FAS Newsletter

Federation of Astronomical Societies http://www.fedastro.org.uk

FAS News

Dr Paul Daniels
FAS President

A lot has happened since the last newsletter so this will be a longer President's spot than usual with news on the guidance documents we're producing, a presentation I gave at the *IAU100: Under One Sky – Amateur Astronomy Day* in Brussels representing the FAS, other society news and a library request to the members.

FAS 2019 Convention and AGM

But first, of course, I must tell you the exciting news about the FAS 2019 Convention and AGM at the Institute of Astronomy, Madingley Road, Cambridge, from 9:45am on 14th September: event details and a link to buy tickets are available online at http://fedastro.org.uk/fas/convention/convention-2019 (members of FAS member societies £8, Non-members £10 and £4 for *all* under-16s). A limited number of tickets will also be available at the door if there are any left from the online sales – check the website the day before to see how many are left.

We have five excellent speakers during the day:

Dr Mark Clilverd – "Solar storm effects on ground-based infrastructure"
British Antarctic Survey, Winner of the RAS 2019 James Dungey Lectureship

Dr Richard Ghail – "New insights from our closest Earth-sized exoplanet: Venus"
Royal Holloway College, London

Jenny Lister – "Astronomy for all: its place in education"
Primary School Teacher, Winner of the RAS 2018 Patrick Moore Medal for Education

Dr Floor van Leeuwen – "Details of the HR diagram as revealed by the second Gaia data release"
Institute of Astronomy, Cambridge

Prof Carlos Frenk – "Everything from nothing: how our universe was made"
Director of the Institute for Computational Cosmology, Durham University,
Winner of the RAS 2014 Gold Medal for Astronomy

Also:
Lunchtime tours of the Northumberland and Thorrowgood telescopes
Lunchtime tours of the Cavendish Museum
Trade stands
Lots of free car parking at the IoA
Free tea/coffee/biscuits throughout the day

Immediately following lunch there's a (thankfully!) brief AGM meeting for members of fully paid-up FAS societies only. At the AGM there will be my president's report on the year past, the treasurer's report and you'll be able to stand for and vote for elections to the FAS Council. Each society should nominate just one of their members attending to vote on the AGM agenda items and in the elections, *i.e.* one vote per society.

As is common with committees, there have been some departures from Council during the year due to ill-health and personal circumstances. Election nominees from fully paid-up member societies can be accepted for any of the Council posts but the positions of Treasurer, PLI

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Secretary, Newsletter Editor and Publications particularly need to be filled:

	Position	Currently
Executive	President	Dr Paul A Daniels
	Vice President	Graham Bryant
	Secretary	Richard Field
	Treasurer	VACANT
	Membership Secretary	William Bottaci
	PLI Secretary	Tony Questa +
Non-Executive	Meetings Organiser & Publicity	Adrian Roach *
	Newsletter Editor	Owen Brazell §
	Publications	VACANT
	Webmaster	Martin Baker
Other		Paul Hackett
	Deputy Webmaster	James Hannan
		Shaun O'Dell
	+ Stepping down as PLI Secretary * Co-opted § Stepping down as Newsletter Editor	

If you'd like to stand for election to Council it would be helpful if your proposer and seconder let the Secretary know before the meeting but candidates may also be proposed and seconded at any time up until and including the AGM itself.

FAS Documents

One of the changes we made to the FAS a couple of AGMs ago is a move away from providing direct support to our member societies' individual members (*via* publications) to providing support to the societies themselves. This is being done in the form of a growing portfolio of guidance documents to help societies operate safely, legally and effectively. The intention is to collect together all the information societies might find useful so that the society organising committees can spend more time doing, promoting and providing astronomy than researching, for example, the legal and tax issues surrounding and constraining the management of a society. We hope that some major additional benefits of a consistent set of guidance documents arise: better national compliance with the laws on tax and safety, a harmonisation of 'best practise' in observing & outreach and more consistent collaboration between our member societies.

The documents are being produced at a slower rate than we'd hoped but, in our defence, some of the issues are complex (we don't want to give you bad information!), diligent research takes time and most of the authors have day jobs.

The documents currently available from the members area of the FAS website are 'GDPR for Astronomical Societies', 'FAS Guidelines on Laser Pointers', 'FAS Child Protection Guidelines' and 'Growing your Society' with 'Tax Issues' and 'British Library Requirements' to be available soon.

IAU100: Under One Sky – Amateur Astronomy Day, Brussels

This year is the centenary of the IAU and, to mark its formation, events were held in the Palais des Académies, Brussels, Belgium in the same room where the IAU's inaugural meeting was held. On Saturday, 13th April, representing the FAS, I gave a presentation at the first event the IAU have ever organised for amateurs: *IAU100: Under One Sky – Amateur Astronomy Day*.

I arrived in Brussels on the Friday afternoon and arranged to travel to the Brussels Planetarium that evening where talks were being given by John Grunsfeld and Chiaki Mukai (NASA and JAXA astronauts respectively). If you're visiting the nearby Atomium, the large planetarium (23m diameter dome) is definitely worth a visit but the labels on the exhibits are *only* in French and another language (Flemish?). Curiously, in the display area there is also a display of old calculating equipment (spiral slide rules, mechanical calculating machines, *etc*) – not astronomy but still very interesting!

At the planetarium I made contact with Rodrigo Alvarez (the planetarium's director), the BAA's Richard Miles and also German writer, blogger and amateur astronomer Daniel Fischer (twitter.com/cosmos4u).

The main event on Saturday was very well attended with well over 200 amateur astronomers. Most were from Europe but some had travelled from as far away as Columbia, Bolivia, Japan and New Zealand.

The day opened (full programme at https://www.iau-100.org/programme-amateur-day) with a welcome from the IAU President, Prof Ewine van Dishoeck, and excellent following talks from NASA astronaut John Grunsfeld and Stella Kafka of the AAVSO (American Association of Variable Star Observers) amongst others.

In the afternoon we split into two parallel sessions in the Throne Room (no, not that one!) and the Albert II Room. My talk, *Amateur Astronomy in the United Kingdom*, was preceded by an excellent talk by Cesare Pagano (Unione Astrofili Italiani – the Italian equivalent of the BAA) and he and I have been in correspondence since then with regard to the possible creation of something like a Europe-wide FAS with lots of ideas for all the potential benefits that could bring (Europe-wide PLI, Equipment insurance, astro B&B interchange, *etc*).

At the end of the day I took part in an on-stage panel discussing ProAm collaboration within the IAU. The other panellists were

Rodrigo Alvarez (Brussels planetarium), Lina Canas (IAU Outreach), John Hearnshaw (IAU Vice-President, University of Canterbury, New Zealand) and Stella Kafka (AAVSO). Since then I've been in correspondence with Lina Canas regarding the possible setting up of a ProAm group within the IAU in collaboration with both professional and amateur national astronomical societies.

Altogether an extremely interesting couple of days with the FAS' name in front of a lot of amateur and professional international astronomers and a lot of useful contacts made.

British Library - Newletters

Finally, we've had a request for a back-copy of FAS Newsletter #114 (2018) from the British Library. It appears that, in the hand-over from the previous FAS Council, we slipped up somewhere and didn't send them one when we were supposed to but, unfortunately, we don't have any stored back-copies to provide. It's a lightly slapped wrist for us but there will be an FAS Guideline Document to follow and the British library have agreed to review it before release. So, an appeal: does anyone have a printed copy of issue #114 (2018) that we can send to the British Library?

That's all for now and hoping to see you at the FAS 2019 Convention and AGM on 14th September 2019 at the Institute of Astronomy in Cambridge (see the website for details).

Clear skies!

Paul

Volunteers Needed

Volunteers are wanted for the three publication posts in the FAS. The volunteers that provided the annual AstroCalendar, Handbook and Newsletter are stepping down at the AGM so we urgently need someone to produce these for the 2019/20 session. If anybody would like to take on these posts we would be very grateful. Roger Steer and Frank Johns are to be thanked for the hard work and time they spent in these posts but they felt that they could no longer continue doing these roles.

The Handbook provides a list of speakers as well as contact details for all societies in the FAS. There have been some discussions on council about whether we still need this as a physical item or whether it could go to an electronic version.

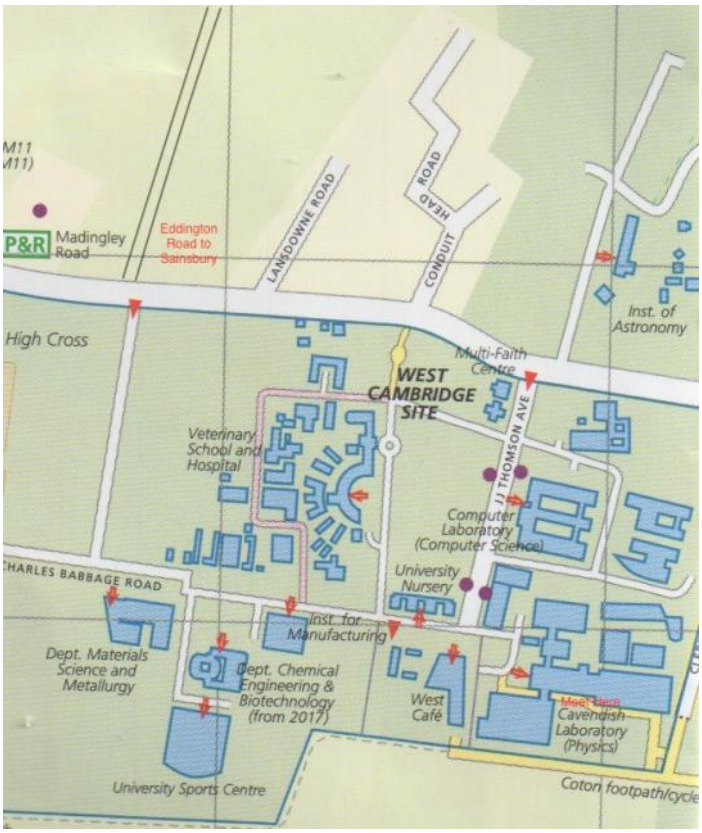
The annual Astrocalender has also proved very popular and is a significant contributor to the society finances. I am also stepping down as Newsletter editor for a number of reasons, but mainly because I do not have the time to produce them in a timely manner as has been seen from the lack of newsletters over the last few years. The council also felt that the newsletter could do with a redesign and a more modern look and feel but unfortunately that is not where my skill sets are, so perhaps someone with a more design/illustration background could be the kind of person to take this on. The newsletter is currently produced using Microsoft Publisher and there are templates for the old way of doing this, however there is no reason for continuing to use Publisher and any DTP package that a prospective editor is familiar with would be fine. It should be noted that the editor will be responsible for chasing up material to put in the Newsletter as very little is now sent in. The hope would be to produce a Newsletter three times a year or so. Anybody who is interested in taking on any of these posts should contact the President.

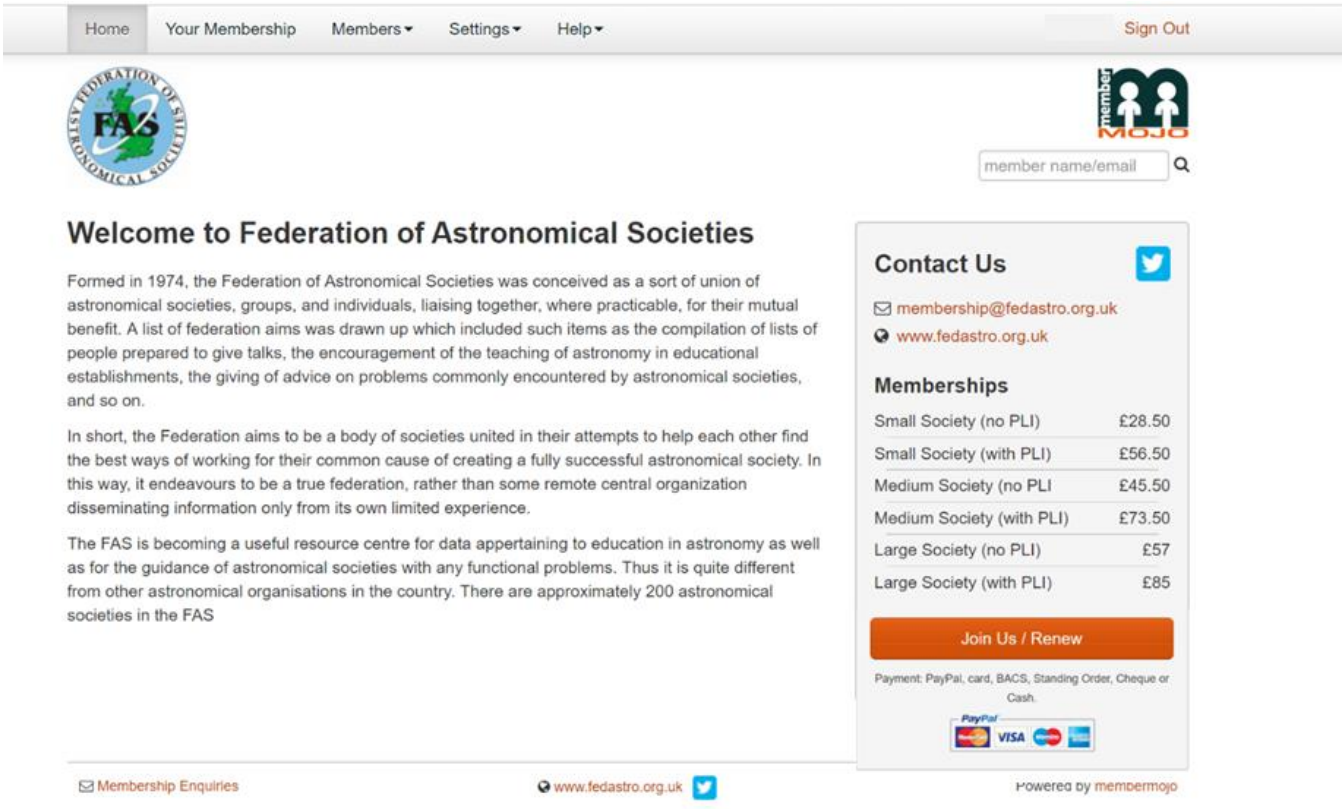
FAS declares no life left in MARS

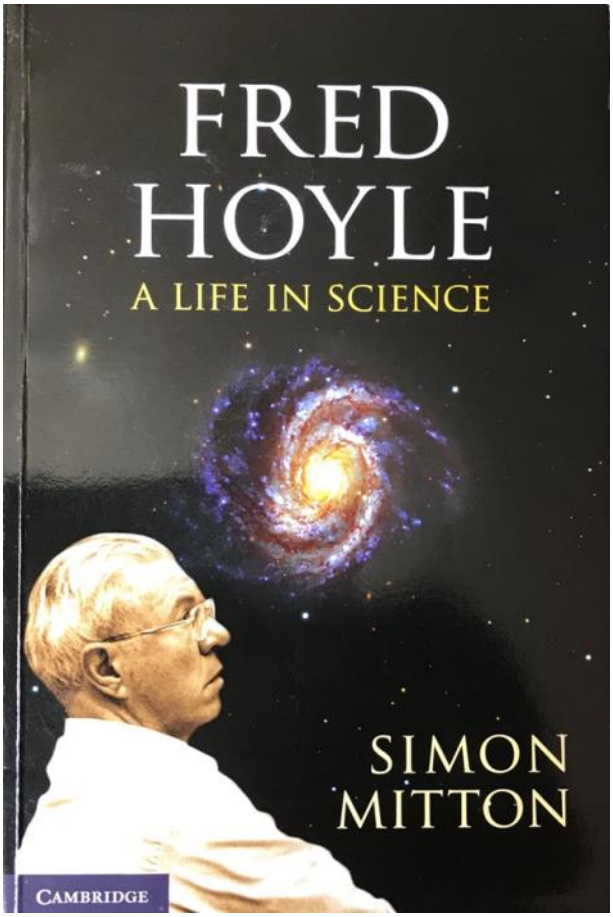
We want to acknowledge that we've listened to your comments regarding our MARS system. For the next renewal period, we will be switching over to a new and simpler system for renewing your membership called MemberMojo.

MemberMojo uses an email login system so you will no longer need to remember any passwords. You simply go onto the MemberMojo FAS website (link will be on the FAS website and emailed to you) and then a secure link will be sent to the email address we have on record. Simply click on that link and you can then update your details. If any of your details change throughout the year it will also be easy to log in and change them. The usual payment methods will be available but with the addition of PayPal. With an updated system it will also allow us to update member society details on our website too.When you first log in you will see that some of your details have been transferred across from the old database: please check these carefully. Also, for us to be able to get the database transfer to be accepted you'll see that your society name has been copied into the primary contact name field. Please change this so we know who to refer to when we contact your society. If you do not have a listed email address for your society, please contact us ASAP.

Map of site for FAS Annual meeting showing locations of the Cavendish museum for tours.







FRED HOYLE – A Life in Science

By Simon Mitton, Cambridge University Press

This was my Christmas reading, as I was brought up with "what Fred said" (my father was also a Fred!). I read it over only two days and found it immensely interesting and enjoyable.

It consists of 323 pages in 12 chapters followed by acknowledgements, notes and a full index. Starting with a prologue it proceeds to his early life in West Yorkshire where he was seemingly school-averse as a young boy, as a result of which, he did not read until the age of seven! However, it appears that he was always interested in and good at maths. Only when he won a scholarship to Bingley Grammar School did his school work take off. In fact he impressed the then Headmaster, Alan Smailes, with an account of his chemistry experiments carried out at home with equipment his father had collected. Apart from the usual gunpowder manufacture, he prepared phosphine, or hydrogen phosphide, which can catch fire spontaneously in moist air!

He was lucky that Smailes recognized something special in him and he tutored Fred for Cambridge entrance, then, like Oxford, largely the domain of students from public schools. He tried his old college, Emmanuel College first, then Pembroke, where Fred reached exhibition standard, but they could not offer a place. Finally in May 1933 Smailes wrote back to Emmanuel and persuaded them to offer a place in Natural Sciences. With this offer, he then persuaded West Riding County Education Authority to top up Fred's grant enabling his star student to begin at Cambridge in October 1933.

The chapters continue with his time at Cambridge, changing to the Mathematics Tripos, where he excelled, before turning to theoretical Physics. His initial choice for a PhD supervisor was Professor Rudolf Pierls, but eventually after Pierls left Cambridge for Birmingham University, he managed to persuade Paul Dirac to supervise him! As this initial research involved quantum mechanics, he could hardly have found better than Dirac, who was probably the English Einstein as far as this topic was concerned.

I was surprised to discover than Hoyle was a keen hill walker and later a mountaineer. I was not surprised to read of his writing many science fiction books – "A for Andromeda" was a BBC series in the early '60s and as it started at 9pm, I was allowed to watch, even though it frightened me! Later chapters deal with his war work on Naval radar and battles at the RAS where he was rather a "bete noire". Eventually, his work of nucleosynthesis of the elements by massive stars brought him fame and academic success, leading to acceptance by the astronomical establishment, which was still largely led by practical astronomers, who had their suspicions of theorists.

Hoyle's career progressed by leaps and bounds, though he always seemed to be a bit of a maverick. The chapter on "Matters of Gravity" was more familiar to me as it covered many of the academics, who were at Cambridge whilst I was an undergraduate, and some of whom either lectured to me or supervised me. His establishment of the Institute of Theoretical Astronomy within the Institute of Astronomy in Cambridge broke new ground and led to the explosion of theoretical breakthroughs familiar to those brought up in the 60s and 70s. All in all, this is a book that no one who wants to understand some of the history of modern astronomy should be without.

Richard Field

"Mysteries of Mars"

Fabio Vittorio De Blasio

Springer Praxis Books

Fabio Vittorio de Blasio works in the Earth and Environmental Sciences Department, the University of Milan Bicocca, Italy, according to the book's first page, but a Google search suggests that he now works in the University of Oslo, Norway!

This 189 page book starts off with a brief review of Mars in human history. Chapter 1: Mars Through the Millennia, leads up to the Mariner missions of the 1960's and Viking missions of the 1070s. It ends with the present era of spacecraft landing on and exploring Mars.

The thrust of the book, as its title indicates is the many mysteries of Mars, which are:

First Mystery - What killed the magnetic field?

Second Mystery – Was there plate tectonics on Mars?

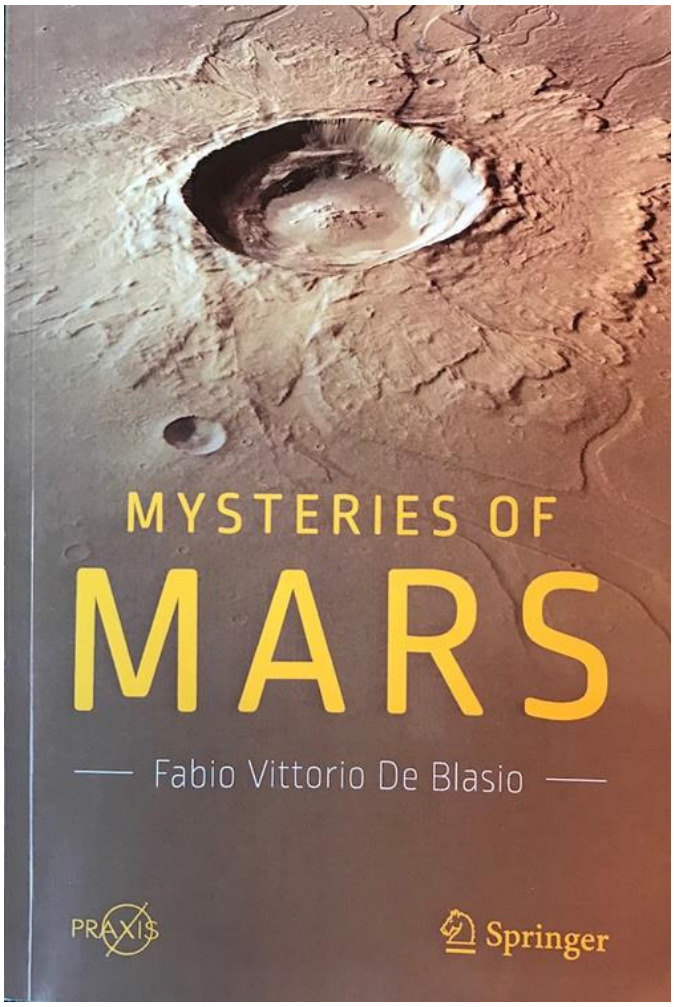
Third Mystery – What is the origin of its global dichotomy?
Fourth Mystery – How did Valles Marineris form?
Fifth Mystery – Explosive vulcanism and other volcanic riddles.
Sixth Mystery – Enigmatic mountains and terrae.
Seventh Mystery – Strange icy terrains on Mars.
Eighth Mystery – Water riddles on Mars, or the nature of outflow channels and the Vastitas Borealis formation.
Ninth Mystery – Was there an ocean on Mars?
Tenth Mystery – Is there, or has there been life on Mars?

Chapter 1 did produce a few errors, such as (page 7) describing albedo as "local variations in darkness", whereas it should be variations in brightness. Also that an outer, or superior planet is in opposition with Earth (page 9) when it "comes to be on the opposite side relative to the sun", when it is in fact on the same side of the sun as the Earth. Whether, or not, this is a translation problem, one can only guess! The rest of the chapter is an informative review of the history of Mars in largely western science.

Subsequent chapters examine the ten Martian mysteries in detail, with superb black and white and colour photos of Martian topography, often contrasted to and compared with photos of similar topography from Earth. In some cases Martian geological maps created by NASA are used and with this the author produces a comprehensive study of a feature or phenomenon. The author also adds technical boxes such as "number 7", which, explains how gamma ray spectrometry works to reveal water concentration on Mars. This is followed by a superb colour diagram of the results, showing, as one might surmise, highest water concentrations near the poles, but also highish values in basins around the equator.

A lot of this book is based on geology and study of landslides and volcanism, but is not solely for the geologist and any reasonably scientifically educated reader will enjoy its presentation of data and subsequent arguments and conclusions – where possible. Personally, I found it very readable and in many parts it was exciting – one really felt as if one was on Mars exploring the planet and merely having an accomplished geologist pointing out the details of the terrain and explaining its possible formation. It is certainly a must for any astronomer interested in Mars, or planetary surface features and composition in general.

Richard Field



Meetings Calendar

There are unfortunately a lot of meetings and it is difficult to fit them all in the calendar. This also applies to Star parties as well.

Below are some of the major events that the editor knows about for the Autumn of 2019. If people are holding conventions/star parties and wish to include these then please let the editor know information and dates and I can try and publicise them. I understand that many people are not into the observing side of astronomy but this is what I have:-

FAS AGM and annual convention Sat 14th September at the IOA in Cambridge.

.Kelling Autumn Equinox Star party main weekend 28th September 2019 details at http://las-skycamp.org/index.php

International Astronomy Show 15–16th November 2019. Details at https://www.ukastroshow.com/

SHA Autumn Conference/AGM 26th Oct at the Midlands Institue Birmingham details at
https://societyforthehistoryofastronomy.com/meetings/

Kielder Autumn Star party 30th Oct–4th November 2019 see http://www.sunderlandastro.com/star-camp/ for more information

Galloway Autumn Star party 30th Oct—4 Nov 2019 details see https://stargazerslounge.com/topic/326109-galloway-autumn-star-canp-2019/

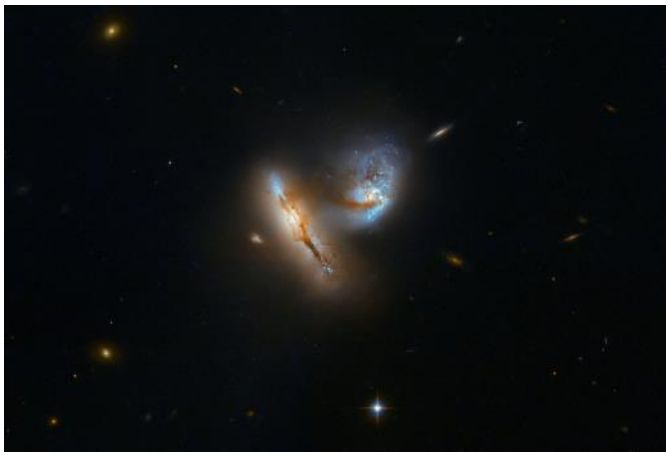
SGL Autumn Star party Thursday 31st October - Thursday 7th November - for those who want to arrive a bit earlier or stay longer.—see SGL forum for booking details.

European AstroFest—Feb 2020 Kensington town hall—dates to be confirmed

Practical Astronomy Show 21st March 2020 Kettering—see https://practicalastroshow.com/ for more information

Kelling Heath Spring Star Party Mon 20th to Mon 27th April 2020

Galactic Creatures at Play



Credit: ESA/Hubble & NASA A.Evans

The pair of strange, luminescent creatures at play in this image are actually galaxies — realms of millions upon millions of stars.

This galactic duo is known as UGC 2369. The galaxies are interacting, meaning that their mutual gravitational attraction is pulling them closer and closer together and distorting their shapes in the process. A tenuous bridge of gas, dust, and stars can be seen connecting the two galaxies,, during which they pulled material out into space across the diminishing divide between them.

Interaction with others is a common event in the history of most galaxies. For larger galaxies like the Milky Way, the majority of these interactions involve significantly smaller so-called dwarf galaxies. But every few aeons, a more momentous event can occur. For our home galaxy, the next big event will take place in about four billion years, when it will collide with its bigger neighbour, the Andromeda Galaxy. Over time, the two galaxies will likely merge into one — already nicknamed Milkomeda.

Credit :- ESA/Hubble & NASA, R. Wade

Although it looks more like an entity seen through a microscope than a telescope, this rounded object, named NGC 2022, is certainly no alga or tiny, blobby jellyfish. Instead, it is a vast orb of gas in space, cast off by an ageing star. The star is visible in the orb's centre, shining through the gases it formerly held onto for most of its stellar life.

When stars like the Sun grow advanced in age, they expand and glow red. These so-called red giants then begin to lose their outer layers of material into space. More than half of such a star's mass can be shed in this manner, forming a shell of surrounding gas. At the same time, the star's core shrinks and grows hotter, emitting ultraviolet light that causes the expelled gases to glow.

This type of object is called, somewhat confusingly, a planetary nebula, though it has nothing to do with planets. The name derives from the rounded, planet-like appearance of these objects in early telescopes.

NGC 2022 is located in the constellation of Orion (The Hunter).

Date for your Diary —

Mercury Transit
11-12th November 2019

1st Contact 12:35 (GMT)
2nd Contact 12:37 (GMT)
Centre of Transit 15:19(GMT)
Sunsets 16:15 with Transit on going

Times for London