Federation of Astronomical Societies

Newsletter

Editor: Michael Bryce

www.fedastro.org.uk

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

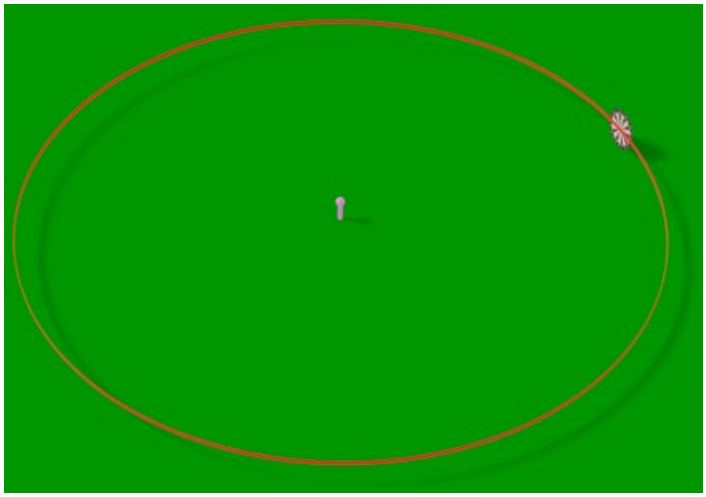
President's Spot: Dr Paul A. Daniels FRAS

Each day I get targeted news items delivered to my Android smartphone by Google and one that caught my eye recently was an article on the BIG THINK website (bigthink.com) by author Adam Frank, 'Why stars never collide and galaxies always do'. That title is audacious in its use of 'never' and 'always' and, following some dubious (and, sometimes, just plain wrong) back-of-the-envelope reasoning and *very* rough calculations, the author arrives at the conclusion in the title and provides some caveats.

His premise is that you only need two numbers to arrive at his conclusion: the diameters and separation distances for stars and for galaxies. He divides the diameter of a typical star (he uses the Sun) by a typical distance between stars (he uses the distance to Proxima Centauri) and then compares that ratio with the ratio formed by dividing the diameter of a typical galaxy (he uses our Milky Way galaxy) by a typical distance between galaxies (he uses the distance to the Andromeda Galaxy). Because, by his calculations, the first ratio is very much smaller than the second ratio he concludes the likelihood of stars colliding is very much lower than galaxies colliding.

Even though the conclusion is mostly correct, I think his calculations are wrong and, to see why, we should consider why he thinks comparing those two ratios leads to a comparative likelihood of collisions.

Consider a two-dimensional version of the problem first: suppose you're standing in the middle of a flat field with a circular dartboard (radius, R) some distance away (distance, D) and throwing darts horizontally and randomly in any of the 360° directions. Your chances of hitting the dartboard are it's width divided by the circumference of the circle, centred on you and passing horizontally through the dartboard, $(2R)/(2\pi D) = R/\pi D$ (where π is our old friend 3.1416…).



Let's pretend there's no air resistance slowing the darts and no gravity dragging the darts downwards so, simply, the bigger and closer the dartboard (bigger R and smaller D), the more chance there is of you hitting it. In this two dimensional scenario, for a given distance, if you treble the size of the dartboard you simply treble your chances of hitting it.

In three dimensions (remove the field and the 'horizontal throwing' constraint) you have to consider the area of the dartboard (*i.e.* not its diameter) as a proportion of the surface area of the sphere, centred on you, and with the dartboard facing towards you and tangent to the sphere's surface. Now the chance of hitting the dartboard is $(\pi R^2)/(4\pi D^2) = R^2/4D^2$. For a given distance, if you treble the size of the dartboard you stand nine times the chance of hitting it by random dart throwing.

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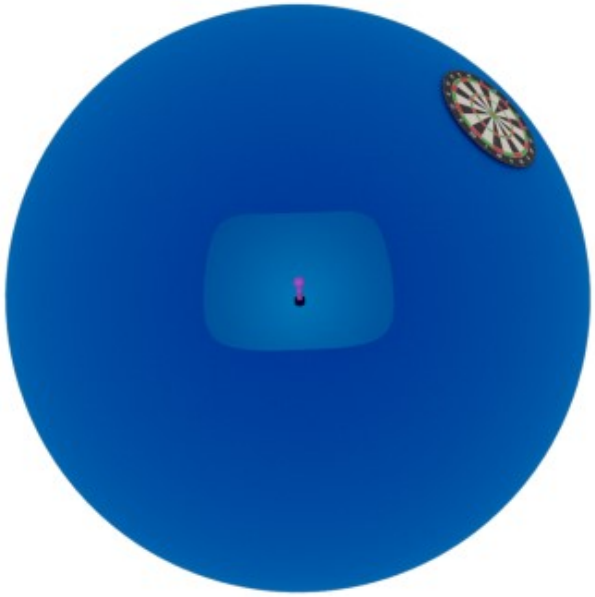


Note that the 'two numbers' he uses are in the ratio R/D (two dimensional case above) whereas I'd argue they should be in the ratio $R^2/D^2=(R/D)^2$ (three dimensional case). Since, for both stars and galaxies, R/D is small and $(R/D)^2$ is *very* much smaller he has, in effect, missed an opportunity to make his argument even more strongly.

He's also picked some 'typical' sizes and distances that, for stars, bias the ratios he calculates:

There is a large population of Brown Dwarf stars[1]: these are 'failed stars' about the size of planet Jupiter with masses between 13 M_J (just big enough for Deuterium fusion) and 80 M_J (too small for Hydrogen fusion) where 1 M_J is one Jupiter mass. Including the many Red and White Dwarf Stars the *average* size of stars is rather smaller than our Sun. Using a smaller size than our Sun would also have strengthened his argument.

He used the distance to our nearest star, Proxima Centauri, as being typical of interstellar distances. Anyone looking at the range of galaxy types and, in particular, the blotchiness (apologies for the technical term) of galaxies with arms (spiral or otherwise) would question how you can even consider an *average* distance. Near a galactic centre the density of the stellar population could be very much higher than at the fringes of a spiral arm or in the gaps between the arms.

Collisions are, implicitly, localised events so it makes sense to only consider stars in regions where they're likely to interact with each other: near our Milky Way's central core stars are often as close as 0.013 light-years[2] (860 AU) whilst, at the Sun's distance from the centre a typical separation is 5 light-years and getting larger as one moves outwards away from the centre. The ratio of 5/0.013 (~400) therefore means that, for stars of comparable sizes, collisions near the galactic centre are about 400^2=160,000 times more likely than at the Sun's distance.

He's used the diameter of our Milky Way galaxy as being typical but what exactly *is* the diameter of a galaxy? It may be elliptical or amorphous in shape and do we include all of the galaxy's matter (*i.e.* including dark matter) or just that which we can see? Our Milky Way galaxy has a diameter of about 10^5 light-years but galaxies typically range from $5x10^4$ to $5x10^5$ light-years in diameter[5]. At the extreme, mammoth galaxy IC 1101 in the Abel 2029 cluster has about 10^{14} stars and a diameter of $6x10^6$ light-years![6]

He's used the distance to M31, the Andromeda Galaxy, as typical - but typical of what? Distance within the Local Group of galaxies? If you were to consider average distance within a supercluster then you have to think on a much larger scale because of the large gaps between galactic clusters! Again, collisions *are* localised so it makes sense to only consider galaxies within a local group. In that case a typical distance between galaxies is between about 10^6 and 10^7 light-years so his use of $2.5x10^6$ light-years isn't unreasonable.

Re-doing his calculations using better numbers for the stars, his more reasonable numbers for the galaxies but squaring the ratios as I outlined above, we get about $5x10^{-17}$ as the squared-ratio for stars and about $1.6x10^{-3}$ for galaxies. This is a much clearer result than he calculates.

Okay, so I'm being ~~a bit~~ *very* pedantic but my point is that, in circumstances where there's a huge diversity of sizes, distances or shapes, it's unreasonable to just go for a basic average without some caveats as to the specific situations where the cherry-picked 'typical' numbers apply – keeping it simple only goes so far!

The article also begs the question: *What is a collision?* If you're colliding billiard balls then it's fairly easy as there are well-defined boundaries and the results of the impact are predictable. What if the colliding objects don't have well-defined boundaries? Two swarms of bees flying towards each other from opposite end of a football pitch would probably pass straight through each other; did the swarms really collide?

In the case of stars and galaxies, of course, gravity can't be ignored. If two Red Supergiant stars have a very near miss then there may be *some* gas, perhaps quite a bit, pulled away from both stars but, unless the impact was more direct (*e.g.* stellar core to stellar core) it's unlikely to be catastrophic – how close does it have to be to be called a collision? White dwarfs or Neutron stars have sharper boundaries so collision is easier to visualise.

In the case of galaxies a close pass could cause an exchange of gas, dust and stars and the shock waves of the pass could trigger rapid star formation or in extreme cases the pass could disrupt one or more of the galaxies. Often a smaller galaxy will simply be absorbed, cannibalised, by a large galaxy with which it collides.

Adam Frank's article comes to a mostly correct conclusion but with flawed calculations and, for stars at least, some suspect stellar numbers. His language is imprecise in places but, even so, it provoked some thoughts and provided some material for this edition's President's Spot – so it can't be all bad!

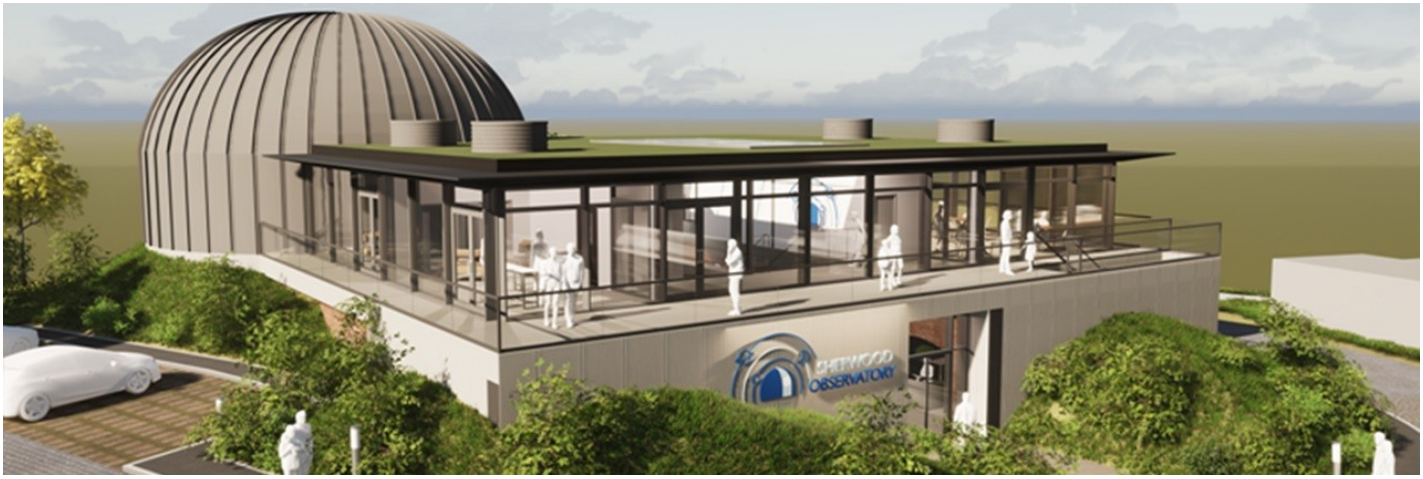
Stay safe and clear skies!

Paul

References

1. *Brown dwarf, Wikipedia*
2. *How close can stars get to each other in galaxy cores?, David Norby, Astronomy, January 2006.*
3. *Clusters and Superclusters, Barbara Ryden, Ohio State University, February 2003.*
4. *Clusters of Galaxies, Princeton University*
5. *Galaxy size comparison chart I*
6. *Galaxy size comparison chart II*

£3.1 Million Contribution Towards our Science Discovery Centre and Planetarium Secured



We are delighted to announce that we have secured a £3.1 million contribution to our science discovery centre and planetarium project from the Levelling Up Round 2 fund.

Securing the Levelling Up contribution marks an important milestone in the project journey. Subject to securing the matched funding and planning permission work can start on the development in the middle of this year meaning that the new centre will be open and fully operational by our ideal timeframe of autumn 2024. The centre will be a jewel in the crown of the local visitor economy that will help put this area on the map. It will play a key role in presenting STEM subjects in an exciting and hands-on way to raise awareness of the opportunities a STEM career can unlock.

Together with contributions from other sources we now have 85% of the funding that we need to start construction. We are seeking support from businesses across the region to help us to raise the remaining 15%. Sponsorship could be in the form of financial contributions, donation of materials, or work in kind. If you would like to offer corporate support, please contact Steve at projectmanager@sherwood-observatory.org.uk for more information.

If you would like to make a personal donation, please go to this link:

https://www.totalgiving.co.uk/appeal/sciencediscoverycentre

100% of all contributions go directly to the project.

Thanks to Richard Field for sending this in.
Mansfield and Sutton Astronomical Society
sherwood-observatory.org.uk

Hertford Astronomy Group

Wed 8 March at 8pm: Live and on Zoom

"The study of protoplanetary discs in the 2020s" by Cathie Clark

Cathie Clarke was the first to demonstrate how protoplanetary disc formation around low-mass young stars is determined by their radiation field. This removes material from the disc and is basic for various models of planet formation.

Cathie Clarke is a Professor of Astronomy at the University of Cambridge and a fellow of Clare College, Cambridge. In 2017 she became the first woman to be awarded the Eddington Medal by the Royal Astronomical Society. In 2022 she became the first female director of the Institute of Astronomy, Cambridge.

For more details and booking visit:

hertsastro.org.uk

Special event on Saturday, March 11:

"My Telescope Doesn't Work"

Free - Help and advice on telescopes and binoculars
Location to be announced.

All events subject to amendment.

All Welcome!

Membership is just £10 per year, calculated pro-rata
Visitors £2 per meeting. Under-18s and full-time students FREE
Under-16s must be accompanied

Members may also attend meetings of the HAG Astrophotography Section

For more information, visit the website or write to
programme@hertsastro.org.uk

The International Olympiad on Astronomy and Astrophysics (IOAA)

The International Olympiad on Astronomy and Astrophysics (IOAA) has been running since 2007 and the UK has been sending a team there every year from 2015 onwards. This team of 5 students is selected from 16-18 year olds from across the country that take part in the British Astronomy and Astrophysics Olympiad (BAAO) competitions. Those that make the UK team are extensively trained before flying out to the IOAA host country to compete against teams from 40+ other countries to try and get gold, silver and bronze medals over 10 days of the competition, involving a 5 hour theory exam, a 3-4 hour data analysis exam, and a 1 hour observational exam (consisting of both demonstrating telescopic skills and pen-and-paper observational questions).

Over the last couple of years, we have been blessed with considerable success. The pandemic prevented the 2021 team from being able to fly out to Colombia, but working remotely from Cambridge we managed 2 gold, 2 silver and 1 bronze medal and the UK's highest ever international ranking. Our top student, Emma, came in the top 20 students globally, including an observational exam that was only 1 mark off full marks! It was also our first team that was majority female and majority state schooled, showing that the UK team is open to the brightest students from any background and from all over the country (they hailed from London, Cambridge, Birmingham, Nottingham, and the Wirral).

Figure 1 *The 2021 UK team to the IOAA, proudly wearing their medals (sent through the post as the pandemic prevented an in-person hosting in Colombia). The result of 2 golds, 2 silvers and 1 bronze was the UK's best performance at an IOAA.*

Last year's competition was the first in-person IOAA since 2019 due to the pandemic and was hosted in Kutaisi, Georgia (the Eastern European country, not the US state) in August 2022 after Kyiv had to withdraw from hosting due to international events. The students had a fantastic time with the excursions put on by the hosts between exams including trips to one of the largest cave systems in Europe, a dendrological park, and a swim in the Black Sea! After some of the hardest exams ever seen in an IOAA we left Georgia with 3 silver and 2 bronze medals (with our top silver only a handful of marks off a gold medal) and continuing our international reputation as a real power in astronomy and astrophysics.

Figure 2 Right: *The 2022 UK team to the IOAA, wearing their medals in front of the Colchis Fountain in Kutaisi, Georgia after the closing ceremony. The result of 3 silver and 2 bronze medals was a good return to in-person competing and keeps the UK in the top half of the international rankings table.*
Left to right: Alex (bronze), Siobann (silver), Anna (silver), Albert (silver), Anirudh (bronze).

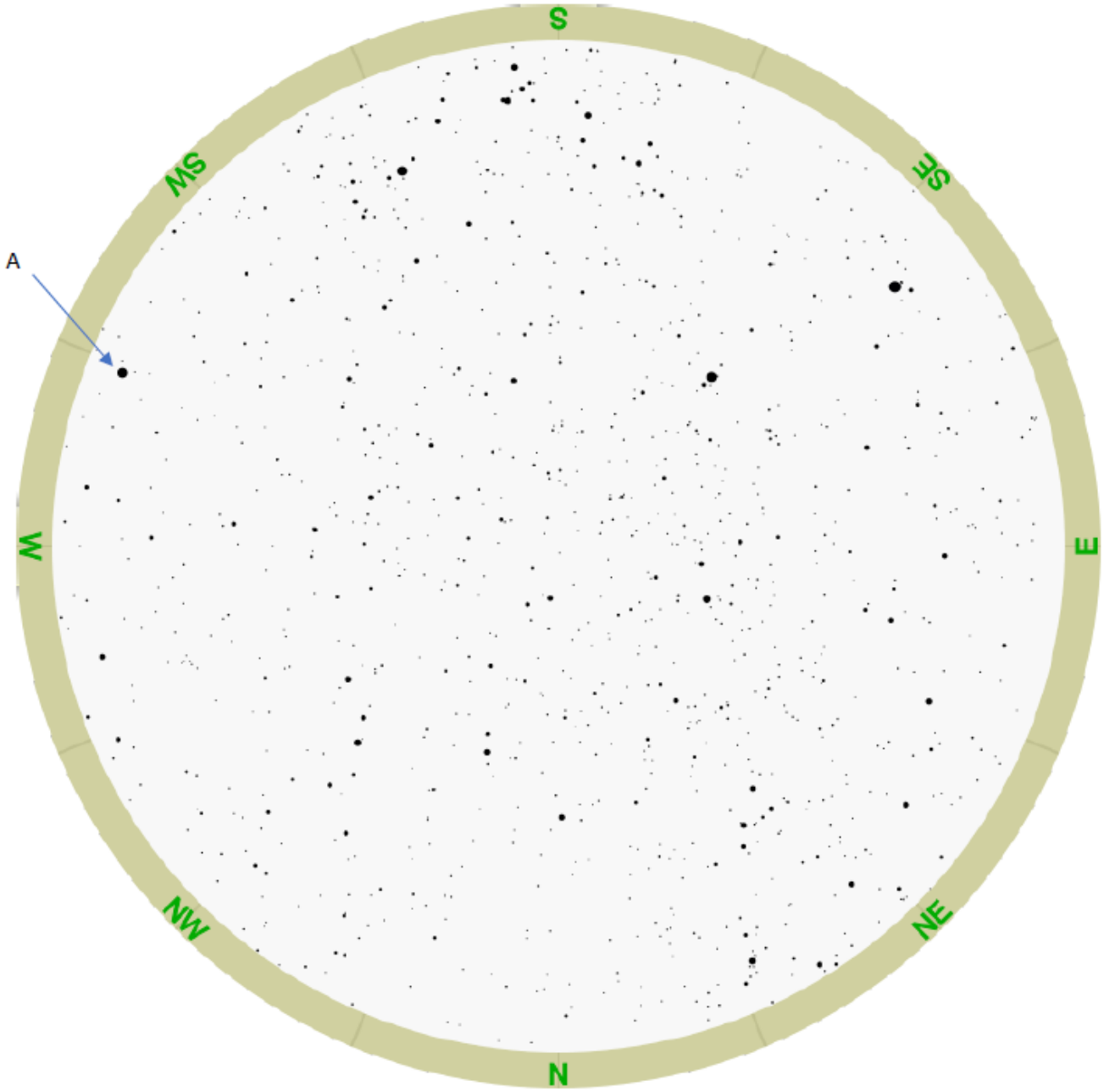
As I write this, we are midway through this year's selection process. In November 2022, a huge 2830 students from 440 schools took part in the British Physics Olympiad (BPhO) Round 1. The highest-scoring 84 of those students were invited to take part in the BAAO competition paper, sat in early February 2023 and asking questions on the solar analemma, dust shells around a Wolf-Rayet star, and migration of planets in proto-planetary discs. The best 12-14 students will be invited to come to a selection camp in Oxford from 1st to 5th April 2023, where they will develop their astrophysical knowledge, problem-solving skills, and observational skills (with both a telescope and in a planetarium). At the end of the selection camp, they sit a Data Analysis exam along with a Round 3 theory paper to choose the team of 5 students (plus one reserve) for further training, including additional training camps in the summer. After we complete our training, we will fly out to Chorzów, Poland, from this year's IOAA from 10th – 20th August 2023 (see their website here: https://ioaa2023.pl/). You can find photos showing what it is like to be a student at both the April selection camp and the subsequent training camps, as well as the IOAA itself, on the BPhO Facebook page (https://www.facebook.com/The.BPhO), and this will be updated as the year goes on so you will be able to follow the 2023 UK team's progress too.

If you like what you see and want to take part next year (or know a young person that might), you will need to get your school to enter you for the BPhO Round 1 (in November 2023) and / or the brand new BAAO Round 1 (in February 2024); those that do well enough will be invited to do the BAAO Round 2 (formerly the January competition paper), with the possibility of going further in the competition. You can prepare for them by doing past papers, and you can find them all (they are hard!) on the BPhO website: **https://www.bpho.org.uk/past-papers/baao**. We hope to see some of you in the 2024 UK team!

Dr Alex Calverley
alex.calverley@surbitonhigh.com

P.S. If you want to get a taste of the astronomical knowledge you need to make the team, have a go at the challenge on the next page – those that make the team would get all the questions right within 15 minutes, so see if you have what it takes!

FAS Astro Observational Challenge



1. Name the star being pointed at with the arrow labelled A
2. Estimate the latitude of this location
3. Three stars have been removed. Name them and put a X where they should have been
4. Name 4 constellations that the ecliptic passes through in this image
5. One planet is visible. Circle it and write 'P' next to it
6. Draw on the galactic equator
7. Put a '+' on the image where any of the following are visible: M1, M31, M42, M44, M45, M57 [some of them are below the horizon]
8. This is the sky at 21:30 at the location. Estimate the month

Note: Answers will be published in the next edition of the FAS Newsletter, along with an explanations for how the answers are arrived at?

Occultation of Mars

8 December 2022

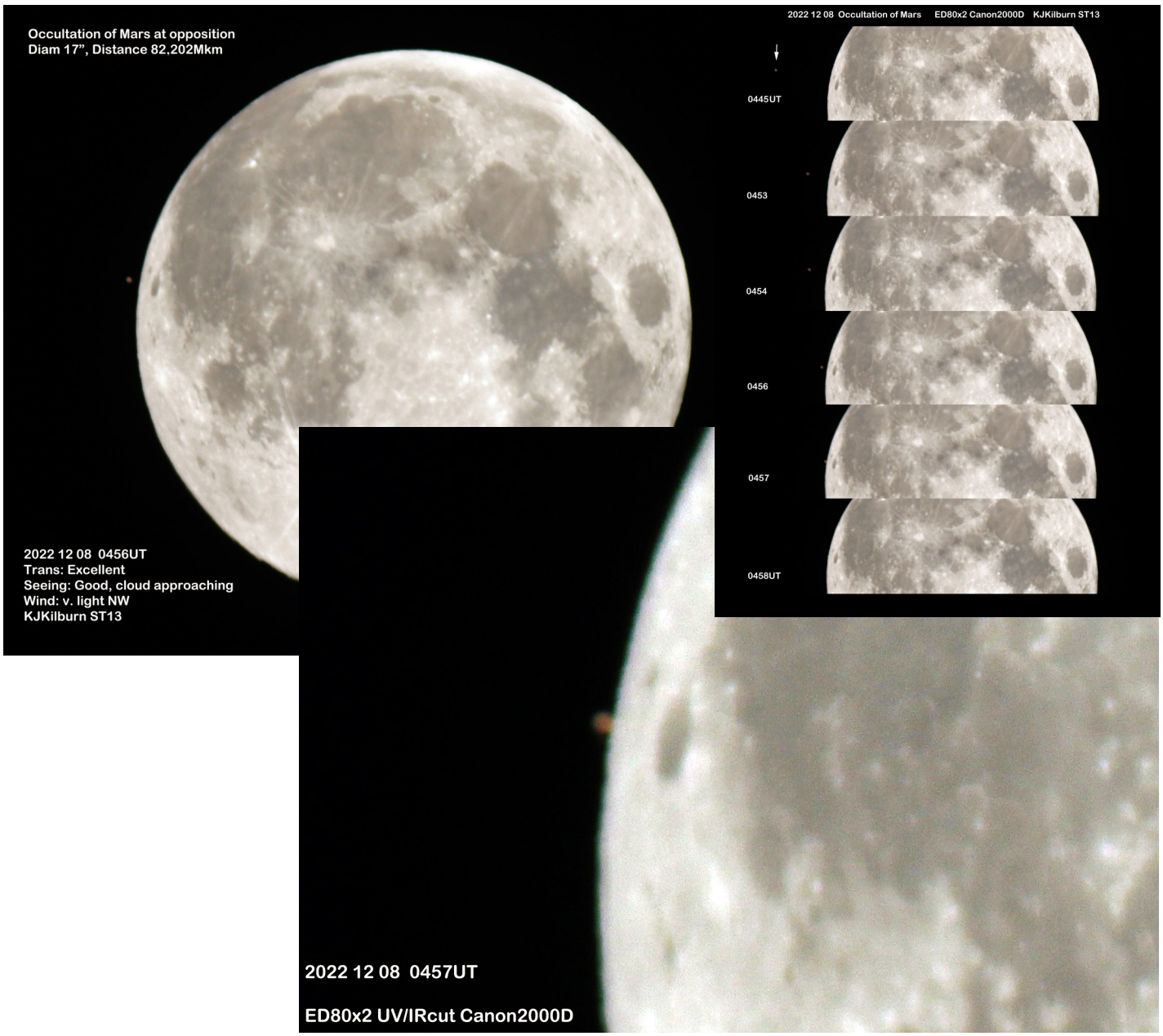
Kevin Kilburn

Brilliant moonlight in a clear sky illuminated the frozen back garden when I went out at 4.30am to watch the occultation of Mars at its opposition.

The 80mm refractor was already set up on the EQ5 mounting and by 0445UT I began photographing at approximately 1-2 minute intervals. In the viewfinder I was surprised at how fast the moon was approaching Mars and the stark colour difference between the two worlds.

But the reappearance wasn't observed as thin cloud coming up from the NW reached and covered the Moon at about 5.30am. Nevertheless it was interesting to sit indoors and watch the temperature, measured by the weather machine on the shed roof, dimb from -5.5C at 5am to a balmy -4.6C half an hour later.

Kevin Kilburn Hon. Life Member
Manchester Astronomical Society



National Schools' Observatory Work Experience

Every year we welcome students for a **week-long residential** work experience programme. Students gain skills and experience plus an idea of how professional research is done at a university. The week consists of talks and workshops from university staff and students. It culminates with students presenting their scientific research.

This year's Work Experience Week takes place from **Sunday 9th to Friday 14th July 2023** at Liverpool John Moores University.

We offer **scholarships** to all work-experience students. These cover the costs of accommodation and food for the week. Students should provide their own return travel to Liverpool - however, travel costs may also be included in exceptional circumstances.

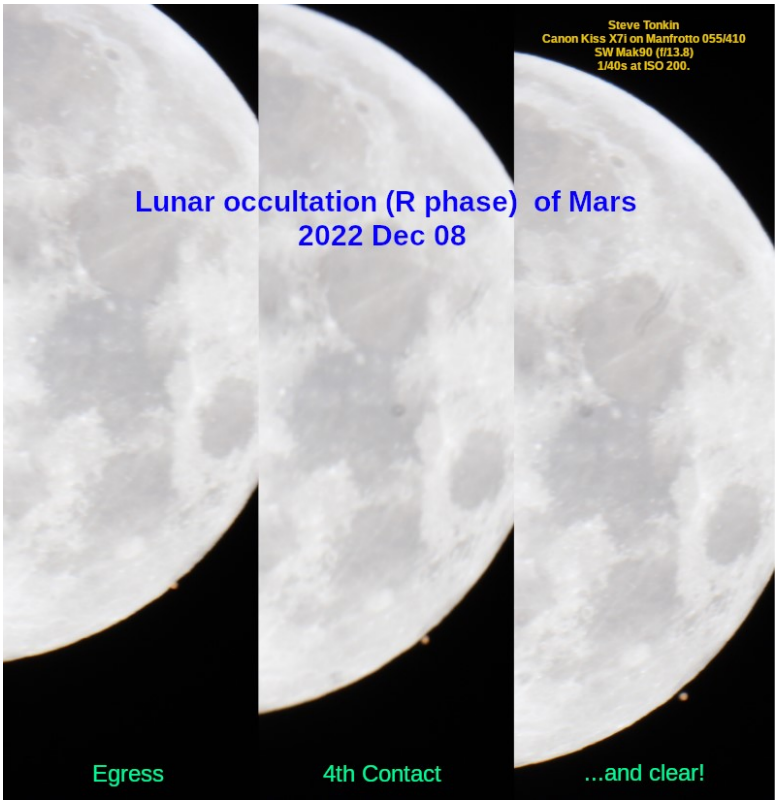
The online application form is now open and will close at the end of Friday 31st March.

National Schools' Observatory
schoolsobservatory.org

Occultation of Mars

8 December 2022

Steve Tonkin FRAS



Montage of Mars' Egress from behind the Moon on 8 December 2022 taken by Steve Tonkin.

Steve Tonkin
Fordingbridge Astronomers,
Wessex Astronomical Society,
Owner: Binocular Sky: binocularsky.com
FAS Dark Skies Advisor: fedastro.org.uk

Mid-Kent Astronomical Society

Meetings Programme

Friday 24 February:

Greg Smye-Rumsby — Space Art

Bredhurst Village Hall

The earliest humans became aware of their place in the universe recording the strange happenings that occurred in the night sky around them. Today artists are employed to reveal the inner workings of a rocket engine or the weird phenomena found within the heart of a super-massive black hole. This talk is designed to reveal the many ways art has been used to express ideas where the written word might fall short.

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Friday 10 March:

MKAS Member's Telescope Clinic

This meeting will give MKAS members the chance to address problems that have arisen during set-up and testing of their new (and perhaps older) telescopes. They will be able to ask for telescope tips and solutions to problems from experienced MKAS Astronomers with hands-on experience with their type of telescopes.

The meeting will start with a presentation giving an overview of the different equipment types readily available to amateur astronomers, both in terms of telescopes and appropriate mounts. This will help those thinking of buying their first telescope or prior to upgrading their A to identify the 'kit' most appropriate to meeting their needs.

A general Q&A session then will follow until the coffee break.

The rest of the evening will be devoted to a practical session, dedicated to solving particular problems, or demonstrating how to set up equipment.

Members are invited to bring their telescopes along to the event, while proficient MKAS members will give advice on specific problems. Other MKAS Members would be expected to benefit from listening in on the advice given.

In order to plan the evening most efficiently, members intending to bring "problem telescopes" are invited to describe their equipment in advance and to outline their specific problems ahead of the meeting.

Weather permitting, it would be hoped that successful operation of some of the telescopes could be demonstrated outside, following the talks and demonstrations.

Please email your questions / problems in advance to: progsec@midkentastro.org.uk.

———

Friday 31 March:

Prof. Jan-Peter Muller - Mapping the surfaces of Mars and the Moon from orbit and from the surface: a status report

Bredhurst Village Hall

Based on over 30 years experience of working on projects arising from the Mullard Space Science Laboratory's collaboration with the NASA & ESA Lunar and Martian missions, Prof. Muller will illustrate how the techniques for mapping the surface of these bodies from orbit have developed over the years. Prof. Muller will also describe highlights of what we have learned from these imaging studies, along with many anecdotes from his work with many International Colleagues.

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Friday 10 April:

Dr. Jeni Millard - The Hidden Universe

ZOOM ONLY

Did you know that more than 99% of the Universe is invisible to the human eye? In this talk, we will explore the electromagnetic spectrum, chronologically following the discovery of different wavelengths of light and how they are used to uncover secrets of the cosmos.

midkentastro.org.uk

Mexborough & Swinton Astronomical Society

Meetings Programme

Thursday 23 February 7:30 pm
Peter Rea: "How it Began - The Origins of Lunar Exploration 1958 to 1978"

Thursday 2 March 7:30 pm
Roy Gunson: "Asteroids"

Thursday 9 March 7:30 pm
Prof Nigel Mason: "Astrochemistry and the Cradle of Life"

Thursday 16 March 7:30 pm
Professor Andrew Gregory: "Copernican Revolution"

Thursday 24 March 7:30pm
Prof. Beth Biller: "Weird New Worlds"

All events available via Eventbrite here:

https://www.eventbrite.co.uk/o/mexborough-amp-swinton-astronomical-society-33434064571

Thanet Astronomy Group

Congratulations to Thanet Astronomy Group for producing the first edition of their "new look" Newsletter!

thanetastronomygroup.com


THANET ASTRONOMY GROUP
Astronomy For Everyone in Plain English

NEWSLETTER

No.31
January 2023

A warm welcome to our new look newsletter.

One of the benefits of having an interest in stargazing is, as hobbies go, we truly have the most amazing images. Whilst it has been cloudy of late, there are a few images and drawings from members for us to look over. I hope the new year will allow us all to get out and enjoy some of the beautiful sights these longer dark nights present. George's excellent guide to the January skies will help us do just that.

Whilst I enjoyed seeing everyone up over zoom during the lockdown, I'm thrilled we are finally able to resume meeting up for a cuppa and looking through the various telescopes folk bring at the West Bay Cafe. Our thanks go out to them for their hospitality.

Here's to 2023 - clear skies!

- Darhy

Havering Astronomical Society

2022 proved to be an eventful and rewarding year for Havering Astronomical Society and its members. Like all societies, we have relished being able to fully resume in-person meetings and outreach events. In November we held a family astronomy day in conjunction with Thames Chase Forest Centre in Upminster, Essex. This was one of our events supporting the work of Thames Chase, which is also our base for meetings. In the barn there were talks — "Space is Big" and "What to see in the Night Sky" which were enjoyed by the enthusiastic audience, and telescopes were set up with members kept busy talking about the equipment.

Unfortunately the sky stayed cloudy but we had a contingency plan with a 3D printed Moon and light box constellations for the telescopes to focus on. This is the next best thing to 'real observing' and proved popular, with interested people crowded around all the scopes. One telescope was even showing the live images on a laptop. Also on offer next door in the meeting room was a generous supply of free material such as posters, booklets, postcards, magazines and lanyards to name but a few. By the end of the evening there wasn't a great deal left!

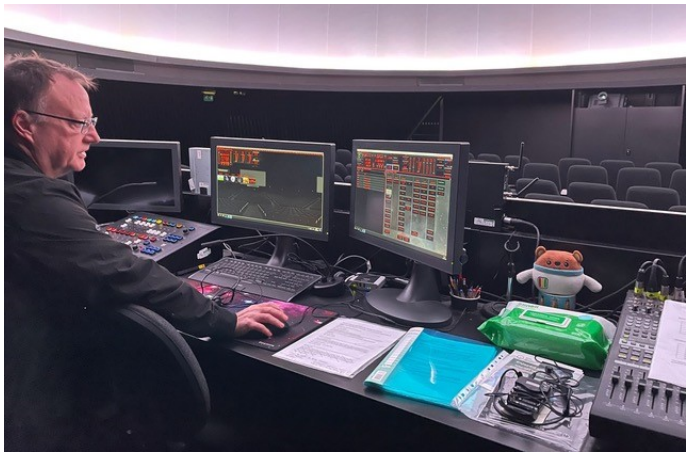
We also had displays of members images, lessons on how to use a planisphere, an orrery and meteor samples that visitors were able to hold and feel. 'Star' attraction Buzz proved busy posing for photos and there were plenty of members available to chat and answer questions. A desk set up with drawing and colouring activities for our younger visitors was popular too. The centre provided refreshments including hot drinks and appetising snacks. This was an event which we aim to hold at the centre at least once a year to inspire and encourage an interest in astronomy within our community as part of a busy outreach program.

Havering Astronomical Society Meetings are held the 3rd Wednesday of each month (except August) at Thames Chase Forest Centre in Upminster, Essex. Our speaker for Wednesday 15 February is **Professor Richard Ellis - 'Cosmic Dawn: The Quest for the First Galaxies'.** The March meeting will be on Wednesday 15th when we present **Professor Simon Green** with a talk titled '**How to prevent an asteroid impact'.** Meetings are between 7.30 and 9.30pm and new members are always welcome.

Take a look at our website at **www.havastro.co.uk**. For enquiries by email use ***enquiries@havastro.co.uk***. You can also find us on Facebook.

The ***Young Astronomers*** group were treated to a visit to Royal Observatory Greenwich in October, see images below. The twenty four members who attended were treated to a private planetarium show by HAS member and ROG astronomer Les Brand. They then had a tour of the telescopes and of course got to stand on the meridian line. After the organised session members and their families were able to enjoy the site at their leisure. This trip was part funded by a generous donation. Frances Ridgeley was a founding member of the society and the secretary for 25 years. She sadly passed away several years ago and as her great passion was introducing young people to the wonders of astronomy and the night sky her family is kindly making an annual gift in her name to be used on something special for the Young Astronomers. We will need to start thinking about this year!

Young Astronomers aged 8-16 meet on the last Thursday of each month (except August) 7-8pm at Thames Chase Forest Centre, Upminster, Essex. Sessions include a talk, space news and what to see in the night sky. When clear there are telescopes and club binoculars for observing as well. There is a very good track record of holding meetings on just the right night! Find out more at **young.astronomers@havastro.co.uk** and check out the website ***www.havastro.co.uk***



Space Oddities Live!

ADVERTISE YOUR SOCIETY WITH SPACE ODDITIES:

We are Space Oddities, a YouTube channel bringing you live astronomy and space exploration news, discussion, special guests, competitions, quizzes and more every Monday evening in a livestream at 8pm UK time on YouTube and Facebook. Each week an international panel of amateur and professional astronomers, who used to work together at the sadly now-defunct internet radio station Astro Radio, get together to chat about anything relating to the Universe and to keep our audience up to date with anything in the news, as well as present interesting presentations on a huge variety of astronomical subjects. We have a lot of fun!

One thing we would like to do this year is to become more involved helping astronomical societies and clubs in the UK and elsewhere to promote themselves and their activities. At a time when it is becoming more and more difficult to prise people away from their homes and their electronic devices in order to attend meetings, we would like to do our bit to help! If you are a member or official of an astronomical society or club and would like us to advertise your group and its events on our weekly livestream, please send an e-mail to **spaceodditieslive@gmail.com** with the details. We are also more than happy to show any promotional videos you might have. Promoting your society with Space Oddities is completely free – the only thing we ask in return is that you tell your members about us!

Space Oddities Live YouTube channel can be found at:
www.youtube.com/@spaceodditieslive

Our Facebook Group is at:
www.facebook.com/groups/spaceoddities

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Society for the History of Astronomy

Online Zoom® Webinar

Society Members Short Presentations

Ian Ridpath

Ian Ridpath is an internationally renowned writer and lecturer on astronomy and space. He is editor of the authoritative Oxford Dictionary of Astronomy and author of a widely used series of stargazing guides for beginners including The Monthly Sky Guide. Ian is a winner of the Astronomical Society of the Pacific's award for outstanding contributions to the public understanding and appreciation of astronomy, previous recipients of which include Carl Sagan and Patrick Moore. He is currently the editor of the SHA publication The Antiquarian Astronomer, Journal of the Society for the History of Astronomy.

"Google Doodles are small graphics on the Google search page that celebrate anniversaries, events, and individuals. In this brief light-hearted talk, Ian Ridpath looks at some of the Doodles dedicated to the history of astronomy."

Waiting to hear from other speakers.

8pm (GMT)) Wednesday, March 8th 2023

Places are limited. Zoom link details to be sent to SHA member.

Please contact:- meetings@shastro.org.uk

Courtesy of Ian Ridpath & Google Images™

The Society for the History of Astronomy

Society for the History of Astronomy

Spring 2023 Conference
9:30am Saturday 1st April

Lyttelton Lecture Theatre Birmingham & Midland Institute
Margaret Street, Birmingham B3 3BS

The Michael Hoskin Memorial Lecture:

Guest Speaker: Ms Carolyn Kennett FRAS

"The Dolcoath Mine Experiments: Airy and Whewell and their attempts to Weigh the World"

Other Guest Speakers Confirmed: Miss Megan Briers, & Kevin Johnson; Dr Emily Winterburn ,Rod Hind, & Ms Carolyn Bedwell.

Covid-19 Precautions in Place. Please Book Early.

Booking in Advance at £15 per person for SHA members.
£20 per person for non-members.

More details and pre-booking only. Please Contact Meeting Secretary – meetings@shastro.org.uk

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The Society for the History of Astronomy

St Cross Centre for the History and Philosophy of Physics (HAPP)

I'm pleased to let you know that we will once again hold our termly one-day HAPP conference next term in person and as before this will also be livestreamed online for those unable to come to Oxford or based overseas.

The conference will be on "Physics Feuds Throughout History" on Saturday 25th February from 10.30 am until 5 pm in the Mathematical Institute with the feuds between leading thinkers and their vital role in establishing successive views of our physical world being examined in the talks and discussions.

Confirmed speakers are:

Professor Andrew Gregory (University College London) - Aristotle versus Democritus: Are there Atoms and Empty Space?

Professor Anna Marie Roos (University of Lincoln) - Deconstructing the Copernican and Galilean Controversy with the Catholic Church

Professor Robert Iliffe (University of Oxford) - Why did Newton engage in disputes with Hooke and Leibniz? Personal, scientific and institutional aspects.

Professor Reinhard Werner (Leibniz University Hannover) - Bohr versus Einstein

Professor Mairi Sakellariadou (King's College London) - The Big Bang versus the Steady State Theory

Registration to attend this conference is free but booking is required to attend the conference as below with two separate booking weblinks, one to attend in person and one to join online.

IN-PERSON ATTENDANCE INCLUDING THE CONFERENCE DINNER:
https://www.oxforduniversitystores.co.uk/conferences-and-events/st-cross-college/happcentre/physics-feuds-throughout-history-oneday-conference

ONLINE LIVESTREAMING ON YOUTUBE:
https://www.oxforduniversitystores.co.uk/product-catalogue/st-cross-college/happcentre/physics-feuds-throughout-history-oneday-conference-online

The full programme is available at:
https://www.stx.ox.ac.uk/event/physics-feuds-throughout-history

Dr Jo Ashbourn. Director of HAPP Centre,
Senior Tutor (Academic Affairs & Programmes)

More details at:
https://www.stx.ox.ac.uk/event/physics-feuds-throughout-history

FAS Newsletter Copy Deadline:

Deadline for items for inclusion in the next FAS Newsletter, **No 131 April 2023:**

15 March 2023