

# Federation of Astronomical Societies

Editor: Michael Bryce



# Newsletter

[www.fedastro.org.uk](http://www.fedastro.org.uk)

No 119: September 2020

Note: The FAS Council Reserves the Right to publish articles, events and reports submitted to the Newsletter by FAS Member Societies

## President's Spot: Dr Paul A. Daniels FRAS



We've had some interesting skies for the keen observers of Solar System objects over the short time since the last Newsletter: Comet Neowise put on a good display for a while followed by the ever-fabulous Perseid meteor shower and, as I write this, just a couple of weeks ago Venus was a

brilliant morning object at maximum western elongation. Of course, Mars, already very bright, reaches opposition in early October and Uranus is well-placed for observing at the end of October as it approaches opposition. Favourites Saturn and Jupiter are bright in the evening skies to the South and, by the time you read this, will be good for another few weeks or so (if a little low). There's lots to keep you busy and I hope we'll see you all contributing images to your local society's web pages!

Of course, we're also happy to receive articles and images for the FAS Newsletter. It doesn't matter how short the article (or contributor ☺) – if you're particularly proud of an astronomical image you've taken, please send a copy to the [FAS Newsletter Editor](#) with a brief description of what it is and how you captured the moment.

Now, to business matters: I sent round an email recently giving 19<sup>th</sup> September as the date of the 2020 AGM which, for the first time ever, will be held online *via* Zoom. As well as the elections to the FAS Council, there are some proposed changes in the FAS Constitution. The details of those have been provided as well as an explanation of why your FAS Council thinks the changes should be made.

A subsequent email you should all have received confirms the start time of the AGM to be at 10:00 am on 19<sup>th</sup> September.

To reduce the chance of Zoom 'gate crashers' we're taking [free-of-charge registrations on Eventbrite](#) and, nearer the AGM, we'll only send out instructions on how to join the Zoom meeting to those who've registered using the email addresses you supplied.

Finally, another plug for National Astronomy Week 2020 during the week of 14<sup>th</sup>-22<sup>nd</sup> November 2020. Hopefully, you'll all try to organise something for the public that week – the theme for the week is the planet Mars. See the website at [astronomyweek.org.uk](http://astronomyweek.org.uk) for the latest news.

Clear skies!

**Dr Paul A Daniels FRAS**  
**FAS President**

### Note from your Editor:

*If you are reading this on a computer (Windows) you can select the hyperlinks in this article by using your mouse pointer and simultaneously selecting ctrl. Click on the mouse and your browser or email programme will start up. However, for those who might want to print this out the links mentioned are below:*

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**Eventbrite link:** <https://www.eventbrite.co.uk/e/federation-of-astronomical-societies-annual-general-meeting-tickets-117653206909>

**National Astronomy Week:** [www.astronomyweek.org.uk](http://www.astronomyweek.org.uk)

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# Member Society's Covid-19 Lockdown Activities

Since March 2020 when country-wide lockdown was introduced by the UK Government, society meetings (not just astronomy societies but any type of social group meetings) across the country were disrupted over-night!

Many societies have taken the opportunity, albeit temporary, to change how they operate and embraced the situation by offering online meetings as an alternative. The FAS is collecting stories from Member Society's on how they have been operating through this unprecedented time. These stories can be found on the FAS Website at [www.fedastro.org.uk](http://www.fedastro.org.uk) and societies are encouraged to enter their own experiences on the FAS website. We have included some here to give an idea of what has been going on.

## Derek Farmer—Secretary, York Astronomical Society

[yorkastro.org.uk](http://yorkastro.org.uk)

5th June 2020

We suspended our meeting and outreach programme as soon as required to do so. During May we have started a programme of Zoom meetings. These online meetings follow our 'normal' format where we have society notices, we have started a "members recommend" section where we share tips on what to see such as solar and lunar transits of ISS, books, websites, software etc. The topics we have covered so far in our talks have been an introduction to Astrophotography in 2 parts, tours of member observatories, Aboriginal astronomy and the Australian Space program and a talk about an online course being followed one of our members. We now seem to end the meeting in our virtual pub ..

We are going to try and introduce some guest speakers over the coming months. We ask that those who are able to contribute make a donation either by BACS or via our JustGiving page.

The meetings have so far been open only to members and subscribers to an infrequent newsletter. We are going to try presenting as a webinar and will publicise them via our social media channels. We may also do some 'Live' broadcasts either from our observatory or members own homes.

We have discussed the problem of physical meetings in a socially distanced world, and the stringent sanitisation requirements of such meetings in a relatively small and poorly ventilated room (our usual venue). We have also considered the outreach scenario and star party format where close contact with equipment in the dark and sanitisation requirements. We have concluded that with the demographics of our membership, physical meetings for the remainder of the year are unlikely. We would of course rapidly review this should things change.

We would certainly be interested in what other societies are either doing or plan to do.

## David Gwynn—Chair Dash (Darsham and Surrounding Hamlets) Astro

[dash-astro.co.uk](http://dash-astro.co.uk)

23rd August 2020

Dash Astro made a quick decision to suspend all face to face activities at the start of the COVID -19 pandemic. An early start was made in experimenting with webinars to enable members to communicate and we quickly settled on a pay version of Zoom. Whilst not as desirable as face to face it has proved to be a very good second best!

We have regular monthly 'guest speaker' meetings where we invite not only our members but also other local societies members who may be interested. Our local societies ( OASI, Breckland Astronomical Society )have reciprocated filling in and contributing to the richness of what is being offered.

We have also introduced additional meetings of smaller groups in the areas of development of astrophotography, understanding of exoplanets, spectroscopy and black holes. Other topics are being developed. We are looking to encourage more sub groups if there is demand. One of our very recent guest speakers was Tom Field, an accomplished spectroscopist from the US. He has assisted us in developing our own spectroscopy knowledge and improving our outreach capability.

Some members,including officers of the society have taken and continue to take the opportunity to develop their own background knowledge in astronomy/astrophysics. These include Open University short free courses, webinars from BAA, RAS, KAVLI, AAVSO, SPA, Institute of Astronomy, Cambridge University.

We are looking to get back to some sort of normality as soon as bodies such as the FAS advise and when we feel it is safe for our members to do so.

**Mark Phillips—Webmaster**  
**Astronomical Society of Edinburgh**  
([www.astronomyedinburgh.org](http://www.astronomyedinburgh.org))

27th August 2020

When lockdown started we immediately chose to cancel all physical meetings in line with government guidance, but we chose to become part of the solution too. In order to help keep people engaged, involved and reduce the isolation that some would feel, we decided to do more than ever – all online. Instead of our once-a-month physical meetings (plus a monthly Imaging Group) we set ourselves the ambitious target of doing something twice a week.

So since 3 April we have done something every Wednesday and Friday up until the end of July. We are now taking August off for a rest before we start up again, although not at the same level as lockdown restrictions are eased!

A few statistics – since 3 April:

- 36 online events
- Membership increased to 114
- 902 members joined us live on Zoom
- 336 visitors live on YouTube
- 3300 views of meeting videos on YouTube

We chose to run a 5-part Introduction to Astro-imaging course online instead of the face-to-face event we had planned.

We had new members joining us from all over the country since physical distance is no longer an issue.

We manage to attract speakers from all over the country – and the world, including the Senior Scientific Officer for the Parker Solar Probe live from Maryland.

We've had some amazing guest keynote speakers on topics such as Exoplanets, Exoplanet atmospheres, Citizen Science for star formation, Astrobiology, Transient astronomical events, Neutrinos in astronomy,.....

Our members stepped up and gave us a range of talks, historical, practical and entertaining.

I think as a society we feel quite proud of what we've done, more people are actively involved and there are stronger bonds between members, formed online.

You can see most of our meetings on our YouTube channel:

<https://www.youtube.com/c/AstronomicalSocietyofEdinburgh>

And other information on our website

<https://www.astronomyedinburgh.org/>

**National Astronomy Week**

[www.astronomyweek.org.uk](http://www.astronomyweek.org.uk)

Saturday 14 November to Sunday 22 November



**A Request from the Society for Popular Astronomy (SPA)**

*Amateur Scene* in the Society for Popular Astronomy magazine *Popular Astronomy* has been showcasing the best of amateur astronomy and astronomers for approaching 50 years. In that time it's also been a great way for local astronomical societies to make themselves known to prospective members right across the UK.

Both *Amateur Scene* and the Federation of Astronomical Societies came into being through a meeting of local societies held at the Caxton Hall way back in 1973. Rosemary Naylor led the way in compiling society news for *Hermes* and the then Junior Astronomical Society, passing on the baton to me, Peter Wade in 1986.

I like to think there's always something of interest in *Amateur Scene*. As I write, I've just been putting material together for the November/December edition with items about Edinburgh's ASE-24 observing challenge, the 110th anniversary of Norton's Star Atlas, Eastbourne AS and a 'Forgotten Father' of Liverpool AS.

If your local society has a special event planned, an observatory being opened, an anniversary to be marked or a member's achievement to be celebrated, do get in touch and help keep *Amateur Scene* going for another 50 years.

Please send your images, stories and even newsletters to [pwade6@gmail.com](mailto:pwade6@gmail.com).

I look forward to hearing from you.

[www.popastro.com](http://www.popastro.com)

**FAS AGM**

Saturday 19 September 2020 at 10:00 AM

Via Zoom

# A Brief Biography of Isaac Newton

By Neil Mudford

FAS Publications Secretary

**Isaac Newton was prematurely born on 25<sup>th</sup> December 1642\*, to Hannah Ayscough, who had been widowed three months previously, and was of 'independent means.' With his late father's estate, a successful livestock farmer, and Mother's income Isaac enjoyed a modicum of financial stability.**

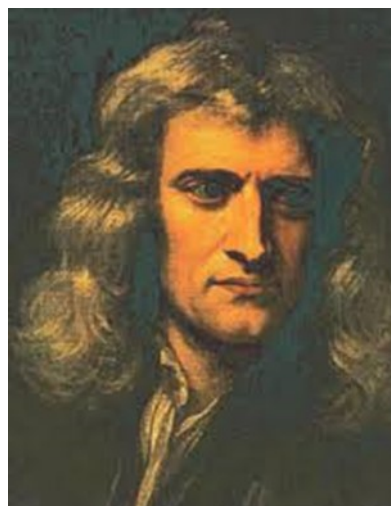
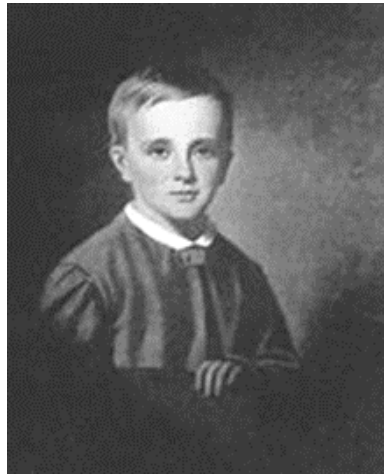
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*\*according to the Julian calendar. It wasn't until 1752 that the UK changed to the current Gregorian calendar which had been used by most European countries since 1585*

Aged 3 his mother remarried and moved to be with the Reverend Barnabus Smith leaving young Isaac in the care of Margery Ayscough, his maternal grandmother, at Woolsthorpe attending local schools until the age of 12 when he lodged with William Clarke, an apothecarist in Grantham. There he developed an interest in chemistry and attended King's School being largely left to independent studies. Returning home at 17 to help his mother run the farm (who had been widowed again with two more children). Isaac soon proved that he was, to say the least, not suited to the routine of agricultural life preferring to utilise his time and craftsmanship for his own studies.

Unsurprisingly, Newton's mother was soon persuaded by the Master of King's School, Henry Stokes, to return him to Grantham, where this time he attended to his studies sufficiently well to gain entry to Trinity College, Cambridge as a subsizar (a sort of undergraduate bursary where the person is expected to do menial work for their college in return for part of their education, gradually becoming purely financial in nature) despite his family's wealth.

It is thought that this remarkable academic improvement came from a

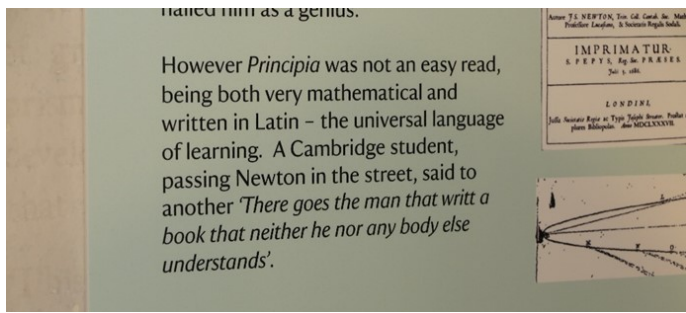


William Walker, a schoolmaster and rector, in his school days but there is no documentary evidence of this before 1665.

A great-uncle and good friend of his grandmother, Robert Newton, and his uncle, the Reverend William Ayscough, played key roles in getting him to go to Cambridge where he gained the reputation of being 'strange, solitary & abstemious' but he played cards and entered into a long companionable & convivial friendship with a John Wickens who shared rooms with Isaac for nearly 20 years.

In 1664, having bought a book on Astrology, Newton turned to a purchased copy of Euclid's '*Elements*', which was almost mandatory reading for all university students from the late 15<sup>th</sup> to 20<sup>th</sup> centuries to understand trigonometry, was dismissed by Newton as "just a trifling book". Newton, in order to gain his scholarship, was persuaded to rapidly revise his opinion to be more favourable of the Greek author.

His questioning studies took him wherever he fancied but most of the main contemporary scholars were included. Galileo died about a year before Newton was born so heavily influencing the student with comparatively fresh



thoughts along with Rene Descartes (“I think, therefore I am”). Further study of this academic lead Isaac to lay down the foundations of calculus several years later.

1665 saw the start of the Great Plague so Newton, on gaining his degree, returned to Woolsthorpe for a two-year furlough developing the basis of his theories on calculus, optics and gravity spending a lot of time under the apple tree. Due to his lack of interest in running the farm, the staff there were all too pleased to see him return to Cambridge in 1668 having been elected a Fellow of Trinity the previous year.

On returning to academia with a reasonable living that afforded him some luxuries (in comparison to Samuel Pepys who had £50 per annum to look after himself and a wife at the time) he submersed into his new life by firstly gaining his Master of Arts (MA) and his private studies eschewing a social life, barely fulfilling his teaching commitments to frequently empty classrooms as he had reputation for not being able to communicate with his students, but produced excellent papers when necessary.

His boss, Isaac Barrow, arranged for Newton to take over his job as Lucasian Professor of Mathematics in 1670. 1672 saw him elected to the Royal Society at the time of donating a self-built wooden telescope to the Society of the design that bears his name to this day. His extensive original thinking cut across the established consensus in many areas which was not exactly popular, though he was courteous in dealing with any objections.

Fellows at Trinity were expected to be of the Anglican faith and fully subscribe to the church’s principles (which he did not) but managed to get an exemption which enabled him to remain employed and enjoy being an academic though he did not fully participate in his College and University’s social and ceremonial activities.

In a letter denying a charge of plagiarism made by Robert Hooke, the Royal Society’s ‘Keeper of Experiments’ in 1676, Newton made one of his more famous quotes: ‘If I have seen further it is by standing on the shoulders of giants.’ thereby acknowledging that scientific advancement depends on knowing what has gone before in the light of new knowledge or thinking. The ensuing enmity lasted until Hooke’s death in 1703.

At the end of June 1686 Newton finally publishes his most famous work entitled “*Philosophiæ Naturalis Principia Mathematica*.” which dealt with mathematical principles with the help of his supporters in the scientific world.

The book probably was the last major work published in Latin, as was the custom then, however It is fair to say that the language was dying out by the time *Principia* appeared. The unhelpful remark (left) shows that he was not a particularly popular person apart from the people that really mattered to himself.

It is for you, the reader, to decide whether he understood what he had written but this author’s view is, for what it is worth, that he did but was not necessarily able to adequately express his thoughts in terms understandable to non-academics (whom might not have been the intended audience). It seems that the comment has more than a smattering of jealous acknowledgement about it.

Newton’s rise in fame and ability to attract patronage from benefactors (no doubt benefiting Trinity College as well) inevitably caused friction with some of the contemporary and better known scientists as he, with a proper factual base, provided alternative answers to the established understandings that they were promoting. Nonetheless it seems that he was highly capable of smoothing over such differences, however the evidence suggests that he did harbour grudges even if he did not act upon them.

During later part of the 17<sup>th</sup> century Newton’s interest in alchemy resurrected itself piquing his desire to find the ‘brew’ that controlled nature within a group of closet alchemists which included Robert Boyle.

One member of this group, a Swiss mathematician named Nicholas Fatio de Duillier, with whom Newton enjoyed a very close relationship with between 1689 and 1693, (how close it actually was is anybody’s guess, but it was close enough for Newton to offer to fund his medical bills).

When this relationship finished in August 1693 Isaac had a breakdown which affected relationships with others in his social circle for a while and, after recovering, moved to London in 1696. A post-mortem examination of his hair showed an abnormally high level of mercury so raising the high probability that he took in more of the metal than was advisable during this period and displayed the behavioural side-effects of mercury poisoning.

Newton made the acquaintanceship of John Locke, possibly through being on the outer fringes of ‘The Glorious Revolution’, a physician by trade some 10 years older than him. Locke was part of the late 17<sup>th</sup> century ‘freethinker’

group of intellectuals circulating within government circles who felt that the Cambridge professor was wasting his time out of London. Newton had lost an election in the early 1690s to be Provost of the University due to not being 'of the cloth' (which was mandatory at the time) and was marking time looking for alternative sources of income whilst his academic peers were getting advancement into the higher echelons of the Church. His friend Locke, along with Lord Monmouth and Charles Montagu (later Lord Halifax), meanwhile started looking for a suitable opening for Newton.

It took till 1696 for Montagu to have sufficient influence (as Chancellor of the Exchequer) to allow Newton's appointment to be the Warden of the Royal Mint, which was intended to be a sinecure so Newton had plenty of free time to do his own research. Conversely, he took the role seriously, which predicated his move to London. In the first eighteen months of his appointment Newton had a significant role in the successful prosecution of 28 'coiners' (counterfeiters and shavers – scrapping silver off the side of coins leading to the introduction of coins with milled edges) who were then sent on to meet their executioner.

His success at reforming at the Royal Mint soon had him being promoted to Master of the Mint at the end of 1699 with a decent salary along with significant involvement, at the practical level, in national monetary policy. He also engaged in various entrepreneurial activities whilst continuing his scientific research and publishing interests.

Whilst Warden of the Royal Mint Newton was active at Cambridge as Chair of Mathematics until 1701 when he resigned causing his Fellowship with Trinity College to cease. He was one of the representatives in the University Parliament for about 8 months (November 1701 to July 1702) and tried again in 1705 but failed due to, it is thought, his political allegiances particularly in London. Newton's successor in the Lucasian Professor post, William Whiston, followed him into the Warden's job at the Royal Mint.

Autumn 1703 in London saw the Presidency of The Royal Society become vacant which Newton was elected to fill, a post he held for the next 25 years. One of his first tasks was to help find the finance for publishing John Flamsteed's manuscript 'Observations' with the aid of Halley. The first Astronomer Royal (who was notorious for hanging onto his work) was not pleased and so set out acquiring 300 of the 400 -print run only to destroy them claiming that it was incomplete. The book was republished later with the aid of Flamsteed's wife. Newton obtained the money from Queen

Anne's husband Prince George of Denmark, who had recently been elected as a Fellow of the Royal Society. She was suitably impressed with her husband's recommendation of Newton to knight him privately at Trinity College during a ceremonial visit to Cambridge in 1705.

Newton solved many scientific problems throughout his life which are cited in larger articles on this subject; often despatching the answer quickly – solving one such problem overnight after a day's work at The Mint six months after it first being offered to other esteemed mathematicians. He also published a companion book, amongst many titles, to his maligned "*Principia*" on optics and several revisions to the former.



Newton lived out his final years at Winchester with his niece Caroline Barton-Conduitt and her husband after being relieved of his Royal Mint duties due to ill-health in 1725.

He died during the early hours of March 20<sup>th</sup> 1727 at the grand age (for the era) of 85 and is interned in Westminster Abbey.

It is a fair bet that Newton's work touches most sectors of life today, three centuries later, with the most notable exception being politics.

Newton retained ownership of Woolsthorpe Manor until it was handed down as an inheritance to a member of his family but the value of it was then squandered on "wine, women and song" with the property being left to fall into serious disrepair by 1800 as depicted in a painting made at the time.

**Neil Mudford,  
Mansfield & Sutton Astronomical Society  
Nottingham Astronomical Society**

*Author's Note: The above, of necessity, does not include Newton's interaction with many of his peers with which he had intellectual and ownership disputes that were essentially about professional and personal egos, therefore doing so would be rather repetitious of the basic point that he showed great ability to handle people with some skill.*

*This script is about giving the reader a flavour of the person Newton was, not a blow-by-blow biography.*

*The fact that he was not married, or that he, as far as it is known, didn't have a significant female partner does not, of itself, necessarily mean that he was homosexual – I personally doubt that many women would have put up with the high level of devotion to his studies, work and outside interests that he exhibited long enough to get the relationship beyond the casual stage, certainly whilst at Cambridge with a moderate and uncertain income barely sufficient for his own immediate needs.*