Journal

of the

Nottingham Astronomical Society

September 2018

In this issue

Thursday, 6th September

Gotham Memorial Hall
Gotham, NG11 0HE

8 pm (doors open at 7 pm)

This evening we welcome

Prof. Sanjeev Gupta

Professor of Earth Science, Imperial College, London

who will be speaking on

The Adventures of Curiosity on Mars

THE NOCTILUENT CLOUDS OF SUMMER

This 6-second image was captured by James Dawson on June 25th

Sky Notes
September 2018

Compiled by Roy Gretton

All times given below are in British Summer Time (BST)

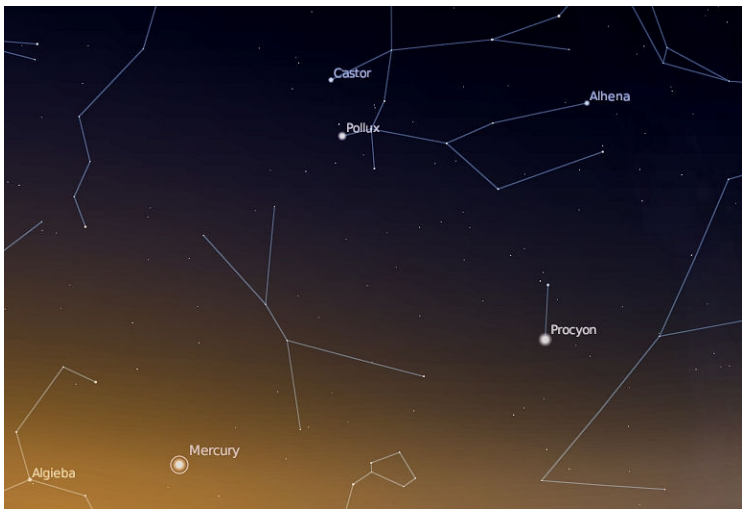
PHASES OF THE MOON

Phase	*Date*
Last Quarter	September 3rd
New Moon	September 9th
First Quarter	September 16th
Full Moon	September 25th

This month the Moon is closest to Earth on the 8th, and furthest on the 21st.

THE PLANETS

As September begins, **Mercury** will be better placed for observation from the UK than it will be for the rest of this year, but to see it you will need to be an early riser. Shining at magnitude –0.7, it will be brighter than any of the surrounding stars, and will be about 12 degrees above the eastern horizon as the Sun rises. After the first week of September, Mercury moves rapidly toward the Sun, reaching superior conjunction on the 21st.



Looking east at 5:30 am on September 1st

We've been accustomed to seeing **Venus** in the evening sky for some months now, but the current apparition is drawing to a close, particularly for northern hemisphere observers, as the planet heads toward inferior conjunction in October. You may still catch a glimpse of it during the first half of September, very low in the western sky and shining at a brilliant magnitude –4.5 just after sunset.

Since early July, **Mars** has appeared as a strikingly bright orange "star" low in the southern sky, but it is now fading (although still magnitude –2 at the start of September). It is now an evening object, setting at 1 am in mid-month. By the close of September Mars will have faded to magnitude –1.3, and its angular diameter will have diminished to 16 arcseconds.

Jupiter, in the constellation of Libra, continues to be visible (magnitude –1.8) low in the western sky after sunset, but it will become increasingly difficult to spot as it sinks into the solar glow later in September.

Saturn is an evening object in the constellation of Sagittarius. As September begins, its maximum elevation above the southern horizon will be little more than 15 degrees, making for difficult observing conditions. (However, should you get the opportunity to go "down-under" this autumn, you will be treated to a glorious site – assuming you have access to a telescope – as Saturn's north pole will be tilted toward us at an angle of 26.6 degrees, giving a magnificent view of the upper surface of the ring system).

Looking south at 10 pm on September 1st

Uranus is a morning object in the constellation of Aries, due south at 2 am at the end of this month.

Neptune, in the constellation of Aquarius, will be observable with a suitable telescope in the late evening and early morning sky. It rises soon after 10 pm as September begins, and reaches opposition to the Sun on the 7th.

METEORS

September isn't a great month for meteor showers, although there is usually a feeble "drizzle" of meteors close to the plane of the ecliptic at this time of year. Some of these are characterised as **Piscids**, that typically give a handful of events per hour at maximum, which this year occurs on the highly favourable date of September 9th, coinciding with New Moon.

DIARY DATES 2018

Monthly Meetings of the Nottingham Astronomical Society

1) Meetings at Gotham Memorial Hall

Nottingham Road, Gotham, NG11 0HE

Held on the **FIRST Thursday** of each month except **August**

Doors open at 7pm for 8pm start.

*These events are normally centred around a talk by a visiting speaker, except Open Evenings, when NAS members provide the activities. Normally we have a **Library** and a **Helpdesk** open at each meeting.*

Date	Topic	Speaker
September 6th	**The Adventures of Curiosity on Mars**	**Prof Sanjeev Gupta** ***Imperial College, London***
October 4th	**Juno – the Answers**	**Prof Emma Bunce** ***University of Leicester***
November 1st	**Annual General Meeting**	
December 6th	**Transient Events in Astronomy or** ***Things that go bump in the night***	**Prof Dame Jocelyn Bell Burnell DBE, FRS, FRSE, FRAS**

2) Social and Practical Astronomy Meetings at the Burnside Memorial Hall, Plumtree

Church Hill, Plumtree, Nottingham, NG12 5ND

Held on the **THIRD Thursday** of each month from **7:30pm**

These meetings are of a more informal nature, providing opportunity for members and guests to share their hobby over a cup of tea or coffee, as well as listening to a short talk.

The next meeting will be on September 20th (see further details below)

Check our website: www.nottinghamastro.org.uk
for the latest information about the Society's meetings
and for further information about the talks and speakers

Events in the coming months open to everyone
(follow hyperlinks for more information and how to book)

7-9 September	BAA Weekend Meeting, Christchurch
29th September	BAA Variable Stars, Photometry and Spectroscopy Workshop, London
6th October	BAA Back To Basics Workshop, Bexleyheath
12-13 October	International Astronomy Show, Stoneleigh, Warwickshire
27th October	Society for the History of Astronomy, Autumn Conference, Birmingham

The Federation of Astronomical Societies (FAS)

The FAS was formed in 1974 with the aim of bringing together astronomical societies, groups and individuals, for their mutual benefit. The idea was to be able to share information on speakers, educational activities, and offering advice for commonly encountered problems. The FAS also offers public liability insurance for its members. There are approximately 200 clubs and societies now affiliated to the FAS.

Each year the FAS have an annual general meeting where the business of the FAS can be discussed alongside a day of lectures. For the last few years this has been held at the University of Birmingham. The 2018 FAS AGM will be held at the University of York on Saturday 22nd September. As members of Nottingham Astronomical Society we qualify for the reduced rate of £6 per ticket. Information on the programme and how to book tickets can be found here: http://fedastro.org.uk/fas/

James Dawson

The Nottingham Astronomical Society: E - SERVICES

Whether or not you are a NAS member, you can keep up to date with details of the Society's meetings and other events by visiting the NAS website: www.nottinghamastro.org.uk

NAS on Facebook
You are welcome to connect with other members and friends of the NAS on Facebook by going to: http://www.facebook.com/nas.org.uk

NAS on Twitter
The Society has a Twitter account at https://twitter.com/NottinghamAstro

NAS Journal e-mailing list
To register for your monthly e-mailed copy of the NAS Journal, just e-mail secretary@nottinghamastro.org.uk

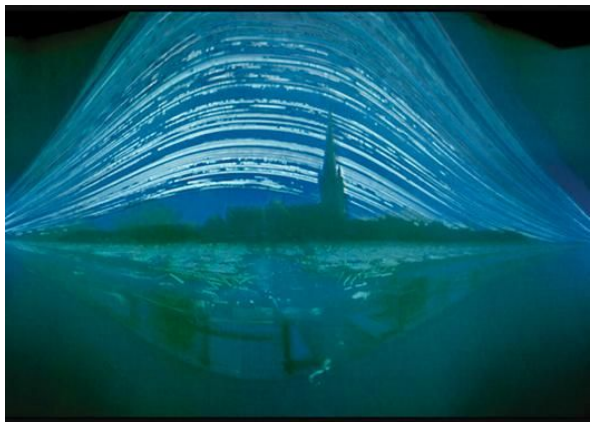
You don't have to be a Society member to take advantage of this service.

If you happen to change your email address, please remember to inform the Society by emailing us at treasurer@nottinghamastro.org.uk

Social and Practical Astronomy, Plumtree

The **July** meeting at Plumtree looked at our nearest star, The Sun. Sam Boote talked about the different ways to safely observe the Sun, and brought along both white light and hydrogen alpha equipment. Julian Onions and I then described the various features which amateur astronomers can observe on The Sun, and the physics behind each of these, as well as some history of solar observation and the nature of the solar cycle. After the talk there was some lively discussion about the impact the Sun has on our own long term weather systems.

I'd obtained some light sensitive paper so members could make their own solargraphs (right). A solargraph is a pin-hole camera which you can expose for up to 6 months to observe the height of the Sun throughout the seasons. These are best set up to run between the longest and shortest days of the year (or vice versa) but can be used at any time.



Once you've exposed your pin hole camera for long enough, cover the pin hole and give me the solargraph to develop unless you have access to a scanner yourself. The link below is a you tube video on how to make a solargraph at home. There are multiple other websites on the internet which give you instructions. I'm looking forward to seeing some results.

https://www.youtube.com/watch?v=wtZOWEB_wcI&feature=youtu.be

At the **August** meeting we had a table event, with five tables each devoted to something different and the groups spent 12 minutes at each table before rotating to the next table. The tables were: The Constellation of Cygus (Leigh); The Constellation of Lyra (Gareth); The Milky Way (Richard); Meteors (James) and the geology of Mars (Baz). Everyone was full of compliments afterwards which was good and I'm really grateful to those who ran the tables.

The **September** meeting will be delivered by Leigh Blake and Julian Onions and will discuss the colour of stars. The **October** meeting will see Gareth Davies give us a talk on "The Solar System according to Gareth". The **November** meeting is going to be co-ordinated by John Hurst, and we hope to have Professor Merrifield come in **December** to talk about the Science of Christmas.

James Dawson
NAS Helpdesk
helpdesk@nottinghamastro.org.uk

The dark evenings have returned, and a new observing season has begun!
So you may need to know about arrangements for…

OPENING THE NAS OBSERVATORY

Nearly 40 years ago a small team of skilled and dedicated members began work on the Observatory. At that time the members involved, quite rightly, assumed that they would be running and using the observatory themselves, and, as the membership was much smaller than today that is completely understandable. Today with a much larger membership we want to make the Observatory available to as many members as possible and I think we are making progress in that direction. We occupy a site leased from the Severn Trent Water Authority and are limited for security reasons to 6 keys to the main gate. This is not much of a problem as the key holders are also the members who are trained to operate the telescope. The telescope control is a bespoke system by AWR Ltd, which is excellent but very different to the normal Skywatcher system. We installed an AWR Encoder system a few years ago which greatly improved the performance of the GoTo system. We have a laptop computer which can control the telescope using Stellarium or Carte Du Ceil software.

We now have a team of members capable of running the AWR system. They have decided on an informal way of organizing the opening of the Observatory. When clear weather beckons, any one of the team can initiate opening by contacting the other members and asking if anyone else would like to help. If at least one other can, then the membership will be informed by Email and the Observatory will open, weather permitting. Cancellation because of cloud cover would be confirmed by phone-in to the obsy line, as in the past. This system has worked recently and has many advantages. The members who can operate the computer system are volunteers who give their time freely for the benefit of the Society, but, they also have family commitments as well as working for a living, so cannot guarantee being available which makes running a rota system very difficult. This system does mean that the observatory will often open at fairly short notice, but with the inaccuracy of longer term forecasting of cloud cover, longer notice of opening in the past has seldom been successful.

The problem of charging batteries is being solved by installing Solar panels. Previously it has been necessary to take the batteries home to be charged after an observing session and they are very heavy. This can also mean that when next needed they are in the wrong place. If all goes as planned this autumn will see the charging problem solved. It is hoped that with the coming of darker nights the Observatory will be opened much more frequently than previously so that more members will have the opportunity to use one of the largest telescopes most of us are likely to come across. Astronomy in this country is a triumph of hope over experience but we do have a great deal of hope!

David Buxton
Director of Observing

NEW MEMBERS EXPRESS THEIR APPRECIATION OF THE N.A.S.

From Dane Atkin:

I've been invited to write a short piece for the Journal, and being very new to astronomy and largely in the dark [*nice pun, Dane!*] I thought it would be best to keep it light.
My interest in astronomy was rekindled after a granddaughter showed some interest. I started attending NAS meetings late last year, and bought a refractor telescope after hearing a talk given by Ian Morison, and purchasing his book on *Observing and Imaging the Heavens*.
It has been a steep learning curve with some surprises. Our back garden faces northwest, and for observing Jupiter earlier in the year, I drove to the end of a cul de sac outside our village, in the dark, to set up my telescope on the verge by a farm track. I had let a nearby resident know what I was doing at unearthly hours. About 12.30 am a tractor about the size of a house loomed up out of the fields, lights blazing and heading straight for my car and close to my gear, requiring a very hurried exit, and a prayer that the driver would avoid my scope.
A couple of years ago on a visit to New Zealand we stayed close to a quiet beach on the Pacific coast. I wanted to take pictures with a compact camera from the beach of the very impressive Milky Way. Trying to adapt to the darkness I groped my way along an obscure sandy track until I had to use my torch to find my way, shining it straight into a parked car. Rapidly I turned it off and pressed on, inadvertently going round in a circle in the pitch black, to switch it on again into the same car. I know we should be peeping at heavenly bodies, but be careful! No black eyes thankfully.
A few points on early experiences with my telescope, a 102 mm refractor. I also purchased a 2 inch Barlow lens, primarily for use with my SLR camera. I found that I had to buy an additional extension tube as well as a T adaptor for focussing through the camera and for visual observing. I gather that placing a Barlow lens before a diagonal gives a bit more magnification, so that a 2x lens acts more like 3x. I have since found adding a 1.25 inch Barlow lens into the diagonal to be easier for observation. I also upgraded my focuser from coarse rack and pinion to a Crayford, and hope that my attempts at astrophotography may benefit.

A lovely image of the Moon, taken in July by Dane,
with a DSLR camera attached to his 102mm f7 refractor

***From Bernie Besnard,* "The New Kid in Town":**

I came with my wife of 48 years to live in Cotgrave in May 2018 after having been born in Guernsey, Channel Islands and lived there all my 70 Years. My wife came to Guernsey from Portsmouth in 1968 and that was how we met. The reason for our recent move is that my daughter and three grandchildren already live in Cotgrave.
With a long established but relatively mild interest in astronomy I was overjoyed to learn of the NAS and quickly joined. This has proved of great benefit to my knowledge and interest. I look forward in anticipation to the "Adventures of Curiosity on Mars" on September 6th.
My beginnings of astronomical interest reflect my age. In the 1960s and early 70s came the magnificent NASA Mercury/Gemini and Apollo missions. I can still clearly remember watching on our scratchy black and white television as Neil Armstrong walked on the Moon.
I have also followed closely the ongoing attempts to discover alien life with the interesting possibilities on Europa and Encelades. I hope to survive to learn more of these possibilities, as well as the ultimate manned landing on Mars.
To assist my increasing interest I am hoping to acquire, as a September birthday present, a good quality pair of binoculars. I don't have a telescope for the time being but who knows what the future holds? I will then be outside in the garden observing what I can, and improving my knowledge and skill no doubt greatly aided by members of the NAS.
So I remain the New Kid in Town but hopefully moving progressively forward, particularly assisted by the NAS.

and finally…

An Ode to NAS Members

(submitted anonymously)

There is an episode of 'Star Trek' where the Starfleet cadets practice their flying skills amongst the rings of Saturn, and the medical unit is on Mimas. How different that sounds now that I know a little more than nothing: Mimas is well-placed for a hospital in a gap in those stunning rings.
I'm a beginner you see. Can you experts remember your first sight of Venus? For me, she would hang brightly in the evening sky over the warm, glimmering bay of Amalfi – night after night – long before I appreciated what she was. All summer she would be there for me, my friendly Evening (or Morning!) star. I was hooked….
But back to the clouds, and Nottingham. You good-natured experts lingered on the Plumtree terrace where I saw the giant Jupiter: the fast-spinning striped surface and the famous red spot. Never mind that the house opposite closed the bedroom curtains in case our telescope was intruding, the class was not dismissed until I had spotted four little points of light - four moons. I got off lightly - there are 79 of them - I could have been there all night.
Biggest thrill though, has to be incredibly beautiful Saturn, one cold night at the observatory. Seen in pictures so many times, the first sight of the real thing is unbelievable magic – am I looking at those rings for real? Warmed by a small glug of mulled wine, with me snug in James' giant sweater (apologies to Roald Dahl and his Peach), you are all so good at finding these treasures. And is it really true that Saturn has such a low density that it would float in water? I would need a large mulled wine to take that one in…
On the same evening Saturn was followed by Mars, another first, low on the horizon and bigger than I expected, and yes, it was indeed red…
Now I want to see Cygnus and the Milky Way and a hundred other things.
Thanks then, to you experts for such delightful astronomical sensations. You are so very much appreciated. May you never lose the memory of the simple joy of seeing a heavenly sight for the first time. I know I won't.

OBSERVING AND IMAGING THE COCOON NEBULA

Over the summer months there have been some excellent clear nights with warm temperatures!
On two or three occasions (moonless nights) I used the opportunity to search out the Cocoon Nebula on the edge of Cygnus. Despite having a 300 mm Newtonian F 5.6 reflector and using an Astronomik UHC filter, have had no luck so far.
I wonder if anyone else in the Society has managed to visually observe this elusive little nebula? It is 12 arcminutes across, and magnitude + 7.2.
Photographically it is an easy object, even in my MEADE 80mm F6 refractor (see images below).
The shot with the satellite trail is just 60 seconds at ISO 4000, unusually capturing the satellite itself. The other shot is 240 seconds exposure at ISO 1600.

Marcus Stone

Nottingham Astronomical Society

Affiliated to the **B**ritish **A**stronomical **A**ssociation
Member of the **F**ederation of **A**stronomical **S**ocieties
Member of the **S**ociety for **P**opular **A**stronomy
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Meetings

Our formal meetings, often with an illustrated talk by a guest speaker, are held on the first Thursday of each month (except in August) at:

Gotham Memorial Hall
Gotham
Nottingham NG11 0HE

Doors open	7.00pm
Meetings start	**8.00pm**
Meetings end	10.00pm

These meetings are open to the public, and visitors are welcome to attend.

Annual subscriptions 2018

Full	£30
Joint rate for partners living at the same address	£45
Under-18s and full-time students	£5

Subscriptions become due on 1st January. Half-price subscription is charged if joining after 30th June (minimum subscription £5).

Please make cheques payable to:
Nottingham Astronomical Society.

If you would like more information about the **Nottingham Astronomical Society**, or would like to become a member, please contact the Secretary secretary@nottinghamastro.org.uk or speak to any NAS committee member at one of the regular monthly meetings. A membership application form is inside this issue of the Journal.