JANUS
THE NEWSLETTER OF EWELL ASTRONOMICAL SOCIETY

October 2026

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Important Reminder:

To allow sufficient time to compile Janus and place it on the EAS Website by the 1st of the month any submissions for publication are required at least 3 days before the end of the month. Items received after this date will be held over until the following month.

Editorial

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Welcome to the September edition of Janus – I hope you don't notice anything too different in this edition of Janus! This month I have taken on the role of guest editor whilst John is recovering from illness – we all wish him a speedy recovery.

September has been a *very* busy month, with not one, not two, not three, not four, but five (yes, FIVE) highlights!

First up was the annual picnic on the 5th of September. In a break from tradition of the picnic being held at Headley Heath, this year it was at the site of our Maurice Gavin Observatory (MGO) at the Sutton Grammar School sports field. This was followed a week later by our usual monthly meeting when we were treated to an excellent and engaging talk by our own Paul Costa, about his adventures in the Atacama.

Just one week later on the 19th we returned to the MGO for the official opening (see a full report on page 7). The following week there was the first official observing session at the MGO on Wednesday the 23rd. Finally, to top the month off, we had the Society's 60th anniversary dinner, held at Horton Park Golf Club. Wow! What a busy month- I think we all need a holiday (anyone going to the Kelling Heath annual equinox star party…?!)

Martin

P.S. Don't forget, the clocks go back (so we can start our observing one hour earlier!) on Sunday 25th of October at 2am. Clear skies everyone!



The Solar System – October

MERCURY: Mercury is a difficult target in October. It is too close to the Sun most of the month. Around mid-October, Mercury reaches a relatively wide elongation, but its position remains extremely low after sunset. A clear, unobstructed western horizon is essential, and binoculars can help locate it, although they should never be used while the Sun is above the horizon. Mercury is therefore unlikely to be an easy target this month.

VENUS: Venus moves from the evening to the morning sky during October. At the beginning of the month, although in the evening sky, it is extremely close to the Sun and sets only minutes after sunset, making it effectively unobservable. Venus passes between Earth and the Sun around 24 October, after which it gradually emerges into the morning sky, but will not become readily visible in the pre-dawn sky until early November.

MARS: Mars is a morning planet throughout October. It rises just after midnight and so can be found toward the eastern sky before sunrise, shining at about magnitude +1 in the constellation of Cancer the crab. The planet is still relatively distant from Earth, and so appears very small – just 6 arcseconds in diameter. Mars will be passing through the well-known beehive open cluster (M44) around the 11th and 12th of October.

JUPITER: Jupiter is another morning planet in London during October. It rises around 2am, rising progressively earlier as the month advances. The Moon passes very close to Jupiter on 6 October, providing an especially attractive early-morning observing opportunity. Shining at magnitude –2 makes it the brightest object in the night sky aside from the Moon (given Venus's absence this month), and so should be very easy to spot

SATURN: Saturn reaches opposition on the 4th of October, making for good viewing throughout October, being visible between about 8pm and 6am. Saturn will be shining at about magnitude +0.4 and the rings, which were nearly edge-on for the most of last year, have now opened up to a more noticeable 7 degrees. Saturn has also languished at low altitudes for several years, but is climbing progressively higher, reaching about 40^{o} above the horizon now. Try and observe Saturn around opposition if you can and see if you can spot the Seeliger effect – an apparent relative brightening of the rings compared to the surface of the planet.

URANUS: Rises mid-late evening, sitting in the constellation of Taurus, about midway between the bright star Aldebaran and the Pleaides cluster. Shining at magnitude +5.6 it would be difficult to spot with the naked eye from light-polluted London. However with a finder chart or GoTo mount, it should be readily visible through binoculars or small telescope, although you may need to wait until midnight or the early hours before it reaches a reasonable altitude.

NEPTUNE: Neptune is also well placed in October. Having reached opposition on 25 September, it remains visible for much of the night throughout October. It lies in Pisces, but at magnitude +7.8 it is not visible to the naked eye, and even difficult to find with binoculars. The only real option is to use a telescope with a GoTo mount.

Notable Events:

Some observations will require a telescope, whilst others will be visible with the naked eye. More information at: *https://in-the-sky.org*

October

1 The Moon at perigee
2 Lunar occultation of Beta Tauri
The Andromeda Galaxy is well placed
3 Moon at Last Quarter
NGC 253 is well placed
4 Saturn at opposition
Asteroid 2 Pallas at opposition
5 Close approach of the Moon and Mars
136472 Makemake at solar conjunction
Close approach of the Moon and M44
Conjunction of Venus and Mercury
NGC 300 is well placed
6 Camelopardalid meteor shower 2026
Conjunction of the Moon and Jupiter
Close approach of the Moon and Jupiter
7 Lunar occultation of Regulus
NGC 362 is well placed
9 Draconid meteor shower 2026
10 New Moon
Southern Taurid meteor shower
11 Close approach of Mars and M44
δ-Aurigid meteor shower 2026
12 Conjunction of the Moon and Venus
Mercury at greatest elongation east
Conjunction of the Moon and Mercury
13 Asteroid 4 Vesta at opposition
The Moon at perihelion
14 Lunar occultation of Antares
15 The Triangulum Galaxy is well placed
16 The Moon at apogee
17 Lunar occultation of Sigma Sagittarii
Mercury at dichotomy
18 Moon at First Quarter
ε-Geminid meteor shower 2026
136199 Eris at opposition
21 Orionid meteor shower 2026
23 The Moon at aphelion
24 Venus at inferior solar conjunction
Close approach of the Moon and Saturn
Leonis Minorid meteor shower 2026
26 Full Moon
The Perseus Double Cluster is well placed
27 136108 Haumea at solar conjunction
28 Close approach of the Moon and M45
The Moon at perigee
29 Lunar occultation of Beta Tauri

November

1 Close approach of the Moon and M44
Moon at Last Quarter
2 Close approach of the Moon and Mars
Close approach of the Moon and Jupiter
3 Lunar occultation of Regulus
4 Mercury at inferior solar conjunction
7 Lunar occultation of Venus
Conjunction of the Moon and Venus
9 New Moon
The Moon at perigee
10 Mercury at perihelion
11 Lunar occultation of Antares
The Moon at perihelion
12 Comet 69P/Taylor passes perihelion
Northern Taurid meteor shower 2026
13 The Moon at apogee
Lunar occultation of Sigma Sagittarii
15 Conjunction of Jupiter and Mars
16 Close approach of Jupiter and Mars
17 Moon at First Quarter
Leonid meteor shower 2026
18 Mercury at dichotomy
The Pleiades cluster is well placed
Mercury at highest altitude in morning sky
20 Close approach of the Moon and Saturn

21	Mercury at greatest elongation west
	Conjunction of the Moon and Saturn
	α-Monocerotid meteor shower 2026
22	The Moon at aphelion
24	Close approach of the Moon and M45
	Full Moon
25	The Moon at perigee
	Uranus at opposition
	Lunar occultation of Beta Tauri
27	Comet 161P/Hartley-IRAS passes perihelion
	Venus at greatest brightness
28	November Orionid meteor shower 2026
	The Hyades cluster is well placed
29	Close approach of the Moon and M44
30	Close approach of the Moon and Jupiter
	Lunar occultation of Regulus
	Close approach of the Moon and Mars

Collected Observations (and thoughts) – Gary Walker

First Sighting of Mars – Posted 28 August

On August 28th, (during the Lunar Eclipse), I saw Mars for the first time since last year (June 17th 2025)! That is a period of 14 months, in all! Mars always takes the longest to reappear after moving behind the Sun. Of course, it still appeared very tiny even at high powers, but, then, it was still only at 4.9 arcseconds in angular size, which is not much bigger than Uranus or Neptune appears at! So, it was too small to see any features, although some talented imagers can get good results showing features, even at this small size!

50 years since Viking 2 landed on Mars – Posted 3 September

Today, it is exactly 50 years since the second Martian Lander, Viking 2 landed on Mars, on September 3rd 1976! (Viking 1 had landed on July 20th).

Viking 2 landed on the Cydonia Plateau of Mars. It replicated the results of Viking 1, with a similar Martian landscape, and inconclusive results in testing samples for Life. However, the two Viking Landers, along with their Orbiters, had been remarkably successful.

At this period in 1976, most of the Solar System had still not been reached by Space Probes, only really, the inner planets such as Mercury, Venus and Mars, with the exception of one of the outer planets, of Jupiter, which was passed by two Pioneer probes. The other outer planets of Saturn, Uranus, Neptune, and Pluto, were yet to be reached, but it was not too long before most of them had been visited, as well! Thus, Space exploration was still at a fairly early stage in the Solar System..

Halley's Comet on the Bayeux Tapestry! – Posted 16th September

Just to keep it topical, as always, with the Bayeux Tapestry, now in the British Museum from September 10th, on loan, members will probably be aware that the Tapestry features a Comet on it! And not just any comet, but what was later calculated to be Halley's Comet!

Below the star with a multiple tail, men can be seen pointing up at this sight, and there us a Latin inscription saying "They wonder at the Star"! Of course, in those days, Comets

were usually seen as Portents of Doom, but William the Conqueror claimed that it was a good sign saying that his Invasion of Britain would be successful (as indeed, it proved to be)!

Obviously, this comet was a much better apparition than it was back in 1985-1986, as otherwise, they would not even have seen it! So, clearly, it was a very brilliant comet in 1066!

The Last Article by Owen Brazell – Posted 18th September

The last Article by Owen Brazell appears in the October issue of Astronomy Now magazine! It is on the NGC 7771 group of galaxies in Pegasus. He was writing for this magazine over 20 years! So he has "lived" for 7 months in the Astronomy Now magazine after his death on March 16th!

The Official Opening of the New Observatory – Posted 19th September

On September 19th, I attended the Official Opening of the New Observatory, at Sutton Grammar School, along with a number of members of the Society, especially the ones who had been deeply involved in it! This is known as The Maurice Gavin Observatory, to commemorate Maurice Gavin, a long-standing member of the Society, who died in 2018.

Indeed, it is his telescope that has been placed in the Observatory, it is a 12" SCT Meade Telescope. The Observatory is a classic Dome, made by the company of "Pulser". (Incidentally, one of the owners of the Pulser company, is Steve, who was the last telescope repairer at "Telescope House").

Maurice Gavin's Daughters and Family also attended this event.

First, in the official ceremony, Anita King gave a speech, followed by Ron Johnson, who said about meeting Maurice Gavin, when he joined the Society in 1970, and became good friends!

Anita presented Ron with a gift, and then the Headmaster of Sutton Grammar School, too, gave a speech.

The Deputy Mayor of Epsom, Councillor Julie Morris, opened the Observatory at about 2.30pm, or so, and, literally, cut the ribbon with a pair of scissors!

Tea and refreshments were set out. In the shed, there was photographs showing the construction of the Observatory. There was also a presentation on a laptop, describing Maurice Gavin and his contributions to Astronomy.

His Medal was also on display in the shed. The Telescope and shed is placed on a high grass bank, overlooking the Sports Field of the School.

Fortunately, the weather, although fairly cloudy, and breezy, was very warm and dry!

The 60th Anniversary Celebrations of the Ewell Astronomical Society!

Well, September has certainly been a busy month for this Society, what with the annual Picnic on September 5th ; the usual monthly meeting on the 11th ; the off Opening of the Maurice Gavin Observatory on the 19th ; and now the 60th Anniversary Celebrations of the Ewell Astronomical Society, tonight, as well!

On September 26th, we had the 60th Anniversary Celebrations of the Ewell Astronomical Society! This was, again, held at the Horton Golf Club, like the last 10 year celebrations in 2006, and 2016, both of which I attended, as well!

There were 30 of us present, including our Patron, Professor Andrew Coates. We were arranged on 3 tables, with 10 people on each one. I had Casper Dyne to my left, and Sally

and Martin Howe to my right. Each of us had designated places with our names on a card at our places at the table.

We had the Dinner, first, and then, Anita gave a speech on what held this Society together, which was People!

Then Professor Andrew Coates gave a talk on the search for Life on Mars. This was followed by Martin Howe who gave a brief speech about Anita's contributions to the Society. After that, Suzanne gave a presentation of Flowers to Anita.

Then, came the Cutting Of The Cake, and Anita asked Martin Howe and Ron Johnson to cut the cake! We, of course, all had a piece of it!

The evening started about 7pm, and finished just before 11pm. A slide show on a laptop projected images about the History of this Society.

As mentioned, Ron Johnson was there, as usual, and he is the longest serving Member of the Society, as he started in 1970, only 4 years after the Society was formed! Thus, he has now been present for a total of 56 years in all!

The Society in 1966

It has been said that a number of Astronomical Societies sprang up, as a result of the Space Race, which, of course, started in October 1957 with the launch of Sputnik 1. Certainly, the Ewell Astronomical Society is a good example of this, being as it only started 9 years later on.

The Sky At Night programme by Patrick Moore had also started at about this same time, so it was still in its early days!

A few items from the archives:


Society's 'star' speaker

Mr. Moore (right) chats with Mr. Phil Ringsdore, the society's director, before his talk.


Ewell Astonomical Society

21st Anniversary Celebration

Banqueting Suite
Bourne Hall
Ewell - Surrey

Saturday 24th October 1987

from 7.30 to 11.30pm

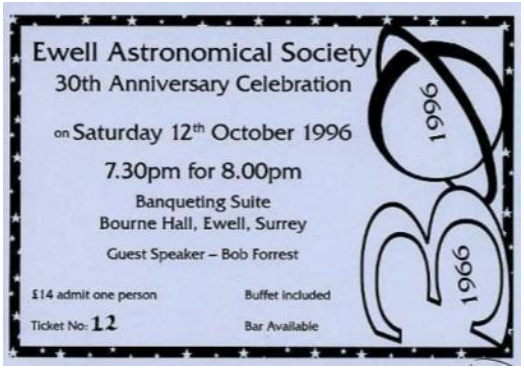
Guest Speaker

Heather Couper

Buffet included & Bar available

£9.50 - admit one person

Ticket No. 10



The Official Opening of the Maurice Gavin Observatory, 19th September 2026 – Martin Howe

On Saturday 19th September the Maurice Gavin Observatory (MGO) was officially opened. This was the culmination of about three months of effort in terms of the construction, but actually much, much longer in the identification of a suitable site, followed by the protracted negotiations with Sutton Grammar School, the planning of the construction and the raising of the required funds.

The project was spearheaded by Ron Johnson, and supported by a large number of the society's members, both in terms of a financial contribution as well as helping out in the construction of the observatory.

Ron Johnson kicked off the opening ceremony proceedings by welcoming everyone and introducing our special guests, the Deputy Mayor of Epsom and Ewell, the Head Teacher from Sutton Grammar, and members of Maurice Gavin's family.

Our Chairperson Anita King then thanked by name all those who were involved at some point in the construction of the observatory. Special thanks were made to Ron for managing the entire implementation from the first proposal, the detailed planning, through to the finalisation of the construction. Anita presented Ron with a gift in appreciation from the Society for all of his hard work in bringing the observatory to fruition.

Anita then highlighted the value of the building as an asset to the community, including our Society, the school, and community groups, and that it will hopefully inspire the next generation of astronomers.

Ron then introduced the Deputy Mayor of Epsom and Ewell, Councillor Julie Morris, who spoke briefly prior to formally cutting the ribbon and declaring the observatory open. The Head Teacher of Sutton Grammar School (SGS), Ben Cloves then spoke about the cooperation between EAS and SGS and looked forward to working together with supporting the pupils and students in astronomy outreach activities.



The Deputy Mayor of Epsom and Ewell, Julie Morris, cutting the ribbon to officially open the Maurice Gavin Observatory

Ron then thanked SGS for their support in allowing us to build the observatory at their sports ground, and outlined the history of planning of the observatory. Discussions with SGS were initiated before Covid, which then delayed things significantly until early 2025 when an agreement to proceed was finally obtained. Then came the challenges of obtaining planning permission from the Council, as the sports ground was on green belt land, as well as drawing up a legal agreement with SGS. Funds also had to be raised, and Ron made a special call-out of thanks to Steve Roebuck, not just for a significant financial

contribution, but also a lot of time and effort at the site during the construction phase. The observing shed has been named the Roebuck Room in recognition of Steve's contribution to the project. Further funds were donated by society members along with a grant from the Surrey County Council.

Ron then spoke of his memories of his friendship with Maurice Gavin dating from the 1970s, and of Maurice's astronomical achievements – not only was Maurice a prominent member of the Society (serving on the committee for over 40 years), but also the wider UK astronomical community. Maurice held a number of positions in the British Astronomical Society (BAA), including President, and was awarded the BAA Merlin Medal in 2010 for his contribution to astronomy. With Maurice's support and commitment to the Society and his astronomical achievements it is therefore fitting the observatory should be named after him, which is now used to house Maurice's telescope that was acquired by the Society after his passing. Anita then showed everybody the Merlin medal, which was on display in the observatory following the opening. It was fitting that members of Maurice's family were also in attendance.

Following the official opening people toured the observing room, and the observatory dome and telescope. This was accompanied by copious amounts of tea, coffee and cake.

There will now be regular member observing sessions held at the observatory, so keep a look out for notifications about upcoming sessions.



Anita presenting Ron with a gift of appreciation

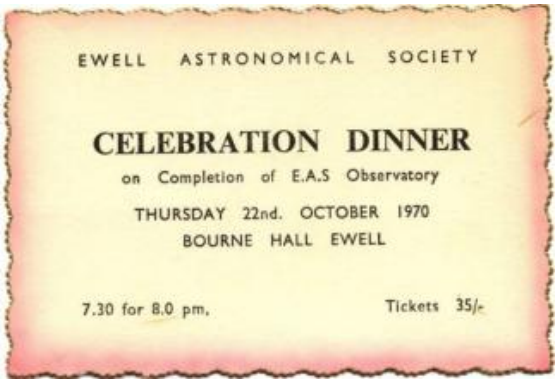


Ben Cloves, Head Teacher of Sutton Grammar School



Ron and Anita with members members of Maurice's family

The Ewell Astronomical Society's 60th Anniversary Dinner – Martin Howe


EWELL ASTRONOMICAL SOCIETY

CELEBRATION DINNER

on Completion of E.A.S Observatory

THURSDAY 22nd. OCTOBER 1970

BOURNE HALL EWELL

7.30 for 8.0 pm. Tickets 35/-


Ewell Astronomical Society
25th Anniversary Celebration

on Saturday 12th October 1991
7.30pm for 8pm
Banqueting Suite
Bourne Hall Ewell Surrey

Guest Speaker – Dr John Mason

£12 admit one person Buffet included
Ticket No. 24 Bar available

The Ewell Astronomical Society was founded in 1966, with Phil Ringsdore being the founding chairman of the Society, and the late great Patrick Moore our inaugural patron. The Society issued a tri-monthly circular, and in October 1968, this was formally named Janus, which of course you are reading now! But did you know that Janus is a satellite of Saturn? Yes? Ah, but do you know the significance of the name of our newsletter? It was named Janus as Janus was discovered in 1966, the same year as our Society was founded. (I certainly did not know that!)

Roll on to 2026, and of course it is our 60th anniversary, and to celebrate, a dinner was held at the Horton Park Golf Club on Saturday 26th September.

About 30 people sat down to a lovely 3-course meal, followed by a heartfelt speech by Anita, where she emphasised the strong people aspects of the society. Anita talked about the early days of the Society, and also the more recent achievements such as the solar system walk and the MGO. She then introduced our patron, Professor Andrew Coates from UCL's Mullard Space Science Laboratory, who gave us an overview of the plans for the Rosalind Franklin Mars Rover, for which he is leading the team to build the "pancam" (panoramic camera) optical bench. The rover is expected to be launched in 2028, and arriving on Mars in 2030, after taking what Professor Coates described as "the scenic" route to Mars!

Following Professor Coates' talk, Martin said a few words of thanks to our Chair, Anita, who has been working tirelessly, often behind the scenes, to ensure the smooth running of the Society for the last 9 years. This was met with a round of applause, and a presentation of some flowers to Anita.

Anita then asked Ron and Martin, in recognition of the two successful major initiatives completed in the last twelve months (the MGO and the solar system walk), to jointly cut the amazing celebration cake that Casper's wife Katie had made for us.

Some photos from the 60th anniversary dinner at Horton Park Golf Club, (courtesy of Casper Dyne and Martin Howe)












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Abell 85 – John Pillar

With evenings drawing in and a forecast of several clear nights in early September I thought I'd try and image a faint supernova remnant in Cassiopeia - Abell 85 - also known as the Medulla or Garlic Nebula. This was going to be challenging – '*faint*' is the operative word in most online comments about this object – so I wasn't sure I'd manage to capture anything half-decent, but with the prospect of several clear nights and the fact that the nebula was well positioned in the sky from my Bortle 5 backyard in Dorking, I thought it would be fun to try.



Figure 1: Abell 85 captured from my backyard in Dorking. I used Optolon LUltimate and LSynergy filters to capture 25 hours of Ha and 12.5 hours each of Oiii and Sii emission. The Ha is shown in red, merged with yellow Sii and blue Oiii.

Figure 1 shows the result of nearly 25 hours of time made up of 5-minute sub-exposures from my 130mm f4.6 refractor. Sure enough, the nebula was really faint – it wasn't visible at all on a live-stack until several exposures were accumulated, but eventually started to show up. I have a colour camera and use a combination of two dual-band filters… the Optolon L'Ultimate for Hα and Oiii, and the L'Synergy for Hα and Sii. I captured one additional hour of 60 second subs without a filter to use as stars in the final image. Calibration, background extraction, separation of the red and green/blue channels from the colour data into monochrome frames, registration and stacking was all done in Siril on a Raspberry Pi 5. Processing was bit of a trial-and-error process – Siril can do a good job, but in the end I removed the stars from each monochrome stack using Siril and brought each (Hα, Oiii and Sii) into GIMP to form a RGB image. I assigned red to Hα, blue to Oiii and yellow to Sii – not a Hubble Palette – I'm just not sure I like Hα to show up as green 😉, and stretched each channel using 'Levels' and 'Curves' until it all looked good.

Abell 85 is about the size of the full moon in the sky, is approximately 10000 light years away and has a physical diameter of 100 light years.

Abell 85 was originally (wrongly) catalogued by George Abell in 1966 as a planetary nebula because it appeared to be a simple expanding sphere of gas typical of an aging planetary nebula.

George Abell is best known for his catalogue of over 3000 galaxy clusters which formed part of his PhD thesis. Abell visually checked photographic plates produced by the Palomar Observatory using a magnifying glass. Abell also produced a catalogue of 86 planetary nebulae, including Abell 85.

Planetary nebula form as relatively small stars age to white dwarfs, shedding their outer layers as expanding spherical shells rich in nitrogen, oxygen, carbon and helium. Intense UV light from the white dwarf ionises the surrounding gas and causes strong Hα and O_{iii} emission. Familiar examples of planetary nebula are the Dumbbell nebula M27 and the Ring Nebula M57.

Supernova remnants, in contrast, are formed by the cataclysmic explosion of massive star to leave a neutron star or black hole surrounded by a rapidly expanding shell of gas and dust rich in heavy elements like iron, silicon, sulphur, and calcium (all late-stage fusion products formed as the star desperately struggles to survive). The collision of the expanding blast wave with the interstellar medium heats the gas to millions of degrees and can generate a strong X-ray emission. The Crab Nebula, M1, and the Veil Nebula, NGC 6990 and 6992 are familiar examples of supernovae remnants.

Abell 85 displays strong radio emission caused by the energetic shock-wave collision, contrasting with the typically weak radio emission from a planetary nebula. Also, the size (~100 light years diameter) and intertwined, complex, filamentary structure of Abell 85 suggest a supernova origin. Finally, it was found that Abell 85 lacked the relatively strong O_{iii} signal typical of a planetary nebula. Abell 85 was therefore was reclassified in 1971 as a supernova remnant.

The reason why the nebula is 'popped' on one side and not a perfect sphere is believed to be that this area of the interstellar medium happens to be low density gas, enabling the expanding nebula shell to violently burst through, whereas the rest of the nebula is slowed and contained by denser gas.
Although recognised as a supernova remnant, it was not until 2018 that the remains of the supernova explosion, a pulsar, was identified. It appears that the supernova blast was very asymmetrical and the collapsed core, a neutron star or pulsar, was projected like a cannonball at 520 km/second away from the original supernova location (Figure 2). Because the pulsar is blasting through the interstellar medium at supersonic speeds it has created a narrow collimated, trail stretching 100 light-years from the geometric centre of Abell 85, visible in radio frequencies.

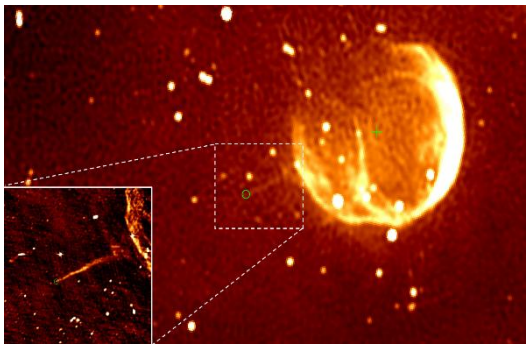


Figure 2: The faint tail of emission from the Abell 85 pulsar can be seen in this image from the Canadian Galactic Plane Survey. The tail points back to the centre of the geometric centre of the spherical nebula. The pulsar location is marked by the green circle.

How studying astronauts could help tackle ageing on Earth

Acknowledgement: This article was written by Samantha Jones, a Postdoctoral Research Associate in Musculoskeletal and Ageing Science, Faculty of Health and Life Sciences, University of Liverpool, and Anne McArdle, Professor of Musculoskeletal and Ageing Science, University of Liverpool. First published in THE CONVERSATION on 8 September, it is republished in full under a Creative Commons Licence. The original article, with additional links and images can be found here https://theconversation.com/how-studying-astronauts-could-help-tackle-ageing-on-earth-286088

Astronauts who undergo long-duration spaceflight aboard the International Space Station often return with health problems that resemble some age-related conditions in people on Earth.

Remarkably, some of this decline reverses within months of their return but others persist. This raises an intriguing question: what can be learned from these rapid changes and could they help prevent or reverse aspects of age-related decline on Earth?

That question has turned space into a laboratory for ageing research. Spaceflight reproduces many features of ageing. Astronauts also experience unusual conditions, including very low gravity, increased radiation and disrupted sleep. Even so, changes that usually develop over decades on Earth can appear within weeks or months in space, giving scientists an opportunity to observe some ageing-related processes in fast-forward.

A 2026 study, which tracked four astronauts during the nine-day Axiom-2 mission, examined chemical markers attached to DNA that can be used to estimate biological age. This is an estimate of how old the body appears to be based on molecular changes, rather than the number of years a person has lived.

The astronauts' estimated biological age increased during the mission and began to fall after they returned to Earth. This does not mean that they physically aged by years in a matter of days. With only four participants, the study cannot provide firm conclusions, but it shows how rapidly the body can respond to the conditions of spaceflight.

Why would leaving gravity behind affect the body in ways that resemble ageing? On Earth, muscles, bones, and the cardiovascular system and other organs are adapted to function under the constant pull of gravity. That continual mechanical load helps keep these systems healthy, although their function often declines later in life. In space, many of those demands disappear.

When muscles age in fast-forward

Skeletal muscle provides one of the clearest examples. Astronauts lose muscle mass and strength at a startling rate in very low gravity, even while exercising for around two hours a day to attempt to limit the effects.

Some of the biological processes involved may overlap with those associated with sarcopenia, the age-related loss of muscle strength and mass that increases the risk of frailty, falls and loss of independence.

Scientists are still working out how closely muscle loss in space resembles sarcopenia, because similar effects can arise through different biological processes. The crucial difference is timescale. That compression is exactly what drew our team to space.
Through our UK Space Agency-funded MicroAge mission, we sent lab-grown human muscle constructs to the International Space Station.

These miniature muscles, roughly the size of a grain of rice, were engineered from human muscle stem cells. Using lab-grown tissue, rather than relying solely on the limited number of astronauts available for study, allowed us to compare muscle adaptations in very low gravity with those seen during ageing on Earth. It also allowed us to carry out early tests of possible ways to protect muscle. If some of the same mechanisms are involved in both settings, space could provide a useful opportunity to study years of biological change over the course of months for a single mission.

Our follow-up mission, MicroAge II, will explore the biology of this decline in greater detail. It focuses on mitochondria, the structures inside cells that produce most of the energy those cells need. Problems with mitochondria are recognised as one process involved in muscle ageing on Earth.

MicroAge II will investigate whether similar changes to their structure and function also contribute to rapid muscle loss in space. Why does any of this have significance beyond the space station?

Loss of muscle mass and function is one of the most consequential aspects of growing older. It underlies frailty, falls and the loss of independence that many people fear, yet effective treatments remain limited. Testing potential interventions in populations that age over decades is inevitably slow. Space research will hopefully help scientists identify relevant biological processes and test early ideas more rapidly.
Experiments in space cannot replace final clinical studies involving older people, however. Any treatment suggested by this work would still require extensive testing on Earth to establish whether it is safe and effective but would identify potential drug candidates far more quickly.

Upcoming Events:

NEXT MEETING: 8pm Friday 9 October – Nonsuch High School

Society member Martin Howe will give a talk entitled "Climbing a Ladder to the Stars", or how do we know how far things are away in space?

As usual, there will also be a presentation on the sky at night for the coming month.

NEXT USER GROUP:

These will now be incorporated into observing sessions at the MGO

OBSERVING SESSIONS AT MGO

Regular observing sessions will now take place at the MGO. The intention is that they will be held on the last Friday of each month. Similar in format to the old User Group sessions, they will evolve with time, and there could be an option to include Telescope surgeries for members. It may also be possible to hold separate sessions for Imaging classes etc.

The next Observatory sessions are for 30 October and 27 November.

As was previously the case, ad-hoc "dark sky" sessions may additionally be held at Ranmore Common. The precise date and timings of these will be advised by email and WhatsApp a few days in advance.

Some Images from WhatsApp during September



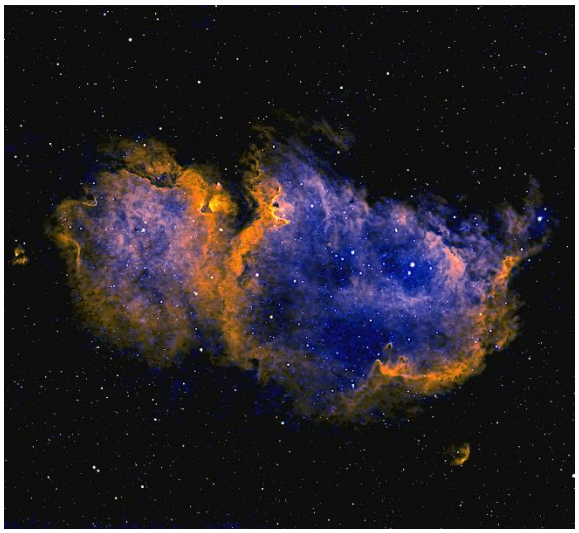
Picnic at the MGO 5th September (Casper)



The number 18 bus to Atacama has been delayed (Paul)



Left: M42 in Orion (Michael Jan Shaw)



Above: The Soul Nebula (Gary)



M31 (James)

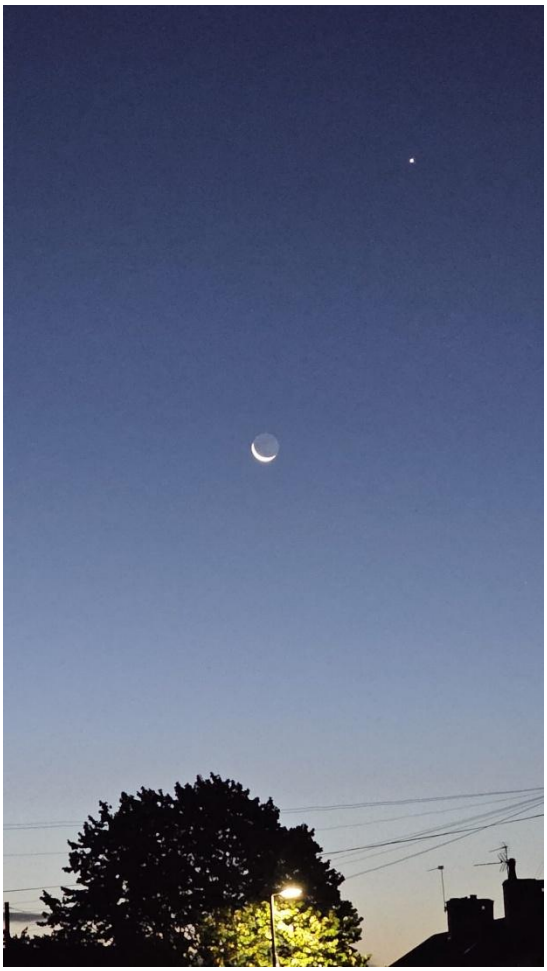


M45 (Matt)



Above: The Moon

(Paul)



Right: Moon & Jupiter

(Jay)



Antares & Rho Ophiuchi

(Martin)