a test facility to try out a number of different technologies for future spacecraft missions.

## Editors Comment:

Although the weather has tried its best to make me give up and try a different hobby I have managed to get out once or twice to image Jupiter and I did manage to do one nights worth of Deep Sky imaging with my DSLR and captured this image of the Rosette Nebula.
Have any other members been observing of late…let us all know by sending in a short piece or photograph for inclusion into the Newsletter.

**The Rosette Nebula**
2015 Jan 16 – Exp. 75 min
Megrez 90-Canon EOS550D
Taken by: Keston Brill

Please let me know if there is anything you are interested in or would like to see in a future Newsletter and I will try to include it. Your feedback is needed.

## Thoughts From The Chair

**Hi Everyone**

I wish I had counted how many clear nights we have been lucky enough to have had so far this year. It has to be one of the best starts to any year that I can remember for a long while. I still haven't found Comet Lovejoy but I have enjoyed being in my back yard and losing myself in the stars, planets and the beautiful Moon.

We have some exciting times ahead with the spacecraft Dawn now orbiting the dwarf planet Ceres. I hope we will gain lots of new information and knowledge from this mission. There is also the Eclipse on 20th March 2015 so let's hope for some clear skies to take advantage of the spectacle. Can I also take this opportunity to remind you that TAMDAS Members will be in Tiverton Market on the morning of the Eclipse? In the evening from about 7pm Members will be outside Tesco, come rain or shine, hopefully doing some "Boardwalk Astronomy?" It would be great if you could join us for both or either of these events and please bring a telescope, if you have one, to Tesco.

Over the page are the results from the questionnaire that your Committee put together. We had 18 responses which represents just under half of the membership. A big THANK YOU to those of you who responded. The results make interesting reading and will help shape the future programme of events and speakers for the Society.

Some of the things we will try to do based on the results are:-
Meet in a local pub after meetings
Arrange an annual dinner- possibly in January
Visit other societies
Arrange Astronomy related trips
Bring in speakers on the topics that have been highlighted

One thing we won't be doing is quizzes as they are clearly not popular with the majority! I was pleased to see no one said they were unhappy with the format of the Society meetings.

As a final note, could you write an article for the Newsletter? It doesn't have to be particularly long or in depth. I am sure many of you have items of interest you could share. Please contact the Newsletter team if you have an idea. I am sure they would love to hear from you.

In the mean-time fingers crossed for the eclipse and I look forward to seeing you soon.

Wishing you more clear skies.

**Angela**

# TAMDAS QUESTIONNAIRE 2014/15

18 RESPONSES

| | Yes | No |
|---|---|---|
| Member | 17 | 1 |

| | 14-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60-69 | 70+ |
|---|---|---|---|---|---|---|---|
| Age Grp | 1 | 1 | 1 | | 2 | 6 | 5 |

| | OBSERVING | THE MOON | SOLAR SYSTEM | STARS/NEBULAE | GALAXIES | COSMOLOGY | ASTRO-PHOTOGRAPHY | OTHER |
|---|---|---|---|---|---|---|---|---|
| Interest Areas | 12 | 15 | 17 | 12 | 14 | 11 | 6 | Planetary Science |

| MEMBERS' SOCIALS | YES | NO | | | |
|---|---|---|---|---|---|
| AFTER MEETINGS | 12 | 5 | | | |
| | | | MONTHLY | BI MONTHLY | EVERY 3 MONTHS |
| OTHER OCCASIONS | 7 | 5 | 1 | 2 | 4 |
| ANNUAL DINNER | 15 | 4 | | | |
| VISIT OTHER ASTRONOMY SOCIETIES | 14 | 4 | | | |
| TAKE PART IN QUIZZES | 4 | 14 | | | |
| GO ON ASTRONOMY RELATED TRIPS | 13 | 2 | | | |

| | YES | NO | COMMENTS |
|---|---|---|---|
| HAPPY WITH FORMAT TAMDAS MEETINGS | 17 | 0 | Meetings rushed at end maybe have a part 2,/speaker, coffee, notices, Arthur |
| HELP OBSERVING AT BLUNDELL'S | 5 | 12 | |
| HELP OBSERVING DARK SITE | 6 | 13 | |
| HELP AT SOCIAL EVENTS | 7 | 10 | |
| JOIN TAMDAS COMMITTEE | 5 | 12 | |

**AREA OF INTEREST FOR FUTURE TALKS:-**

How optical instruments are made / Human Space research /comets / practical Astro Milky Way & Local Group /remote & planetary observing / science of heavenly bodies our place in the Universe / setting up observatories and telescopes/Big Bang / CMR

Einstein / Hubble /quantum physics / cosmology/ space probes and their instruments

Solar System / planetary geology / exploration of planets and moons with unmanned spacecraft

**OTHER COMMENTS AND SUGGESTIONS**

Impressed with the quality of speakers

University specialists always welcome

Replace Xmas quiz with light-hearted presentation with Xmas theme

## Members Section:

### The Night Sky For March/April

**Moon phases:**
Full Moon 5th March, Last Quarter 13th March, New Moon 20th March, First Quarter 27th March
Full Moon 4th April, Last Quarter 12th April, New Moon 18th April, First Quarter 26th April

**The Sun:**
There will be a Total Solar Eclipse on the morning of 20th March, (if your in the right place; way up north), for the West Country we will get a fairly large Partial Eclipse with the Sun being about 85% covered, with first contact at just before 8:30 UT. Take proper precautions and only look at a correctly filtered Sun.

**The Planets :**
Mercury remains close to the Sun, (in the Morning sky in March and the evening sky in April), and is hard to spot during this time period.

Venus is visible in the western evening sky, as the sun sets and at -4 magnitude is very bright.

Mars is low down in the western sky just after the Sun sets, telescopically its not good visually.

Jupiter is high in the night sky, and is so bright you can't miss it, it is near the border of the Constellations of Leo and Cancer, telescopically it is always a fantastic planet to observe and to image.

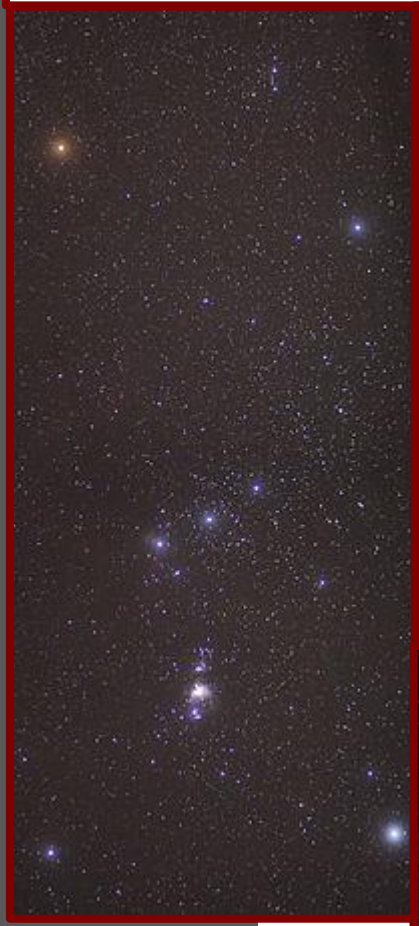
Saturn is very low in the morning sky, almost due South at Dawn. Telescopically the rings are fully open now.

Comet Lovejoy is still visible in the northern part of the sky, but is fading rapidly and becoming harder to spot.

If you are into Galaxies then now is the time to have a good look for some with the Leo/Virgo clusters nicely positioned for study.

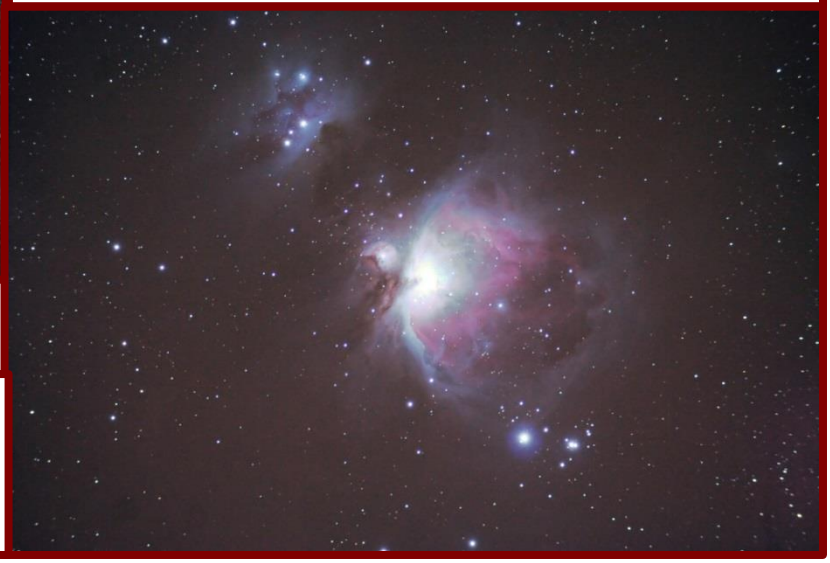
## Object of the moment - 'The Orion Nebula' M42

The Orion Nebula or The Great Orion Nebula, or M42 as it is sometime called is very well placed at the moment being high up in the south as darkness falls and visible to the naked eye as a small misty patch in Orion's Sword. Binoculars show it well and make it really stand out with the beginning of wispy detail starting to show.



Telescopes naturally reveal much more wispiness, which can appear with a faint greenish glow and with white, almost smoke-like clouds, surrounding it. One of the features worth looking for is the Trapezium, a young star cluster in the middle of the gas cloud. In fact the Trapezium has six stars not four as the name suggests. The two "extra" ones being close binary systems with the main stars and a test of telescope resolution.

The nebula itself is a large Star forming region approximately 1350 light years away and is about 24 light years across and has been known since antiquity. The sensitivity of imaging equipment reveals much, much more and it is probable fair to say the Nebula is the most photographed Deep Sky object.



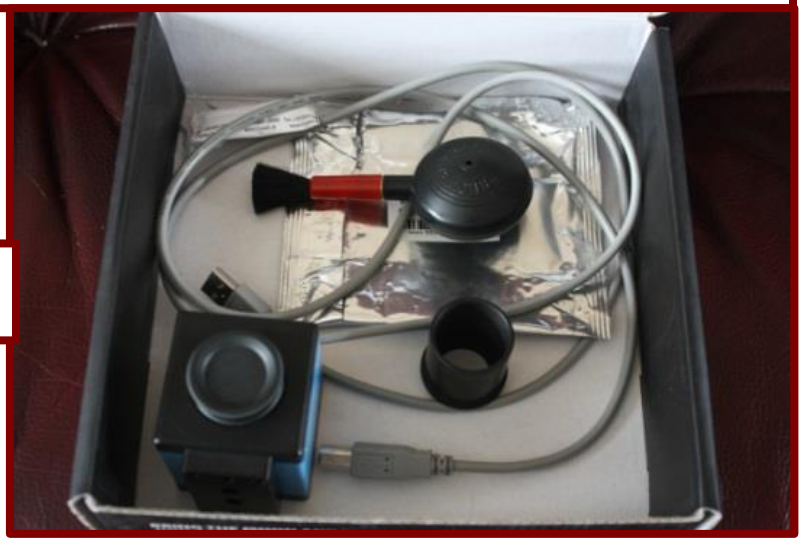
M42
2011 Nov 22 – 22 min Exp.
Megrez 90-Canon EOS350D
Taken by: Keston Brill

## Astrophotography - How I do it – by John Parratt

I have now been into astrophotography for about three years. I first got interested when I bought a Skywatcher 10 inch reflector on a HEQ5 mount which was driven on both axis, at the same time I also bought a Canon EOS450D SLR camera, remote shutter release and a 'T' mount. I learned how to attach the camera to the telescope, for prime focus imaging; in essence you are using the telescope as a giant camera lens.

My first images were of the Moon, and I was taking some really good ones, then I used a 2 x Barlow lens which really magnified the image. The next images I took were of Messier 42, the Orion Nebula, but I found that I could only take 2 to 3 minute images, as I was starting to get star trails. I found out that I needed an auto-guider, to get longer images.

Having a discussion with a friend of mine, he happened to mention a book called ' Making Every Photon Count' by Steve Richards, aimed at anyone taking up astro-imaging for the first time. I bought a copy from 'First light Optics' and read the book as soon as it arrived. Fantastic, it helped me understand a lot about imaging and the equipment used. A few months later I sold my HEQ5, (which I'd had for 2 years) and bought a NEQ6 goto mount, which is mounted on a home made pillar in my observatory. Once the mount was polar aligned, fitted with weights and my telescope, away I went; the goto system is so easy to use, it allows me to park the telescope, when not in use, but when switched on, the mount allows me to do 1, 2, or 3 star alignment, (the more stars the more accurate the mount is going to the object you wish to view). Once alignment is successful, you can then use the hand controller, to goto the object you wish to view when you press the 'enter' button, the mount will slew to the object. By the time the telescope stops, the object should be in the centre of your eyepiece, and the telescope will stay with the object, for as long as you want it to.



The Imaging Source Camera
Photograph by John Parratt

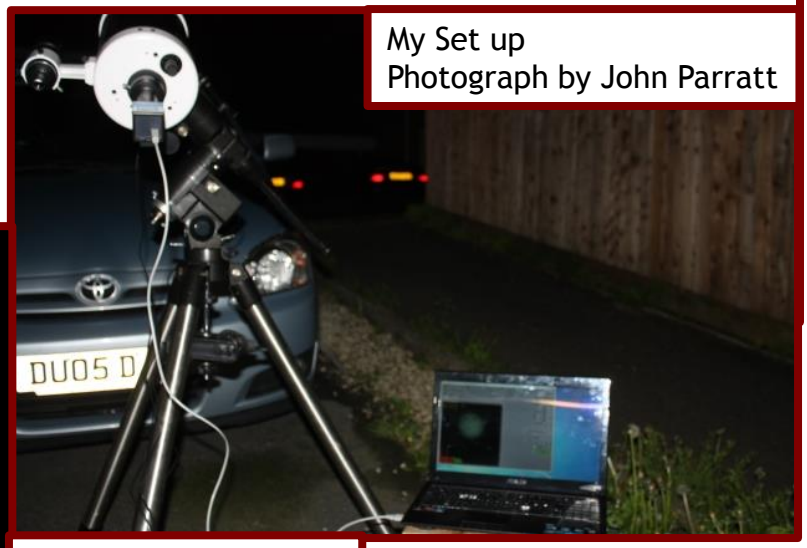
With the NEQ6 goto mount, I found I was able to take some Deep Sky images, up to 3 minutes and longer without guiding, but I bought myself an 'Orion Awesome Auto guider set'. This consisted of an 80mm refractor telescope, extension tube, auto-guider, and dove tail plate. I fitted this on the telescope clamps and aligned both telescopes, down-loaded PHD guiding software and Nebulosity 3 capture software onto my laptop. I also bought an ATIK 314 L colour CCD imaging camera and an Imaging Source Planetary colour camera, with a 3x Barlow and Photoshop Elements 11, for post processing my images.

I was using a 10 inch Skywatcher reflector telescope, when I first started imaging and I noticed I had a little Coma in them, which occurs in reflectors. By chance I notice an advert for a 12 inch Skywatcher reflector, which I bought, and I can say its the best buy so far, and no Coma. I also bought a Celestron 9.25" Schmidt-Cassegrain, but I have had some focusing issues with it so I hope to get it repaired as soon as possible.

Once repaired I intend using the Celestron for Planetary imaging and the 12 inch for Deep Sky imaging. I have taken some images with the 12 inch reflector and they have come out really well.

Planetary Imaging:

A few years ago, I tried imaging the planets with my Canon EOS450D, a 3x Barlow and Skywatcher 150 pro. On the camera I have "Live View", which helped with focusing and the images didn't turn out too bad, but were a little small. I bought an Imaging Source Planetary camera, which I used on the same telescope. The images of Jupiter, Mars and Saturn were much better. Last year Pete Richardson showed me a planetary camera he had bought, it was a ASI120MM and showed me some of the images he had taken with it. I bought one too, unfortunately, the weather has not been in our favour, but a few weeks ago I got a chance to use the camera, on Jupiter, wow, is all I can say. I took 6 x 1.5 minute captures of Jupiter with my 12 inch reflector with 3x Barlow and the ASI camera and after aligning and stacking in Registax 5, the images turn out well.




My Set up
Photograph by John Parratt

Mars
Taken by John Parratt

## Some resent Images of Jupiter


**Jupiter**
2015 Jan 23 - 00:53UT
LX200ACF 305mm - ASI120MM
Taken by: Pete Richardson

**Jupiter**
**Io Transit and Shadow Transit**
2015 Feb 26 - 21:16UT
LX200 8" Classic - ASI120MM
Taken by: Keston Brill

## Monthly Meetings and Forthcoming Events:

- 6th March 2015

Images of the Universe - Paul Money will show 10 images and explain how they inspired him to become a very popular and renowned astronomer.

- 18th-20th March 2015 - Stargazing Live, Including live Total Solar Eclipse coverage

- 1st May 2015

AGM followed by a talk by Pete Richardson and John Parratt on Astro-Photography

5 June 2015

The Greatest Scopes on Earth – Nick Howes will talk about the work he has been doing with the Faulkes Telescopes since 2009

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| | | |
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Submissions for the next newsletter to be received by 17st April 2015 to either of the editors email address.