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In This Issue

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June 2026 submissions required by 21 May.

UNIVERSE Correspondence and Contributions -

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Front Cover Messier 45 by Chi Chan: Messier 45, is commonly known as the Pleiades or the Seven Sisters. It is one of the most famous and easily recognizable open star clusters in the night sky. Located in the constellation Taurus at a distance of about 440 light-years from Earth, the Pleiades is visible to the naked eye as a small, shimmering group of stars. The cluster contains over a thousand known members, though only six to ten bright blue stars are typically seen without optical aid, depending on sky conditions and eyesight.

The Pleiades is a relatively young cluster, estimated to be around 100 million years old. Its brightest stars are hot, massive B-type stars that formed from the same molecular cloud and continue to travel together through a dusty region. The starlight from a few of the brightest stars scattering off fine interstellar dust produced bluish reflection nebula. The classical seven sisters are Alcyone, Asterope, Celaeno, Electra, Maia, Merope and Taygeta. Many observers actually see the much brighter Pleione, mother of the sisters, instead of the relatively fainter Asterope.

Equipment: Esprit 100 ED and ASI6200MC Pro on Wave 150i. Processing: PixInsight 1.9.3 build 1646.

Rear Cover : Partial Solar Eclipse by Robert Lucas: February 17, 2026. Image taken from Rodrigues Island, Mauritius. The image is of a partial eclipse with obscuration about 35%. Travel to image annularity from the Antarctic was not possible. This image was taken from Bale Du Nord on the West side of the island with expectations of a sunset eclipse image. Unfortunately a sunset eclipse image was not possible due to clouds. The camera was Nikon P1000, with zoom, auto exposure and focus.

May Observer

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By Greg Bryant

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Planets in May

Venus is now setting later each evening after the end of astronomical twilight throughout May as it heads towards greatest eastern elongation in the evening sky in August, and so we can appreciate it more fully as the "Evening Star", the brightest celestial object in the night sky other than the Moon. As the month progresses, magnitude -3.9 Venus is showing more and more a gibbous phase as seen through a telescope – by the end of May, the percentage illumination of Venus' disk drops below 80%. On 19 May, just as Venus is about to cross the border from Taurus into Gemini, a 3-day-old Moon will be 5^{o} North.

As Venus climbs, **Jupiter** getting lower each night, setting mid-evening. Shining at magnitude -2, Jupiter is in Gemini and is joined by the Moon on 20 May, when the two will be 5^{o} apart. By month's end, around 10^{o} will separate Venus and Jupiter as they head towards conjunction next month. Stepping back from the telescope and binoculars, looking at the western evening sky in early May, Jupiter and Venus form a wide triangle with Sirius. The triangle will slowly become more isosceles in shape as Venus and Jupiter close in on each other.

Neptune is climbing in the morning sky, slowly moving through Pisces. By the end of the month, the 8^{th} magnitude planet is rising around 2am.

Next above the horizon in the morning sky, rising shortly after Neptune, is **Saturn**. Shining at 1^{st} magnitude, the ringed planet is in Cetus and is joined by a 26-day-old crescent Moon on 14 May, when 5^{o} will separate the two bodies.

Mars is rising less than an hour before the onset of astronomical twilight. The 1^{st} magnitude red planet is moving through Pisces and Aries in May. On 15 May, the morning after visiting Saturn above, a 27-day-old Moon will be 5^{o} distant. Over the next 9 months, Mars will slowly grow brighter and larger as it heads towards opposition in February next year (unfortunately, it's one just before Mars is at aphelion).

Having presented a favourable morning apparition last month, **Mercury** is moving rapidly back towards the glare of the Sun and will only be briefly visible in early May's dawn sky. On 15 May, Mercury is in conjunction with the Sun and reappears in the evening twilight sky by the end of the month.

Uranus is in conjunction with the Sun on 23 May and will return to view in the morning sky next month.

Moon Cycles & Occultation of Antares			Time	Altitude
Full Moon	2 May	3:23am		
Third Quarter	10 May	7:10am		
New Moon	17 May	6:01am		
First Quarter	23 May	9:10pm		
Full Moon	31 May	6:45pm		
Disappearance 31 May			5:31pm	10°
Reappearance 31 May			6:14pm	19°

The Moon is near Antares on 4 May, Regulus on 23 May, and Spica on 28 May. On the evening of Sunday 31 May, the Moon returns to Antares, and observers across New South Wales will be able to see the Full Moon occult the 1^{st} magnitude star. Alas, being Full Moon, there's no dark limb at disappearance or reappearance, so you'll need a telescope to tackle the glare with seeing Antares at the Moon's edge. The below times and altitude above the eastern horizon are calculated for Sydney – locations elsewhere in New South Wales will vary by a few minutes and a small difference in altitude. Note that for Sydney, Antares' disappearance occurs during nautical twilight.

We're just over halfway through the five-year cycle where Antares can be occulted by the Moon. When it ends in 2028, the next Antares occultation season won't begin until 2042.

Meteor Showers

This month sees the peak of the eta-Aquarids, normally one of the highlight meteor showers for New South Wales observers. The eta-Aquarids were first recognised in the late 19th century as being an annual shower, with observation records dating back to the 1st millennium. It was soon established that this shower was related to comet Halley – what we observe each year is dust debris left behind by Halley many centuries ago. Another shower, the Orionids in October, is also linked to Halley, but the eta-Aquarids are a stronger shower on the annual calendar as we pass closer to the core of the dust trail.

The eta-Aquarids are so named because the meteors seem to radiate from a point near the 4th magnitude star Eta Aquarii, which lies on the celestial equator. To see these meteors, don't just stare at the radiant point itself, but rather take in a wider field of view as the radiant rises in the northeast sky a few hours before dawn. This year, the shower will peak on 6 May, though the peak is fairly consistent for around a day before and afterwards, and there's some activity a week or so either side too.

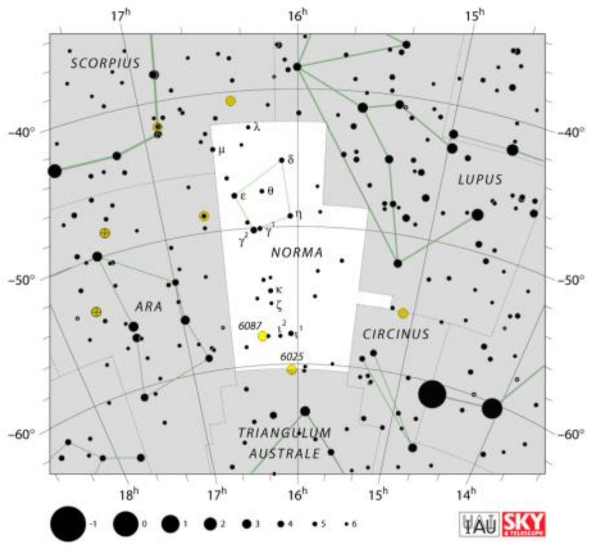
How many meteors can we expect? At its peak, the eta-Aquarids has a zenith hourly rate (ZHR) of around 40-50 meteors per hour. What does that mean? That's a calculated rate, based on past experienced observer data, that you would see if the radiant point of the shower was overhead at the zenith under very dark skies (magnitude 6.5 stars visible). In reality, though, you won't see that rate because the eta-Aquarids' radiant is nowhere near the zenith when the sky is dark. Expected numbers in any given year from New South Wales will peak at around two dozen or so per hour just before the encroaching twilight begins to interfere – and alas the presence of a near-Full Moon this month will wipe out most of those meteors. Next year is more promising with the shower coinciding with New Moon.

The Sky Tonight

On May evenings, overhead is the sprawling constellation of Hydra. To the north is Virgo and Leo. Setting in the west is Canis Major and Monoceros. High in the south is Crux and Vela. Climbing in the southeast is our feature constellation – Norma.

Constellation of the Month—Norma

Norma is one of the sky's smallest constellations (ranked 74th out of 88), occupying just 165 square degrees. Squeezed between Ara and Lupus, Norma was created by the French astronomer Nicolas-Louis de Lacaille in the early 1750s resulting from his survey of the southern sky from the Cape of Good Hope in South Africa. Moving away from the ancient themes of mythology, he named it "l'Equerre et la Regle" (the set square and the ruler) to honour builders and architects. Some years later, Lacaille "Latinised" it to Norma, meaning the set square.



Despite its small size, Norma's location in the Milky Way brings plenty to offer.

Credit: IAU and Sky & Telescope

Constellation boundaries have changed since Lacaille first outlined Norma, and the stars he labelled Alpha and Beta now reside in Scorpius. As a result Norma, despite the Milky Way running right through it, only has two stars of 4th magnitude – the remainder are 5th magnitude and fainter. Gamma, Delta, Epsilon and Eta Normae make up the "square" shape that resides in the northern half of Norma. Northeast of this square, on the border with Scorpius, is the 5th magnitude star Mu Normae. Lying over 3,000 light-years from us, it's a blue supergiant shining with the brightness of more than 300,000 Suns, making it one of the most luminous stars in our galaxy.

Deep Sky Targets in Norma

Amongst the literature on my bookshelves, an old copy of *Burnham's Celestial Handbook* Volume 2 gives scant coverage to Norma – three pages of listed doubles, variables and deep-sky objects, but no descriptive text following that. Despite that editorial overlook, Norma has some interesting sights to offer in the way of clusters and nebulae for such a small constellation. The only galaxy on offer here in this month's guide is our own Milky Way.

Let's begin with **NGC 5925**, on the western border with Lupus. Discovered in 1826 by James Dunlop, this 8th magnitude open cluster comprises over 100 stars loosely scattered over a field around 20' in a diameter. The surrounding region is particularly rich in background Milky Way stars, so the view is better at low power.

Around 5^{o} south-southeast is the planetary nebula **Menzel 1**. Discovered in 1922 by the American astronomer Donald Menzel during the course of a Harvard Observatory photographic survey of the sky from Peru, this planetary is 12th magnitude in brightness and displays a disk around 20" in diameter.

From here, we'll move over to the southeastern side of Norma. Just over 1^{o} east of the pairing of Iota^{1} and Iota^{2} Normae is the open cluster **NGC 6087**. One of James Dunlop's discoveries in 1826, it shines at 5th magnitude and is faintly visible to the unaided eye from a distance of over 3,000 light-years, though the surrounding Milky Way background makes it a challenge to discern. Around 40 or so stars are visible in the cluster over a quarter of a degree diameter, the brightest of which is the Cepheid variable S Normae, which varies from magnitude 6.1-6.8 over 10 days. It was only in the 1990s that data obtained with the Hipparcos satellite conclusively proved that S Normae shared the same proper motion and was indeed a member of the cluster as had been believed for several decades based on earlier studies, rather than being a fortuitous foreground star.

Some 3^{o} north is the 5th magnitude star Kappa Normae. From here, around 20' to the southwest is the planetary nebula **Menzel 2**, another discovery from 1922 in Peru. Glowing at 12th magnitude, Menzel 2 is about 30" in size. Returning to Kappa Normae, about a half degree northeast is the open cluster **NGC 6067**. More than 4,000 light-years away, it shines collectively at magnitude 5.6 and lies amidst the Norma star cloud, a bright concentration of stars in the Milky Way. Dunlop discovered this in 1826, and John Herschel in 1834 described it as "a most superbly rich and large cluster".

In his book *Deep-Sky Companions: Southern Gems*, the American observer Stephen James O'Meara ranks it as "one of the sky's most stunning open star clusters". Around a quarter of a degree in diameter, the cluster has more than one hundred stars visible in a small telescope. Larger apertures reveal many more members.

NGC 6067 Some experienced observers place this open cluster in their top ten in the sky. What do you think? Credit: DECaPS / Legacy Surveys / D. Lang (Perimeter Institute), NERSC

A little northwest is the 8th magnitude open cluster **NGC 6152**. Around a half degree wide, this cluster is best observed at low magnifications due to the surrounding rich starry field. Moving 3° north is the 7th magnitude cluster **NGC 6167**, which a small telescope reveals several dozen stars in a 10' area. Nudging a little northeast takes us to the 7th magnitude open cluster **NGC 6134** and medium sized telescopes will reveal more than 50 stars in a 10' area.

For a change of pace from open clusters, we'll move to the nebula **NGC 6164-65** inside Norma's square, a degree from Epsilon Normae. Discovered by John Herschel in 1834 (he listed two components of this nebula separately, so they received separate NGC designations), the nebula was originally described by the American astronomer (and future astronaut) Karl Henize as a planetary nebula. However, it turns out to be an emission nebula surrounding a binary star. Sometimes known as the Dragon's Egg Nebula, the 7th magnitude binary is surrounded by two lobes of nebulosity (the two that Herschel saw).

Let's move about 4° southwest towards the Lupus border and we come to the planetary nebula **Shapley 1**, one of three discovered by the American astronomer Harlow Shapley. Glowing at 13th magnitude, it's visible in medium to large telescopes displaying a ring a little over 1' in diameter.

Lying 4,000 light-years away, some astronomers believe that the stellar system at the heart of the Dragon's Egg Nebula was once a population of three, until two merged and led to the recent creation of the nebula.

Credit: Dylan O'Donnell

We'll finish back near the border of Lupus with the globular cluster **NGC 5946**. Shining at 10th magnitude, the globular is small, perhaps 2' in diameter for medium-sized telescopes. The discoverer? It's reported to have been first sighted by Dunlop in 1826 and noted in his observing log, but apparently he inadvertently missed including the globular – and perhaps other finds – in his published list of discovered objects. In 1834, Herschel rediscovered it. Norma is indeed an overlooked constellation in our southern sky.

Table of Objects in Norma

Object	Type	RA	Dec	Mag	Size
NGC 5925	OC	$15^h\ 27.7^m$	-54° 31'	8.4	14'
NGC 5946	GC	$15^h\ 35.5^m$	-50° 50'	9.6	7'
Menzel 1	PN	$15^h\ 34.3^m$	-59° 09'	12.1	26"
Shapley 1	PN	$15^h\ 51.7^m$	-51° 31'	12.6	76"
NGC 6067	OC	$16^h\ 13.2^m$	-54° 13'	5.6	12'
Menzel 2	PN	$16^h\ 14.5^m$	-54° 57'	11.9	27"
NGC 6087	OC	$16^h\ 18.9^m$	-57° 54'	5.4	12'
NGC 6134	OC	$16^h\ 27.7^m$	-49° 09'	7.2	8'
NGC 6152	OC	$16^h\ 32.7^m$	-52° 37'	8.1	29'
NGC 6164	EN	$16^h\ 33.7^m$	-48° 01'	6.7	3'
NGC 6167	OC	$16^h\ 34.4^m$	-49° 46'	6.7	7'

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By Greg Bryant

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Comet C/2026 A1 (MAPS): Oops. As previously noted, the chances were always there that comet MAPS wouldn't survive its perihelion passage, and alas that's what transpired. Shortly after I wrote April's column, the comet exhibited a stall in brightening for several days before resuming a slower brightening rate. While predictions for the comet's show had always favoured the evening sky after perihelion as the prime show, how it fared prior to perihelion was important.

I was clouded out in attempting to observe MAPS in March, and the last visual observation that I'm aware of globally was made by Chris Wyatt from Walcha in northern New South Wales. On the evening of 29 March, using a 25-cm (10-inch) reflector, he estimated the comet to be magnitude 7.7. At the time, it was only an hour after sunset, there was a 10-day-old Moon in the sky, and the comet was barely 2° above the horizon – nicely done! After that, the comet was followed through several space-based observatories (SOHO, CCOR-1, PUNCH satellites) into early April, dissipating at perihelion over Easter.

Last year, the astronomer Zdenek Sekanina published a paper which predicted a new bright Kreutz sungrazer sometime in the next decade, and perhaps as early as next year. This year's comet MAPS was not that sungrazer, it's important to note. MAPS was very much out of left field and has opened a new door in the modelling of the past fragmentation of Kreutz comets. While comet MAPS wasn't going to be classed as a "Great Comet", I was looking forward to a naked-eye comet in the April evening sky. Let's see what lies ahead.

Comet C/2025 R3 (PANSTARRS): Meanwhile, comet PANSTARRS had brightened to around 5^{th} magnitude in the morning sky by mid-April. In the leadup to perihelion, the comet has been found to be relatively dust-poor, so predictions for any forward-scattering brightness enhancement in late April have been considerably lowered.

Assuming PANSTARRS does survive its perihelion passage, it may open this month at 5^{th} magnitude in Eridanus in the early evening sky, but you'll need binoculars at least to observe it on account of its low altitude by the time the sky has darkened, not to mention the bright Moon. As it draws away from both the Sun and Earth, comet PANSTARRS should fade quickly as it moves into Orion and then Monoceros. On the night of 11 May, PANSTARRS will be 2° south of the Orion Nebula and binoculars should capture both in a Moon-free evening sky.

Comet C/2025 R3 (PANSTARRS)

Date	R.A.	Dec.	Delta (au)	R (au)	Elong. ($^{\circ}$)	Mag.
2 May	4^h 08.1^m	-0° 56'	0.559	0.577	28	5.4
9 May	5^h 20.9^m	-6° 46'	0.764	0.673	42	6.5
16 May	5^h 57.2^m	-9° 00'	1.002	0.785	46	7.4
23 May	6^h 18.1^m	-9° 56'	1.237	0.903	46	8.6
30 May	6^h 31.9^m	-10° 25'	1.458	1.023	45	9.4
6 Jun	6^h 42.2^m	-10° 46'	1.664	1.143	43	10.1

Comet 10P/Tempel 2: This month, if not late April, should see the first visual observations of periodic comet Tempel 2 as it approaches perihelion in August. Rising mid-evening, Tempel 2 is in Aquila and should brighten from 13th to nearly 10th magnitude by month's end.

Comet 10P/Tempel 2

Date	R.A.	Dec.	Delta (au)	R (au)	Elong. (°)	Mag.
2 May	$19^h\ 13.9^m$	-8° 51'	1.049	1.703	112	12.7
9 May	$19^h\ 27.3^m$	-8° 31'	0.965	1.667	115	12.2
16 May	$19^h\ 40.6^m$	-8° 16'	0.887	1.632	118	11.7
23 May	$19^h\ 53.7^m$	-8° 08'	0.814	1.598	122	11.2
30 May	$20^h\ 06.8^m$	-8° 10'	0.745	1.567	125	10.7
6 Jun	$20^h\ 19.6^m$	-8° 26'	0.683	1.538	129	10.2

Comet 88P/Howell: Morning observers should be able to catch comet Howell at 10th magnitude as it moves through Aquarius, Pisces and Cetus.

Comet 88P/Howell

Date	R.A.	Dec.	Delta (au)	R (au)	Elong. (°)	Mag.
2 May	$23^h\ 49.2^m$	-4° 42'	1.953	1.442	46	9.6
9 May	$0^h\ 08.2^m$	-2° 43'	1.951	1.469	47	9.8
16 May	$0^h\ 26.2^m$	-0° 48'	1.950	1.499	49	10.0
23 May	$0^h\ 43.5^m$	+1° 01'	1.947	1.532	51	10.2
30 May	$1^h\ 00.1^m$	+2° 45'	1.943	1.567	53	10.3
6 Jun	$1^h\ 15.9^m$	+4° 22'	1.936	1.604	56	10.5

Our Comet Prayer!

"Comet MAPS, a little fiery tear,
Streaked across our Easter sky.
Made such promises, held so dear,
"A brighter dawn, before you die!"

They named it Hope, a shining sign,
A small cosmic egg, for us to see.
But MAPS just fizzled, lost its shine,
Now a just a sad fading memory.

No brilliant burst, no vibrant bloom,
Just dust and whispers on the breeze.
MAPS went silent, met its doom,
Ignoring the Easter bunny's pleads.

Thy promises it could not keep,
Now scatter with the evening light.
While silent watchers softly weep,
A false star meets its darkened night."

Poem by Andrew James

Death of a Comet - The Fate of C/2026 A1 MAPS

By Andrew James

On 14 January 2026, Comet C/2026 A1 MAPS was discovered by astronomers Alain Maury, Georges Attard, Daniel Parrott, and Florian Signoret. (The word MAPS comes from the initials of their surnames.) Four telescopes were utilised near San Pedro de Atacama in Chile. The system they employ uses Celestron 28cm, f/2.2 Rowe-Ackermann Schmidt Astrograph telescopes, each featuring a 60 Mpix ASI6200MM camera at its focus. The entire telescope setup is deliberately designed to have a flat field of view, useful for making accurate measurements. FOV measures 3.3° by 8.8°, with astrometric analysis conducted through the so-named Tycho Tracker. This computer application was developed by Daniel Parrott specifically for identifying, monitoring, and assessing the movement of celestial bodies such as asteroids, comets, and artificial satellites.

The discovery was made public in IAU CBET 5658 ***http://www.cbat.eps.harvard.edu/iau/cbet/005600/CBET005658.txt*** when the comet received the designation C/2026 A1 (MAPS). This CBET reference also gives an interesting account of the observational knowledge of the comet's early history. Found in the southern constellation Columba, it was gradually moving northward toward the Sun for an encounter in early April. The discovery image appears here: ***https://britastro.org/section_news_item/c-2026-a1-maps-a-kreutz-group-sungrazer***. American amateur and researcher, Sam Deen ***http://www.skaw.sk/interview-with-sam-deen.html*** from Simi Valley, California, stated that he discovered on earlier images the comet resembling asteroids that predated its discovery, dating back to 18 December 2025. These images were obtained from CCD data taken with a 50cm f/2 Schmidt telescope operated by the "Asteroid Terrestrial-Impact Last Alert System" (ATLAS) search program.

Found just 84 days before perihelion, follow-up observations in February and March refined the orbital elements (refer Table 3). When C/2026 A1 MAPS entered the field of view on the 2nd April in the LASCO C3 image, the comet was a let-down. The nucleus was indeed small, with its oval-like coma and faint tail heading directly towards the Sun. Its tail stretched about 10°, and its length was expected to be about the same after perihelion in the next week after the encounter. The looming question of the survival of the nucleus and the apparition of a spectacular comet in the next week became simply improbable. There is a marvellous image and animation at "HDR astrophotography by Nicolas Lefaudeux": ***https://hdr-astrophotography.com/prospects-for-comet-c-2026-a1-maps/***

While it was interesting to watch the events unfold, it was fascinating to see what occurred towards its destruction. Approaching perihelion, the close proximity to the Sun has evaporated most of the sublimated ices. This material was visibly pushed away by the solar wind, and we can watch the remaining nebulous cometary material disperse and then fade from view. The evidence for this is shown in the LASCO images that follow.

LASCO C2 & C3: THE EVIDENCE

SOHO Cameras of LASCO C2 & C3 images show the approach, the destruction and the aftermath after passing Sun. The Large Angle and Spectrometric COronagraph (LASCO) is one of 11 instruments on the NASA/ESA SOHO spacecraft, launched on 2 December 1995 from Cape Canaveral, Florida. LASCO has three coronagraphs that capture images of the solar corona at 695,700 kilometres. The remarkable instrument uses a tiny 21.5mm square CCD camera with its small 110mm aperture at f/1.5. Field of view is about 32 solar radii. It includes narrow-bandpass filters, particularly a blue C3 filter for observing stars, planets, and comets. More information can be found at: ***https://lasco-www.nrl.navy. mil/index. php? p=content/realtime*** The following Figures use these images.

ANIMATIONS

You can generate a movie here: ***https://soho.nascom.nasa.gov/data/Theater/***

Select C2 or C3. Enter start and end dates, separated by a space, e.g. 2026/04/04 2026/04/05 for C2 or 2026/04/02 2026/04/06 for C3. Click Generate and wait for images to load. Once the first image appears, scroll down to find the play button. To slow down the action, try running at Speed of 10 (frames per second).

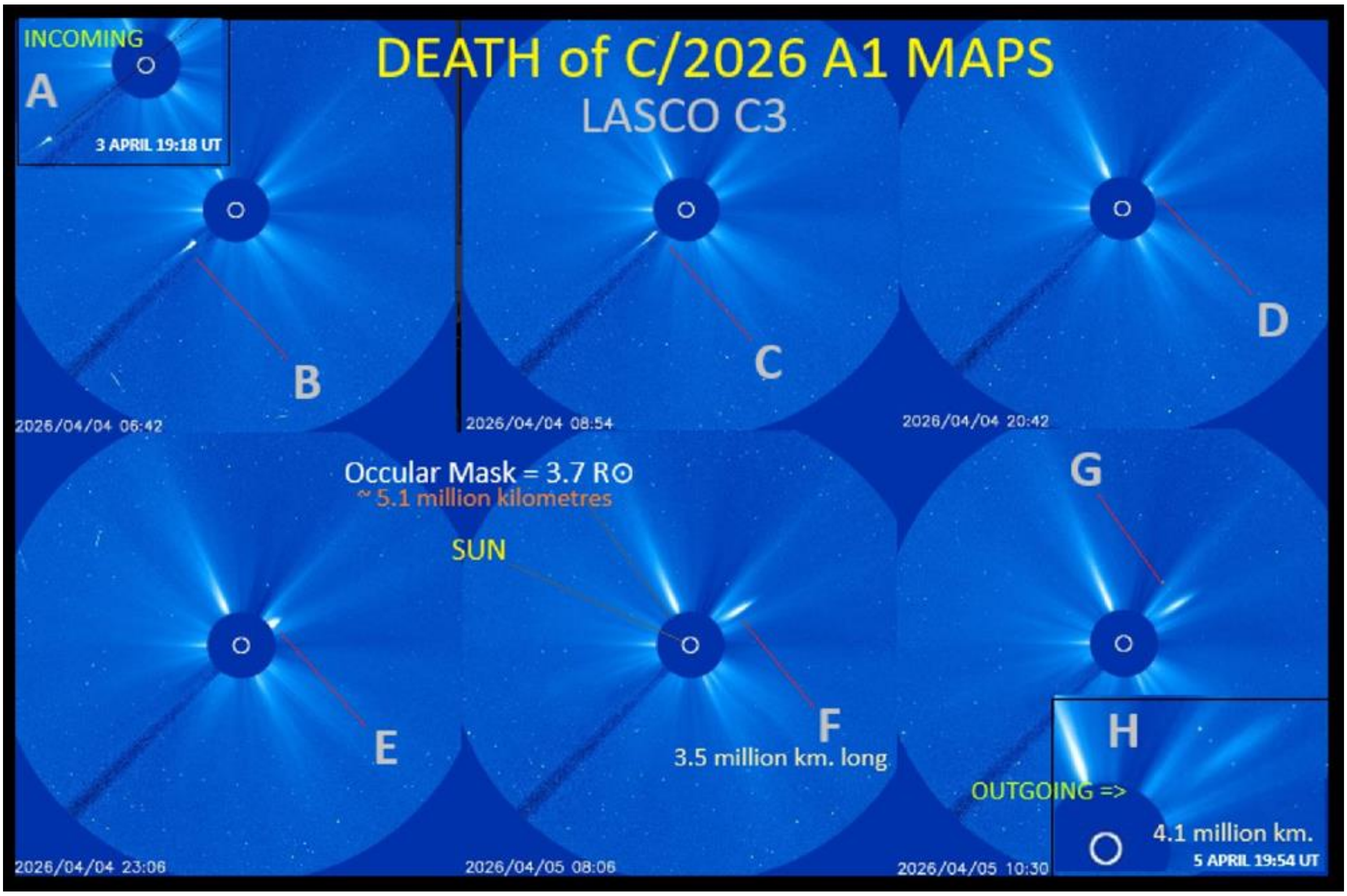

Figure 1. This SOHO link shows the comet's trajectory before and after perihelion. The figure shows the comet's movement between 3rd April and 5th April 2026 as it approached the Sun, and its aftermath following the encounter. The alphabetical letters given in each of the figures correspond with the times, positions and elongations in Table 1. Each figure shows the coronagraph images and the outflows radiating from the Sun. The dark linear mark pointing towards the Sun (@ 8:00 am position) is the support strut of the occular aperture mask that blocks sunlight. C/2026 A1 luckily enters the field parallel to this strut. The comet's coma appears as a bright oval followed by an extended tail. Each frame (A-C) shows the comet's approach before going behind the aperture mask (D). In frames (E-H), we see the aftermath of the encounter as a streak of dust rapidly dispersing as it moves away from the Sun after perihelion. Images courtesy NOAA Space Weather Enthusiasts Dashboard

C/2026 A1 (MAPS) : ELONGATION & POSITIONS

Image	Date *2026*	Time UT	RA (2000) h m ss.ss	Dec (2000) ° ′ ″	Elong °
A	03/04	19:18	01 06 45.18	+04 19 36.8	4.2224
B	04/04	05:42	01 00 20.37	+04 58 20.1	2.1756
C	04/04	08:54	00 57 39.01	+05 13 25.8	1.3558
D	04/04	20:42	01 00 59.15	+05 31 59.6	1.7071
E	04/04	23:06	01 03 50.18	+05 26 48.1	2.3399
Peri	04/04	14:31	00 51 59.15	+05 46 26.2	0.3280
Closest	04/04	15:37	00 53 30.14	+05 45 38.1	0.0441
F	05/04	08:06	01 13 19.58	+05 10 24.3	4.4023
G	05/04	10:30	01 15 32.59	+05 06 45.8	4.8756
H	05/04	19:54	01 24 04.40	+04 53 19.6	6.6718

Periastron : 0.0057287 AU

TABLE 1. C/2026 A1 (MAPS): ELONGATION & POSITIONS

This shows the times, positions and elongations seen in Fig. 1 calculated by JPL Horizons using the orbital elements from Table 3.

An interesting comparison was with the Kreutz family comet, Comet Lovejoy C/2011 W3, except Lovejoy did survive the encounter. It, however, also lost significant mass and its ices, and was greatly damaged after perihelion, appearing as smaller deadened nucleus. The cometary drawn-out material captured by the SOHO and STEREO spacecraft shortly after perihelion is the dusty material left behind as it is accelerated away by pressure exerted by the solar radiation against the Sun's gravitational attraction. The observed brightness is a result of sunlight scattering off this dust. Before perihelion, SOHO's C3 images show a variety of visible tiny particles being scattered by the solar wind. Some particles resemble carbon-rich grains, and others are mostly silicate grains. The after perihelion images predominantly feature silicate particles, while much of the dust being released before perihelion is simply a mixture of sublimated ices and dust blown away by the solar wind.

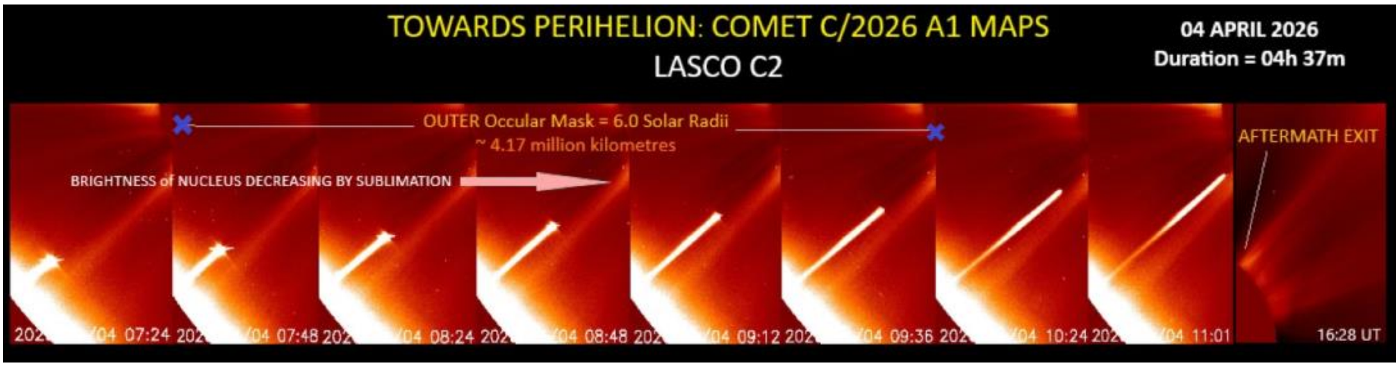

Figure 2. **Comet C/2026 A1 MAPS APPROACHING PERIHELION**. Series of SOHO LASCO C2 images

The final separation of the comet's head from its dust tail can be explained by the dramatic cascading of mass loss combined with the high sublimation rates, which eject releasing the comet's submicron-sized dust particles at distances under about 1.8 R⊙. Similar actions were seen in Comet Lovejoy, highlighting that this reasoning appears to be correct. Together both these comets give us great clues as to the internal structures of these bodies. (Discussion follows about Comet Lovejoy C/2011 W3's lucky survival.)

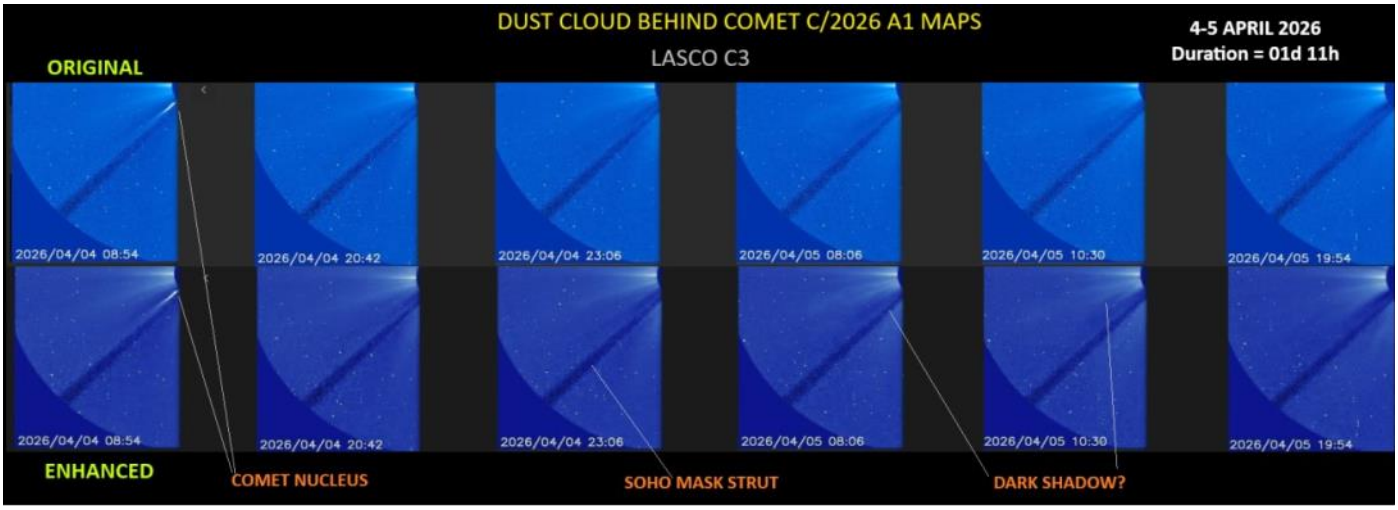

Figure 3. Comet C/2026 A1 MAPS: REMAINING DUST BLOWN AWAY BY THE SOLAR WIND. Series of SOHO LASCO C3 images. After the comet passed perihelion, the dust from when it was approaching the Sun was pushed back by the pressure of the solar wind. This material rapidly dispersed the further it was from the Sun.

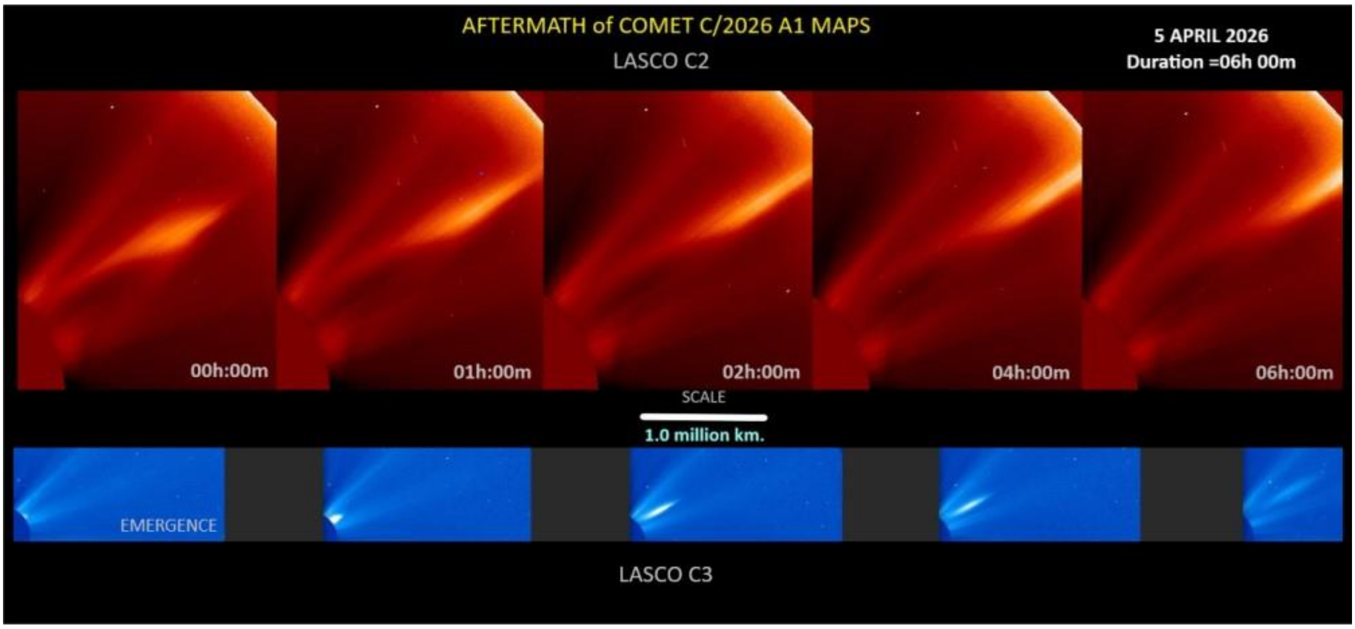

Figure 4. **Comet C/2026 A1 MAPS DESTRUCTION AFTER PERIHELION**. Series of SOHO LASCO C2 and images showing the remaining particles of dust after it was stripped apart after perihelion.

Top (red) images are C2 with higher resolution, stretching about 1.5 to 1.8 million kilometres. The highest particle density corresponds to greater brightness. Note the twisted braids trailing the bright oval and the small variations of light.

Bottom (blue) images are from C3 from the moment of emergence to where the dust is much dispersed. The length of the C3 visible trail is about 500,000 to 650,000 kilometres long.

OBSERVED MAGNITUDES of C/2026 A1

Pre-discovery observations by Sam Deen (18 December 2025) revealed something resembling an asteroid estimated at mag. 20.4. By the discovery date 14 January 2026, it was a dim mag. 17.8-18.3v fuzz merely 12 arcsec across.

By mid-March it was about 10th magnitude, and it reached naked-eye visibility about 31 March. After this, the light-curve rose almost exponentially as it raced towards the Sun. COCD (Comet Observation Database) observations peaked at mag. 1.1v on 04 April 2026 03:30 UT. When the comet entered the LASCO C3 field, it was around mag. +0.6 by my estimation, but this increased to mag. -0.3 just before perihelion. This somewhat agrees with Mikolaj Kaszczyk of the Comets Ml Group statement: ***https://groups.io/g/comets-ml/message/35192***.

> *"In LASCO C2 (Orange filter) on April 4.3919 (09:24 UT) it was –0.538 ± 0.118 mag. Value similar to CCOR-1 measurement, likely occulter arm's fault for dimming up the comet a bit and different filter used. CCOR-1 on April 4.34375 (08:15 UT) it was –0.579 ± 0.24 mag."*

Differences in brightness can be solely due to the downgrading of the size of the comet's nucleus to 400 metres in the prediction. With less ices available to sublimate, there was less sunlight reflecting off the coma and its tail.

For direct comparison, the IAU Circular CBET 5675 of 21 March 2026 gives the following ephemerides and magnitudes, which are significantly brighter than those of Kaszczyk and his group.

Table 2. C/2026 A1 (MAPS) : MAGNITUDES

The table shows the magnitudes calculated by the CBET 5675 ephemerides and those visually made from the COCD (Comet Observation Database). Where: DATE (UT), (RA=Right Ascension, Dec=Declination, Mag Pv =Predicted magnitude, v=Observed magnitude)

DATE (UT)			RA		Dec.		Mag	Mag
dd	m	year	hh	mm.m	Dec	m	P v	v
30	Mar	2026	01	40.50	+00	17.6	**+4.2**	**+7.4**
31	Mar	2026	01	35.63	+00	30.9	**+3.4**	**+6.1**
01	Apr	2026	01	30.07	+01	22.4	**+2.2**	**+4.4**
02	Apr	2026	01	23.53	+02	18.3	**+0.8**	**+3.7**
03	Apr	2026	01	15.43	+03	20.6	**−1.4**	**+2.7**
04	Apr	2026	01	04.12	+04	36.0	**−5.9**	**+1.1**
05	Apr	2026	01	04.94	+05	24.9	**−3.2**	--
06	Apr	2026	01	27.34	+04	48.4	**−2.3**	--
07	Apr	2026	01	45.20	+04	23.3	**+0.1**	--
08	Apr	2026	02	00.85	+04	03.4	**+1.7**	--
09	Apr	2026	02	14.96	+03	46.7	**+2.9**	--
10	Apr	2026	02	27.86	+03	32.6	**+3.8**	--
11	Apr	2026	02	39.75	+03	20.2	**+4.6**	--

DENSITY and MASS of C/2026 A1

Comets are just fluffy aggregates composed of loosely packed ice, dust, and rock. From observations, we know the average density of cometary nuclei, similar to other members of the Kreutz family of comets, is low. Many sources generally estimate around 0.5–0.6 g/cm³ and significantly less dense than liquid water (1.0g/cm). A 400-metre comet, this value represents the bulk density of the core and is consistent with a 'rubble-pile' structure composed of porous ice and dust. Roughly, 60%–80% of their volume consists of empty space, explaining the density lower than water. (The dirty snowball comet analogy is misleading. Snowballs are denser!) This low-density structure is why comets can be easily fragmented into smaller pieces, as seen in split comets, and why they exhibit massive jets of material when approaching the Sun. It also explains why C/2026 A1's fragility was questioned and why other sungrazers don't survive.

Calculating the density and mass of comets is straightforward but relies on a few assumptions. The density of a specific 400-metre comet depends on its exact composition compared to other well-studied comets. Assuming 0.5 g/cm³, and our roughly 400 metre spherical comet, we find the volume using $V=4/3 \times \pi \times r^2$ (r=radius: or 200 metres). If a sphere with a radius of 200m (400m diameter), the volume is $4/3 \times pi \times r^3$ or 3.35×10^7 m^3. Using 0.5 g/cm³ (or 500 kg/m^3) for density, simply calculating from Mass = density x volume, finds $500 \times 3.35 \times 10^7.m^3$ or 1.67×10^{10} kg. Hence, Comet C/2026 A1 has an estimated mass between 20 ± 5 billion kilograms (1.0^{10} to 3.0×10^{10} kg). By comparison, the 4 km nucleus of Comet 67P is about 10^{13} kg or 1000 times more massive.

If we accept that Kreutz comets are extremely dust-rich, this means that little mass from the ices and carbon compounds exists. This is why little sublimated gas remains, as seen in **Fig. 2**, because the solar wind drives it away. After perihelion, what remains are the fragmented grain-sized particles of iron or magnesium silicates as rock, or in the case of Kreutz comets, aggregations of olivine-like minerals. Assuming that C/2026 A1 had 20% of volatiles, what we see in the aftermath in **Fig. 3** is about 18 billion kilograms of material continuing along the orbit and shining by reflected sunlight. The small amount of volatiles quickly disappear.

Table 3: ORBITAL ELEMENTS

C/2026 A1 (MAPS)		
Epoch 2461083.5 (2026-Feb-12.0) J2000		
Element	Value	Units
e	0.999963	
a	153.381451	au
q	0.00572928	au
i	144.49366	deg
node	7.865109	deg
peri	86.32469	deg
M	359.97323	deg
tp	2461135.09974 2026-Apr-04.59974023	TDB
period	693837.37636 1899.623207	d y
n	0.00051885	deg/d
Q	306.757173	au

What is extraordinary is that around perihelion, this much matter was destroyed and scattered, and C/2026 A1 is considered a small comet! If this comet struck the Earth, the energy of 3000 megatons, or equivalent to 30 hydrogen bombs, would be released.

COMET LOVEJOY C/2011 W3

When discovered on 27 November 2011, C/2011 W3 was about 50° from the Sun and had only about 18 days before reaching perihelion on 16 December 2011. This meant that predicting any accurate orbital period or ephemerides was nearly impossible. As the solar elongation from the Sun was rapidly decreasing, many positions were obtained to determine a good orbital set of elements, except for the orbital period. e.g. One calculation was 376 ± 51 yr, another 680 ± 64 yr.

From 11 to 22 December, the comet was too close to the Sun to obtain any ground data. Fortunately, satellites and deep-space probes observed it with optical instruments, producing images of the comet. The two coronagraphs C2 and C3 on the SOHO and STEREO spacecraft provided much-needed observations during the perihelion encounter. Sadly, the image quality is not good enough to measure positions accurately due to flaring and poor resolution, which the cameras were not designed for.

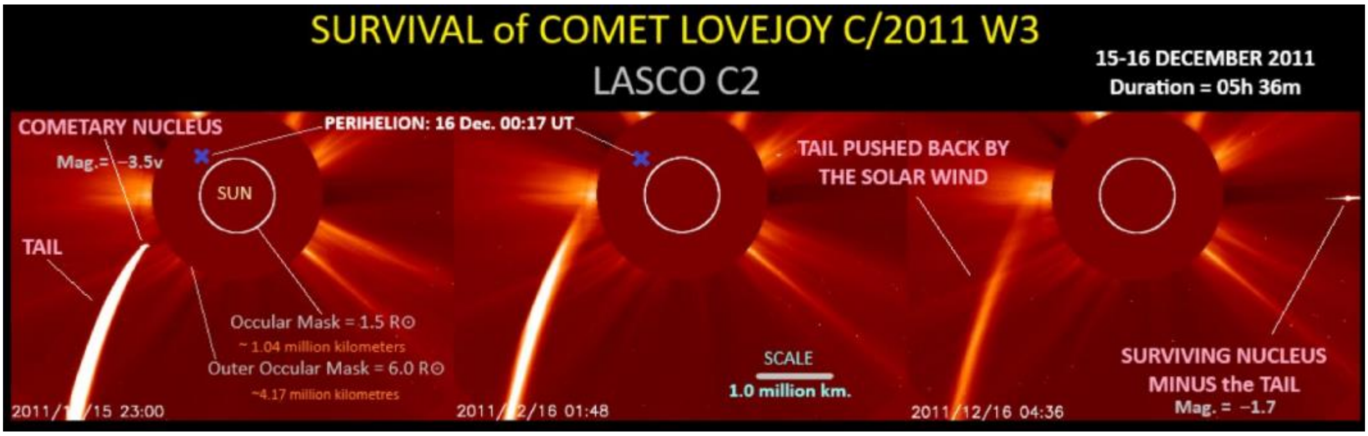

Figure 5. **Comet LOVEJOY C/2011 W3 APPROACHING PERIHELION**. Series of SOHO LASCO C2 and images showing the tail, and how it is blown by the solar wind The central panel shows the separation of the nucleus and tail at 6.5 solar radii at c. 15th December 2011 01:10 UT.

Figure 6. **Comet LOVEJOY C/2011 W3: DESTRUCTION AFTER PERIHELION**. Series of SOHO LASCO C2 images showing the remainder particles of dust after it was stripped apart after the comet nucleus had passed perhelion, being blown away by the solar wind.

Investigating comet C/2011 W3, Sekanina, & Choda. (2012) revealed important findings. My own words to discuss this are beyond the scope of this article. Readers might instead like to read their detailed paper. From what I learned, on approaching the Sun, the examination of comet C/2011 W3 uncovered significant discoveries. After its perihelion, the nucleus underwent a loss of condensation between 19 & 20 December 2011. This incident corresponded with the emergence of a slender dust streamer that rapidly developed into a ribbon-like tail.

A fragmentation event that peaked around 17 December involved the remaining nucleus measuring c.150 to 200 metres. This event generated considerable dust activity that lasted for roughly 40 hours, releasing substantial amounts of dust that contributed to the tail observed until mid-March 2012. The comet displayed a slow response to intense solar conditions, hinting that internal pressure may have triggered its fragmentation.

High thermal stress likely caused the nucleus to break apart into smaller pieces, with speculation around explosive reactions involving volatile substances such as water ice. Observations indicated notable increases in oxygen production following perihelion that were associated with a brief emission event. Their calculations of the comet's position used the axis of the tail and its orbit, yielding an approximate 698 ± 2 year orbital period. This classified C/2011 W3 as part of a newly identified group of sungrazers. They suggest future models should take into account their connections with other sungrazers and previously observed comets.

C/2011 W3's nucleus disconnected from its dust tail before reaching perihelion. This was shown clearly in images from the SOHO and STEREO missions (refer Figs. 5 & 6). This was certainly due to the rapid sublimation of small dust particles near the Sun. Their study found the connection between sublimation pressure and heat for olivine-based silicates. Clearly, C/2011 W3 has an unusual orbit and is among the Kreutz sungrazing comet family, with its potential evolutionary path linked back to previous comets starting from 1329 AD.

Reference

Sekanina, Z., Chodas, P.W., "*COMET C/2011 W3 (LOVEJOY): Orbit determination, outburst, disintegration of nucleus, dust-tail morphology, and relationship to new cluster of bright sungrazers*.", *A.J.*, **757**, 127 (2012) ***https://iopscience.iop.org/article/10.1088/0004-637X/757/2/127***

APPENDIX

COMETS CLOSE TO NAKANO's 285 AD PREDICTION

If the orbital period of 1740.6 years is right (Nakano, 2026), this means its last encounter occurred in August 285 AD, the year of the Battle of the Margus, where Emperor Diocletian defeated Emperor Carinus. After defeating him in July 285, Diocletian became the sole emperor, ending a prolonged period of military anarchy, civil war, and economic decline of the Roman Empire. [The SPQR Historian gives an excellent account of these times here: ***https://www.youtube.com/watch?v=D5ple3XWEK4&t=376s***]

What is interesting is that the Chinese recorded bright comets between 277 AD to 287AD. This reference (Williams, 1871) is compelling, with two candidates out of five.

Comet #109 : "A.D. 277. *February. In the 3rd year of the same epoch,* ***the 1st moon, there was a comet in the west****. In the 3rd moon it was in S. D. Wei. In the 4th moon the comet was in Neu Yu.* ***In the 5th moon it was in the east****. In the 7th moon it was in Tsze Kung. Epoch Han Ning, 3rd year, A.D. 277: 1st moon, February; 3rd moon, April; 4th moon, May; 5th moon, June; 7th moon, August. S. D. Wei determined by the three stars in Musca. Neu Yu, π Leonis. Tsze Kung, circle of perpetual apparition.*"

There were two bright comets in 281 A.D. (September & December) in Hydra, and another in 283 AD (April) in Leo and Leo Minor. Comparing these with the actual orbit of C/2026 A1, these are unlikely candidates.

The most interesting is this one:

Comet #114 : "A.D. 287*. September. In the 8th year of the same epoch, the 9th moon, there was a comet in Nan Tow. Its length was reckoned at 100 cubits. In about 10 days it disappeared. Tae Kung, 8th year, A.D. 287: 9th moon, September. Nan Tow, same as S. D. Tow, determined by zeta, tau, sigma, &c. Sagittarii.*"

Could this be the one?

Note that the exact timing of historic comets is fraught with interpretation about how the translators of the information understand the written context. e.g. A stated comment on comets might instead be alluding to meteors, novae, or atmospheric phenomena. This is made worse by using different dating systems, using the Moon or other lengthy periods of many days or unspecified durations, all based on imposed human notions of time.

References

Williams, J., "*Observation of Comets, From B.C. 611 to A.D. 1640*.", Pub. London (1871)

https://dn790009.ca.archive.org/0/items/cu31924088940154/cu31924088940154.pdf

Nakano Note NK5566 – C/2026 A1 (MAPS): ***https://www.oaa.gr.jp/~oaacs/nk/nk5566.htm***

CONCLUSION : THE FINAL DEMISE

After the anticipated speculation and the hope of an incredible resurrection, the eventual happened. (Pardon my blatant Easter coincidence.) Wonderful Lovejoy was grand, but promising MAPS succumbed to the utter ruthless forces thrown out by our Sun. We did not see its last moments, but we did see what remained of its corrupted corpse.

May This Comet Rest Among Our Solar System

LASCO C3

NOAA describes LASCO C3: "*The Large Angle and Spectrometric Coronagraph (LASCO) is one of 11 instruments included on the joint NASA/ESA SOHO (Solar and Heliospheric Observatory) spacecraft. SOHO was launched on 2 December 1995 at 0808 UT (0308 EST) from the Kennedy Space Center, Cape Canaveral, Florida. The LASCO instrument is a set of three coronagraphs that image the solar corona from 1.1 to 32 solar radii. It is convenient to measure distances in terms of solar radii. One solar radius is about 700,000 km… or 16 arc minutes. A coronagraph is a telescope that is designed to block light coming from the solar disk, in order to see the extremely faint emission from the region around the sun, called the corona.*"

This instrument has a 21.5mm square CCD camera with the relative telescopic aperture being 110mm at a short f/1.5. Field of view is about 32 solar radii or 15.3°. There are several narrow bandpass filters on a filter wheel, where the C3 filter is blue and ranges from 420 to 520nm. In this wavelength range we can easily see stars down to around 4.5 magnitude, but also from time-to-time planets and comets, as they all slowly march past the Sun across the celestial sphere. Often the outlines of some of the constellations can also be seen.

More information on LASCO is at:

https://lasco-www.nrl.navy.mil/index.php?p=content/realtime

Serious solar observers will find a wealth of useful material there.

This article has been abridged for inclusion in Universe. Andrew's more comprehensive article is available on the website here: ***https://www.asnsw.com/content.cfm?page_id=5625053¤t_category_code=21797***

The complete article includes more information about Kreutz sungrazer comets, and reflects on the earlier brightness predictions for Comet C/2026 A1 MAPS.

Wiruna Wanderings—March 2026

By Alessandro Spina

The forecast for the March Wiruna weekend did not look promising. We arrived on site early Friday afternoon to a pleasant partly cloudy sky to join another dozen or so members who had also ignored the weather forecast. I decided to tempt the wrath of the weather gods and set up my SkyWatcher dob on the main observing field. As the sun set the sky appeared to clear up, as I anxiously peered out from the kitchen. We were treated to a glorious Wiruna sunset (see Figure 1). The forecast was for the clear sky to disappear, so at the first sign of two alignment stars it was time to get the Dob up and running. After a couple of attempts, I got the alignment to the stage where the object was at least in the field of view (FOV) of my eyepiece. Not perfect, but at least it was clear.

Figure 1: Main observing field at sunset

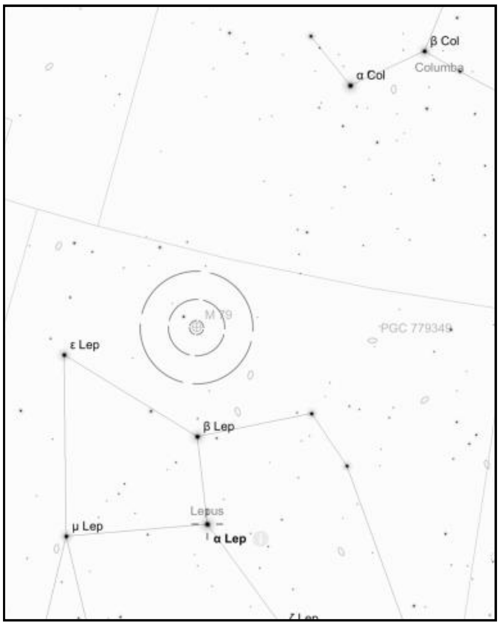

Figure 2: M79 GC in Lepus

With Orion and companions sinking into the western horizon, I started my search in the constellation of Lepus. This constellation is easy to pick as it is wedged conveniently in between Canis Major and the foot of Orion. I look for the distinctive shape formed by Lepus's four main stars (α, β, γ, δ-Leporis) forming a quadrilateral, with the two brightest, Arneb (α) at 2.6 and Nihal (β) at 2.8. The first object in Lepus was the globular cluster **M79** (See Figure 2). Even without a Go-To scope it is relatively easy to find. Start by identifying the γ-Leporis (3.6 magnitude), β-Leporis (2.8) and ε -Leporis (3.2) which form a flat triangle. M79 combines with γ, β, ε -Leporis to create a rhombus pattern (see map-9 of **The Cambridge Star Atlas** by Tirion). Alternatively, draw a straight line through α-Leporis and β-Leporis and extend that line almost the same distance and it should place you within the vicinity of M79 which is easily picked up in the finderscope. With the 35mm eyepiece in, this ~8′ wide globular presents a bright 7th magnitude cluster with a dense unresolved core, with the brighter stars in the halo easily resolved. Switching to the 16mm eyepiece, with a bit of averted vision (AV) started to bring out a lot more detail in the surrounding halo of stars.

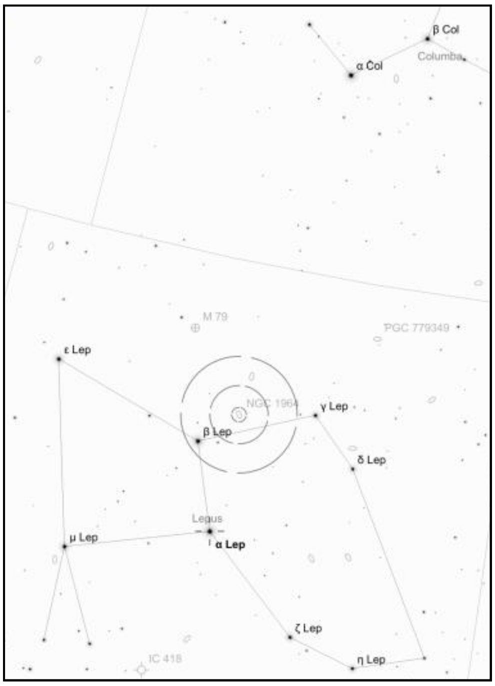

Figure 3: NGC 1964 Gal in Lepus

An arc of bright stars (perhaps foreground stars) sits underneath, with a chain of brighter stars hanging off the bottom right like a loose jellyfish tentacle. When viewing this object keep in mind there is evidence that M79 was snatched from the Canis Major dwarf galaxy by tidal forces[1]. A galactic neighbour cannibalised by our own Milky Way.

While I was in the vicinity, I noticed **NGC 1964** a 10.8 magnitude edge-on spiral galaxy which sits only 1.7° away from β-Leporis making it easy to locate (see Figure 3). This 5' x 2' edge-on galaxy is easy to pick out in the FOV. Its elongated disk is only interrupted by a bright knot or star in its core region. Images reveal a delicate spiral structure. Worth revisiting with the Club scope to see if the extra aperture can pick out any details.

From Lepus I drifted across to the constellation of Columba (the Dove). This small, faint constellation contains few bright stars making it trickier to identify. Columba is tucked in between the two brightest stars in the sky, Sirius and Canopus, and Lepus (see map-15 of **The Cambridge Star Atlas)**. The only three stars I could confidently identify are α-Columbae, (Phact) which sits at 2.6 magnitude and β– Columbae (Wazn) at 3.1. With ε-Columbae (3.9 magnitude), this triplet forms an upside-down "L-shape". Finding the point of intersection between a line through α and ε-Columbae and another line drawn from Canopus, will put you within the vicinity of **NGC 1851** (see Figure 4). It is easy to spot in the finderscope as a bright hazy patch. This 7.3 magnitude globular resolves very well with its compact core giving way to a uniform halo of stars approximately 4' across. Interestingly, there is evidence that NGC 1851 is also a remnant of a dwarf galaxy or snatched from another galaxy[2].

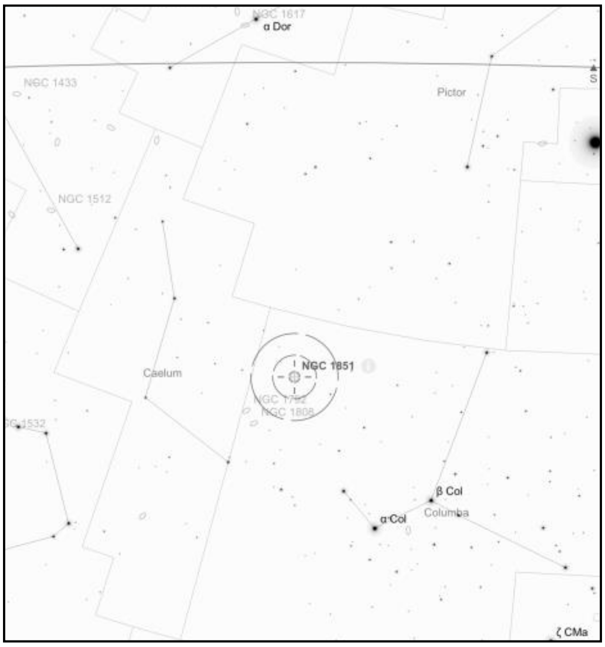

Figure 4: NGC 1851 GC in Colomba

To switch it up and destroy any dark adaptation I had, I decided to point the telescope at -2.3 magnitude **Jupiter**, which sat above the pair of Castor and Pollux in the constellation Gemini. The two main dark bands (North and South Equatorial Belts) jumped out immediately on either side of the equator, with tiers of additional fainter bands visible with a bit more probing. The rolling storm of the Great Red Spot was nowhere to be seen (it has a 10-hour planetary rotation). The four Jovian moons of Io, Europa, Callisto and Ganymede, all sat to the right of the planet's disk, with the innermost moon (most likely Io[3]) floating just above the limb of the planet's disk. Revisiting Jupiter only an hour later, I was lucky enough to catch Io disappear behind the planetary disk. My first Jovian occultation was a great highlight for a night predicted to be cloudy and wet.

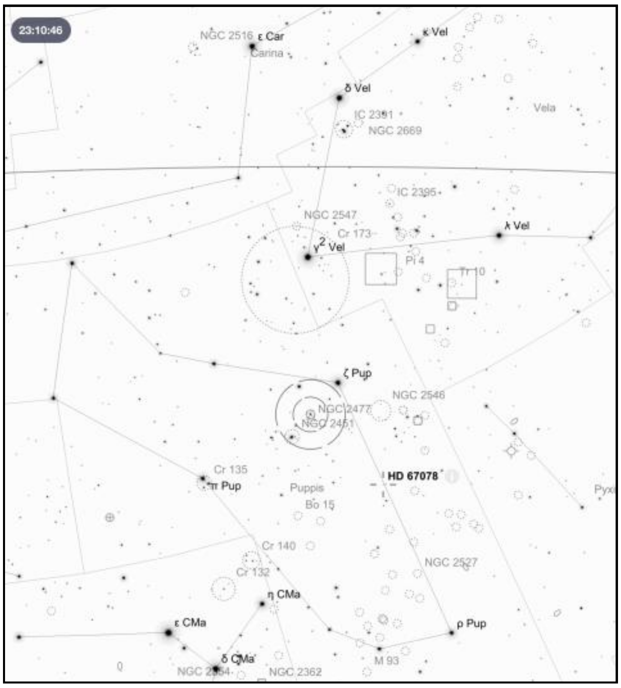

Figure 5: NGC 2477 OC in Puppis

I next wandered into the constellation of Puppis, which represents the stern (poop deck) of the mythical ship Argo Navis. Last Wiruna weekend I had borrowed a book from the Club's collection of library books, titled **Southern Gems by Stephen O'Meara**. Object 34 (page 134), was the open cluster **NGC 2477.** I decided to check it out and I was not disappointed. To find this open cluster, draw a line down the spine of Canis Major (through Sirius and δ-Canis Majoris), this points you towards the heart of Puppis (see map-15 of **The Cambridge Star Atlas)**. Once within Puppis you can draw an imaginary line between ζ– Puppis (Naos, the brightest star in Puppis) and π–Puppis. Along this imaginary line sits the bright but sparse open cluster **NGC 2451,** and only 0.25° away lies NGC 2477 (See Figure 5). With a 35mm eyepiece in, this large 25' wide cluster dominates the FOV with the field marked by the bright star b-Puppis to the bottom. This rich open cluster contains 100-200 stars arranged in waves of chains and arcs that give this cluster a charming appearance. Its uniform round shape and density make it more akin to the halo of a loose globular cluster sans core.

Continuing with open clusters, next I wandered onto **NGC 2362** in Canis Major. This tightly compacted open cluster is distinguished by its brightest member τ -Canis Majoris which dominates the centre of the cluster. To hunt this cluster down is relatively easy, given its 4.4 magnitude τ -Canis Majoris is easily within naked eye range from a dark sky site. The finderscope can pick up τ-Canis Majoris but not much else. In the eyepiece τ is surrounded by a dense collection of 20-30 bright stars which make the cluster a real beauty. A relatively high-power eyepiece is needed to reveal a tight-knit collection of bright stars in an irregular pattern akin to something like the Jewel Box cluster. Putting NGC 2362 on the edge of the FOV of the 35mm eyepiece, allowed me to place the edge of **NGC 2354** on the opposite side of the FOV. However, you will want to centre this cluster, to capture its entirety given its much larger, sparse nature. It is quite the contrast to have these two distinctly different clusters right next to each other.

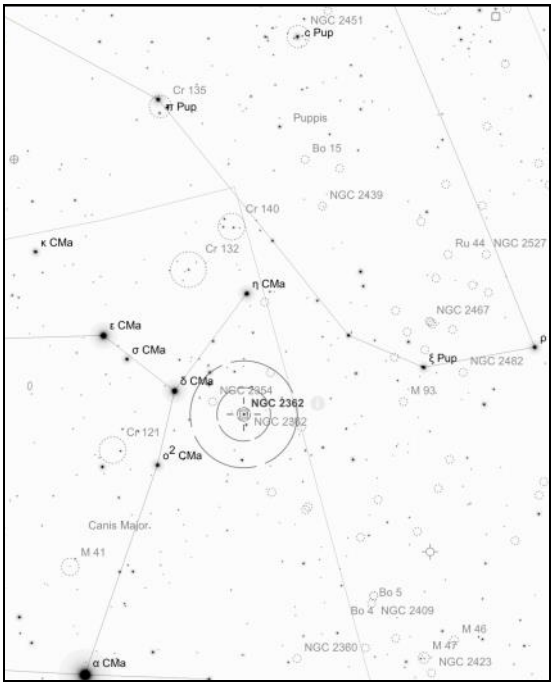

Figure 6: NGC 2362 OC in Canis Major

By 11pm the wind had picked up, and the clouds started rolling in fast from the south-east. A thick layer of dew had drenched everything exposed. The dew-heater on my finderscope managed to keep up, whilst my unheated Telrad had no such luck. After trying to play tag with the odd sucker-hole, I decided to call it quits and retreated to the tent around midnight.

Figure 7: Lord Sidious

Saturday morning, we awoke to a crisp and cloudless blue sky with a tribe of magpies in residence around our tent. One of the joys of Wiruna is the abundant bird life (my favourite is the Black Cockatoos which congregate on the main observing field). Saturday involved two treats. First, was the next instalment of the Equinox communal dinner series: a delicious Mexican themed meal organised by Greg and Leigh with the 20 or so members and guests enjoying a feast. Second, was the delivery of the Club's 22-inch dob (named "Lord Sidious") from telescope builder Peter Read. I eagerly watched as the telescope was unpacked and put together. The weather gods sensing my excitement decided it was time for a thunderstorm. So although there was going to be no observing that night, we enjoyed a delicious Mexican dinner and sat comfortably around the fire in the Kitchen watching the Matildas play in the Asia Cup Final. Unfortunately, we had to pack up and head home Sunday morning, but I hope next month will bring some better weather.

Until next month. Clear skies.

1. *https://academic.oup.com/mnrasl/article/368/1/L77/959430?login=false*

2. *https://academic.oup.com/mnras/article/442/4/3044/1356387*

3. According to *https://theskylive.com/galilean-moons*

Journey to the Centre of the Archive
3. The SAA Bulletin

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By Lesa Moore

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The original journal of the Sydney Amateur Astronomers (as the ASNSW was formerly known) was titled *The Bulletin*, and was described as "The Official Organ of the Sydney Amateur Astronomers". That description remains today in the archive and the National E-Deposit (NED) collection in the State and National Libraries. The first issue was simply two typed pages stapled together, produced in July 1955 – no cover, no logo, no illustrations. It was reproduced in August of that year and stapled with a cover. Soon, a cover design was developed and it was periodically redesigned. By 1963, issues comprised of some 19 pages.

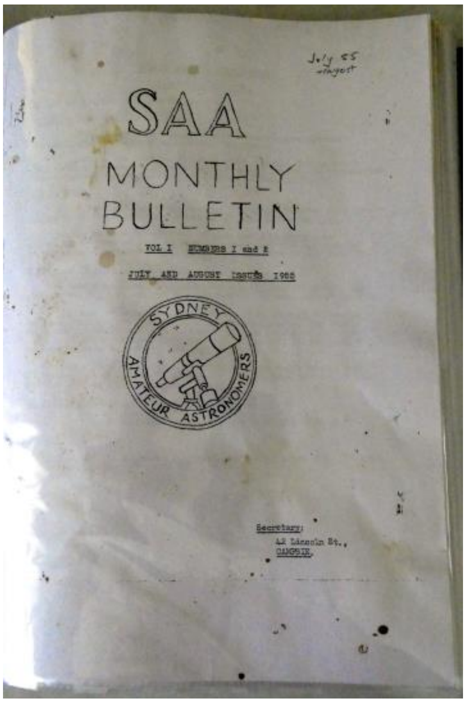


Figure 1: The SAA Bulletin Cover August 1955

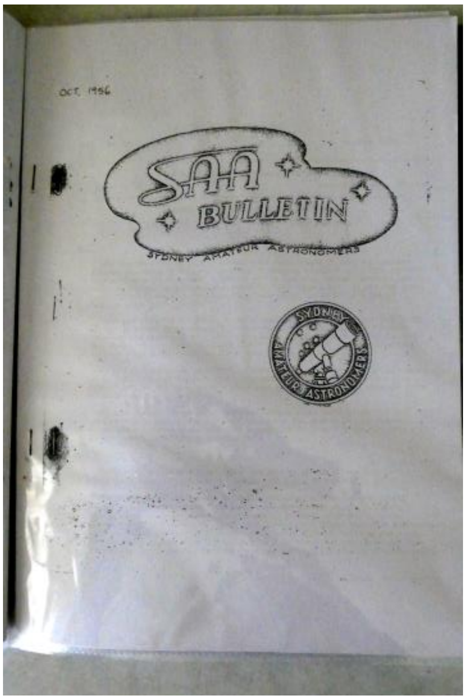


Figure 2: The SAA Bulletin Cover October 1956

Figure 3: The SAA Bulletin Cover July 1963

Many issues have been bound into hard-cover volumes, but the first issue in the bound collection is Vol 2 No 9, September 1956. Sadly, the first bound volume (1956-57-58) has been damaged by fire. There are also duplicate loose copies of many issues in the archive, safely stored in document boxes, now housed in plastic storage boxes at Wiruna.

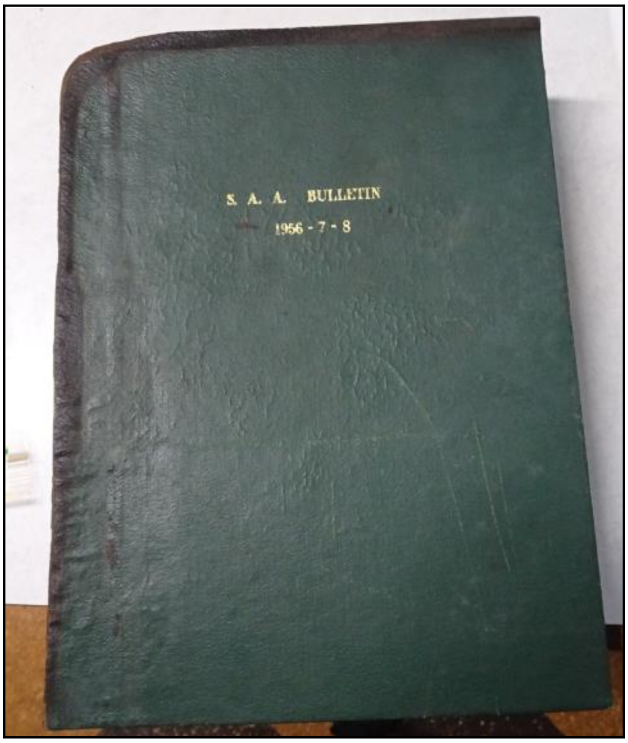
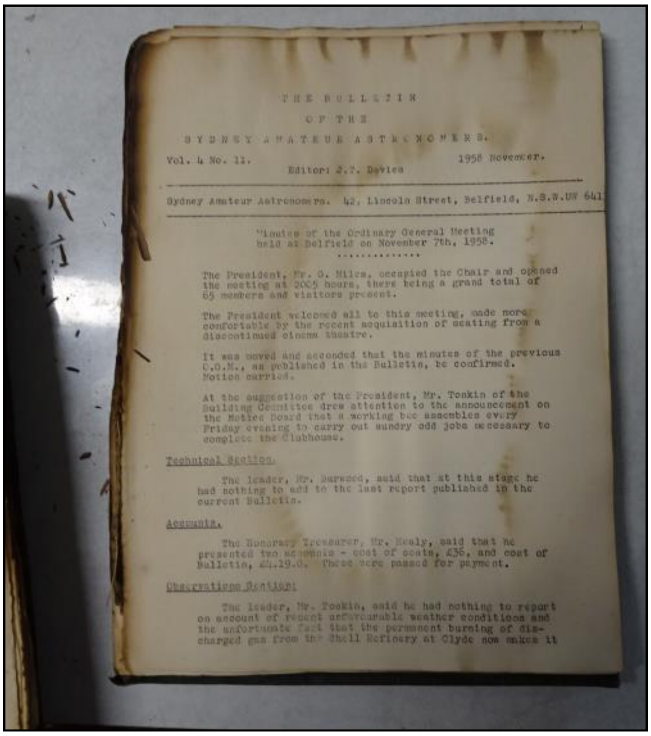


Figure 5: The fire damaged volume cover.



THE BULLETIN
OF THE
SYDNEY AMATEUR ASTRONOMERS.

Vol. 4 No. 11. Editor: J.T. Davies 1958 November.

Sydney Amateur Astronomers. 42, Lincoln Street, Belfield, N.S.W.UW 641

Minutes of the Ordinary General Meeting
held at Belfield on November 7th, 1958.

The President, Mr. G. Miles, occupied the Chair and opened the meeting at 2005 hours, there being a grand total of 65 members and visitors present.

The President welcomed all to this meeting, made more comfortable by the recent acquisition of seating from a discontinued cinema theatre.

It was moved and seconded that the minutes of the previous O.G.M., as published in the Bulletin, be confirmed. Motion carried.

At the suggestion of the President, Mr. Tonkin of the Building Committee drew attention to the announcement on the Notice Board that a working bee assembles every Friday evening to carry out sundry odd jobs necessary to complete the Clubhouse.

Technical Section.

The leader, Mr. Darwood, said that at this stage he had nothing to add to the last report published in the current Bulletin.

Accounts.

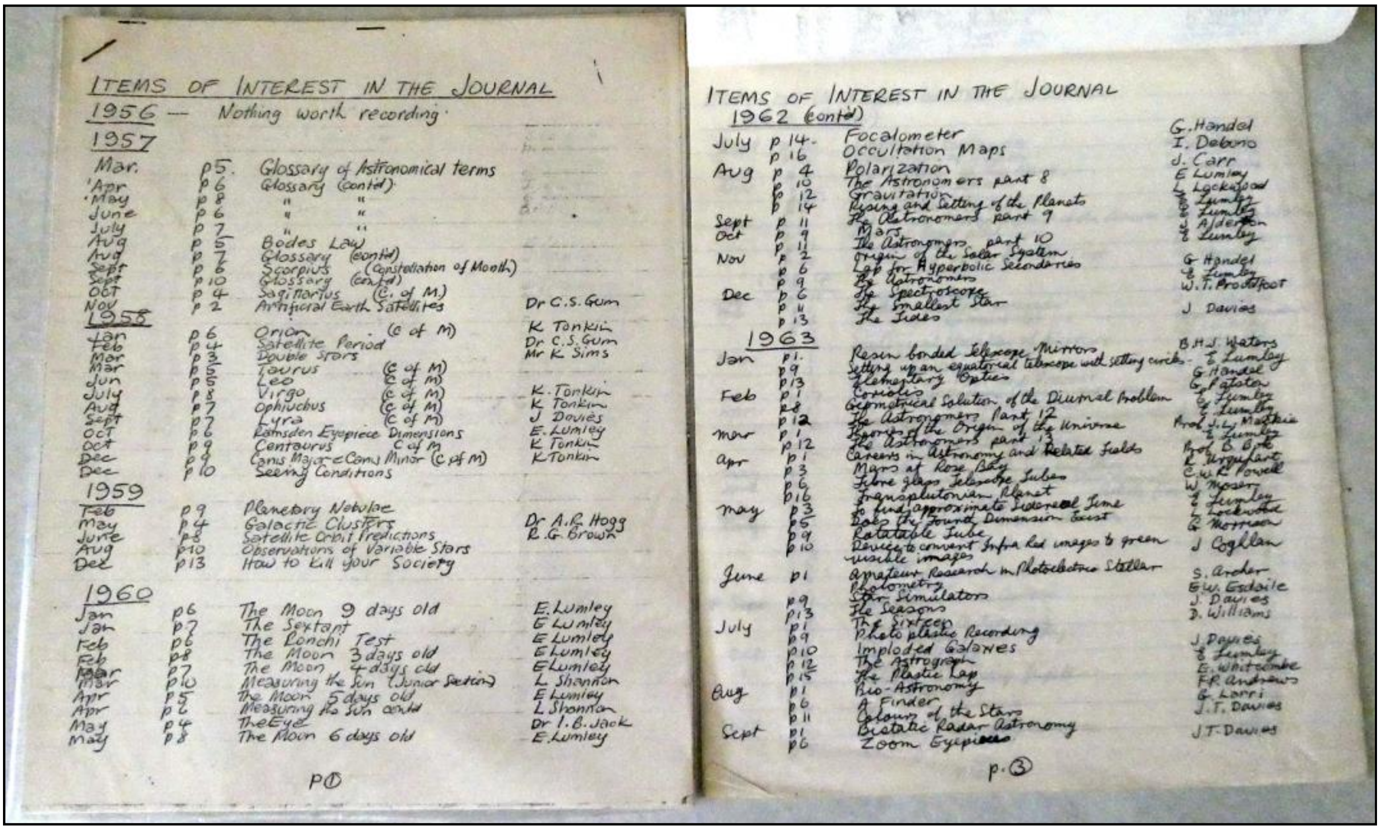
The Honorary Treasurer, Mr. Healy, said that he presented two accounts - cost of seats, £36, and cost of Bulletin, £4.19.0. These were passed for payment.

Observations Section:

The leader, Mr. Tonkin, said he had nothing to report on account of recent unfavourable weather conditions and the unfortunate fact that the permanent burning of discharged gas from the Shell Refinery at Clyde now makes it

Figure 6: The fire damaged volume sample page.

From time to time, one of the members would compile a list of "Items of Interest in the Journal", listing explicit information such as glossaries, constellations of the month, Coriolis, Mars at Rose Bay, Origin of the Solar System, and Geometric Solution of the Diurnal Problem. The contributions were certainly varied in those days.



ITEMS OF INTEREST IN THE JOURNAL

1956 — Nothing worth recording.

1957

Mar.	p5.	Glossary of Astronomical terms	
Apr	p 6	Glossary (contd)	
May	p 8	" "	
June	p 6	" "	
July	p 7	" "	
Aug	p 5	Bodes Law	
Aug	p 7	Glossary (contd)	
Sept	p 6	Scorpius (Constellation of Month)	
Sept	p 10	Glossary (contd)	
Oct	p 4	Sagittarius (C. of M.)	
Nov	p 2	Artificial Earth Satellites	Dr C.S. Gum

1958

Jan	p 6	Orion (C of M)	K Tonkin
Feb	p 4	Satellite Period	Dr C.S. Gum
Mar	p 3	Double Stars	Mr K Sims
Mar	p 5	Taurus (C of M)	
Jun	p 5	Leo (C of M)	
July	p 8	Virgo (C of M)	K. Tonkin
Aug	p 7	Ophiuchus (C of M)	K Tonkin
Sept	p 7	Lyra (C of M)	J Davies
Oct	p 6	Ramsden Eyepiece Dimensions	E. Lumley
Oct	p 9	Centaurus C of M	K Tonkin
Dec	p 9	Canis Major & Canis Minor (C of M)	K Tonkin
Dec	p 10	Seeing Conditions	

1959

Feb	p 9	Planetary Nebulae	
May	p 4	Galactic Clusters	Dr A.R. Hogg
June	p8	Satellite Orbit Predictions	R.G. Brown
Aug	p10	Observations of Variable Stars	
Dec	p13	How to Kill your Society	

1960

Jan	p6	The Moon 9 days old	E. Lumley
Jan	p7	The Sextant	E Lumley
Feb	p6	The Ronchi Test	E Lumley
Feb	p8	The Moon 3 days old	E Lumley
Mar	p7	The Moon 4 days old	E Lumley
Mar	p10	Measuring the Sun (Junior Section)	L Shannon
Apr	p5	The Moon 5 days old	E Lumley
Apr	p6	Measuring the Sun contd	L Shannon
May	p4	The Eye	Dr I.B. Jack
May	p8	The Moon 6 days old	E. Lumley

P①

ITEMS OF INTEREST IN THE JOURNAL

1962 (contd)

July	p 14.	Focalometer	G. Handel
	p 16	Occultation Maps	I. Debono
Aug	p 4	Polarization	J. Carr
	p 10	The Astronomers part 8	E Lumley
	p 12	Gravitation	L Lockwood
	p 14	Rising and Setting of the Planets	E Lumley
Sept	p 11	The Astronomers part 9	E Lumley
Oct	p 9	Mars	J Alderton
	p 11	The Astronomers part 10	E Lumley
Nov	p 2	Origin of the Solar System	G Handel
	p 6	Lap for Hyperbolic Secondaries	E Lumley
	p 9	The Astronomers	W.T. Proudfoot
Dec	p 6	The Spectroscope	
	p 11	The Smallest Star	J Davies
	p 13	The Tides	

1963

Jan	p1.	Resin bonded Telescope Mirrors	B.H.J. Waters
	p9	Setting up an equatorial telescope with setting circles	E Lumley
	p13	Elementary Optics	G Handel
Feb	p1	Coriolis	G Patston
	p8	Geometrical Solution of the Diurnal Problem	E Lumley
	p12	The Astronomers Part 12	E Lumley
Mar	p1	Theories of the Origin of the Universe	Prof J.L. Mathie
	p12	The Astronomers part 13	E Lumley
Apr	p1	Careers in Astronomy and Related Fields	Prof B Bok
	p3	Mars at Rose Bay	R Urquhart
	p6	Fibre glass Telescope Tubes	C.W.R. Powell
	p16	Transplutonian Planet	W. Moser
May	p3	To find approximate Sidereal Time	E Lumley
	p5	Does the Fourth Dimension Exist	L Lockwood
	p9	Rotatable Tube	G Morrison
	p10	Device to convert Infra Red images to green visible images	J Coghlan
June	p1	Amateur Research in Photoelectric Stellar Photometry	S. Archer
		Star Simulators	E.W. Esdaile
	p9	The Seasons	J. Davies
	p13	The Sixteen	D. Williams
July	p1	Photo plastic Recording	
	p9	Imploded Galaxies	J. Davies
	p10	The Astrograph	E Lumley
	p12	The Plastic Lap	E. Whitcombe
	p15	Bio-Astronomy	F.R. Andrews
Aug	p1	A Finder	G. Lorri
	p6	Colours of the Stars	J.T. Davies
	p11	Bistatic Radar Astronomy	
Sept	p1	Zoom Eyepieces	J.T. Davies
	p6		

p.③

Figure 6: Sample pages - Items of Interest in the Journal

The *Bulletins* have been digitised and are available in the website document repository in the *UNIVERSE Magazine* section.

Cooking at Wiruna

By Greg Priestley

The camp kitchen is one of those places that quietly transforms a stay at Wiruna.

The first thing that stands out is the range of equipment. Whilst there is no microwave, it does have eight gas burners, a barbecue, a pizza oven, and plenty of saucepans, frypans, utensils, kettles, and camp toasters for use on the gas burners. This provides a lot of flexibility for quickly pulling a meal together beyond camping staples like baked beans on toast, a can of soup or 2 minute noodles.

The pizza oven is the most obvious feature, and it is surprisingly versatile. Fresh pizzas are a standout choice, and Saturday night is pizza night for me! They are now commonly available from major supermarkets and places like Harris Farm, and they are generally much better than frozen pizzas. They can also be improved with a few extra toppings before cooking if needed.

Of course, pizza is not something you'd want to eat every night. But the pizza oven is also ideal for supermarket meals that can be heated quickly and served straight away. Chicken enchiladas, quesadillas, lasagne, cottage pies, butter chicken, moussaka, pies, casseroles, arancini, salmon wellington and garlic bread all fit that category nicely. Many of these now come in oven-safe plastic containers, which means they do not need to be transferred into a foil tray first, be sure to check the packaging.

There are, of course, limits to what a pizza oven can do. It runs hot, so you won't want to try a five-hour slow-roasted lamb shoulder. And it probably would not make you very popular if you tried to monopolise it for five hours while others want to just heat and eat.

The stovetops and barbecue open up even more options. Fresh pasta and sauces, such as those from Latina, are an easy and practical meal to prepare. Garlic prawns, kebabs, sausages, steak can be cooked without much effort. Costco's frozen fried rice, with its individual serving packets, cooks quickly in a frypan and makes a handy side. Rotisserie chicken is another very simple supermarket staple that can be served with salad, bread, rice, or vegetables.

Sides are just as easy to manage. Packet pasta sides are especially convenient, usually needing little more than boiling water and butter, which makes them ideal for the cooktops. Boiling rice or pasta is also an easy way to round out a meal, and both can be used to stretch a main dish further. Salad lunch kits can work as a side, while larger salad kits can be split over multiple meals, making them another low-effort way to add variety.

There is also a useful trick for frozen meals that would normally be thought of as microwave food. Many can be heated by placing them in a pot of boiling water, which gives a similar result and makes them workable in a camp kitchen without a microwave.

Taken together, all of this means the camp kitchen is capable of much more than simple survival food. It supports proper meals, easy sides, and a fair bit of variety, which makes dinner more enjoyable and far less repetitive. In the end, that is what makes the space valuable: it gives members the chance to eat well without turning every meal into a major production.

Comino's Comment

Crux Quiz

The Questions:

1. Place the following in order from youngest to oldest: the lunar crater Copernicus, the evolution of sexual reproduction, the North Star, a single galactic orbit.

2. In 1973, astronaut Owen Garriott took a tape recorder into space containing cleverly selected recordings of his wife that he used to prank flight controller Robert Crippen into thinking his wife had stowed away on the vessel. What was the mission?

3. Which planet has the most elliptical orbit?

4. In which year was the ASV established?

5. What is the difference between a moon and a satellite?

6. Of the twelve people who have walked on the moon, how many are still alive?

7. What stops a white dwarf from collapsing?

8. Appointed by Charles II in 1675 (coinciding with the establishment of the Royal Observatory in Greenwich), who was the first Astronomer Royal?

9. Does the post of Astronomer Royal still exist?

10. Which astronomer named constellations after an air pump, an eyepiece graticule, an easel and Table Mountain (in South Africa)?

With thanks to Markus Stone, Astronomical Society of Victoria

Questions, comments and corrections can be directed to ***astroquiz@markusstone.com*****.**

May Sky Events

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By Kendra Melson

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GMT Date	GMT Time	Sydney Date	Sydney Times		Event
1	17:23	2	3:23am	3:23	FULL MOON
4	2:20	4	12:20pm	12:20	**Antares** 0.5°N of Moon
4	22:30	5	8:30am	8:30	Moon at Apogee: 405843 km
5	8:00	5	6:00pm	18:00	**Eta-Aquarid Meteor Shower**
9	21:10	10	7:10am	7:10	LAST QUARTER MOON
11	4:36	11	2:36pm	14:36	Moon at Ascending Node
14	14:00	15	12:00am	0:00	**Mercury** at Superior Conjunction
15	4:00	15	2:00pm	14:00	**Venus** at Perihelion
16	20:01	17	6:01am	6:01	NEW MOON
17	13:48	17	11:48pm	23:48	Moon at Perigee: 358074 km
18	10:00	18	8:00pm	20:00	**Mercury** at Perihelion
19	1:50	19	11:50am	11:50	**Venus** 2.9°S of Moon
20	12:39	20	10:39pm	22:39	**Jupiter** 3.1°S of Moon
20	16:30	21	2:30am	2:30	**Pollux** 3.4°N of Moon
22	16:00	23	2:00am	2:00	**Uranus** in Conjunction with Sun
23	6:41	23	4:41pm	16:41	**Regulus** 0.0°N of Moon
23	11:11	23	9:11pm	21:11	FIRST QUARTER MOON
23	15:26	24	1:26am	1:26	Moon at Descending Node
27	14:09	28	12:09am	0:09	**Spica** 1.9°N of Moon
31	8:32	31	6:32pm	18:32	**Antares** 0.4°N of Moon
31	8:45	31	6:45pm	18:45	FULL MOON

Adapted from Astropixels.com - 2026 Sky Event Almanac page
http://astropixels.com/almanac/almanac21/almanac2026gmt.html

Meetings & Dates

ASNSW Events

Recordings from Ordinary Meetings link: ***https://www.asnsw.com/ordinary***

Astroimaging ZOOM Meetings: 6 May, 3 Jun, 1 Jul, 29 Jul, 26 Aug, 30 Sep, 23 Oct, 25 Nov, 23 Dec

Ordinary Meetings—Epping: 8 May, 31 Jul, 25 Sep, 23 Oct, 27 Nov

Committee Meetings: 27 May, 27 Jun, 5 Aug, 2 Sep, 23 Sep, 21 Oct, 18 Nov

Wiruna Weekends: 15 May, 12 Jun, 10 Jul, 14 Aug, 11 Sep, 6 Nov, 11 Dec

For Wiruna bookings and enquiries contact Greg Priestley on m. 0414 300 885 or e. ***vp_wiruna@asnsw.com***

Mudgee Caravan Hire has opened on the corner of Sofala Road and Castlereagh Highway, just 8 kms from Wiruna. Greg Priestley (Wiruna Vice President) has spoken to the owner and he offers small, medium and large caravans at $50 / $75 / $100 per night respectively. He can tow a caravan to and from Wiruna on request giving you the convenience of staying onsite in a private caravan, without needing to own a caravan or managing the logistics.

If this appeals to you, please contact Warren Cramond m: 0417029047 e: ***hot_spud2006@yahoo.com.au*** for more information. Note this is an independent business and the ASNSW will not be involved in your commercial arrangement with this business. The normal Wiruna camping fees would remain payable to the ASNSW. As this is a new business and no one has utilised them so far, we're keen for any feedback from anyone who utilises this service.

MACQUARIE University SYDNEY·AUSTRALIA

Dear Members,

You are invited to a FREE observing night at Macquarie University Observatory on **Thursday 11 June**, commencing at 6:30pm.

Bookings are essential and numbers are limited. ASNSW members may bring family members, but please book a ticket for each family member. There is no age limit.

Log in to the website and book online here: ***View Event Details***

The event is weather-dependent and registered participants will be notified if cancelled.

Hope to see you there,

Astronomical Society of NSW

Macquarie University Astronomy Open Night: 19 Sept *Please note*: ASNSW members interested in bringing telescopes or volunteering in the exhibitor's hall please contact ***secretary@asnsw.com*** .

ASNSW Member News

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By Lesa Moore

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Since last issue, two members have joined the ASNSW. The society welcomes: Craige Watson and Ian Hynes.

These members celebrate the following significant anniversaries (5, 10, 15, 20+ yrs):

David	Perkins	40
Julian	Oey	38
Ian	Ogilvie	38
Lachlan	MacDonald	35
David	Kind	32
Roger	Heap	29
John	Briggs	27
David	Bevan	24
Rita	Holland	21
Ben	Young	5

Congratulations to these members!

Memberships

Current membership stands at 373 financial members including 357 paid-up members, 11 life and 5 honorary members. The grace period has ended, so any unpaid members who wish to continue their membership may expect to pay a $20 joining fee to rejoin.

MACQUARIE University SYDNEY·AUSTRALIA

Macquarie University Observatory – Free Observing Nights for ASNSW Members

Take advantage of these great opportunities to do some observing without driving all the way to Wiruna. As these nights are only available to our members (and their families), you must log in to the website to book. Log in and check the website "Events Schedule and Bookings" page for the next available evening. Bookings essential as numbers are limited to 40 people per session.

Recordings from Ordinary Meetings

Don't forget, you can catch up on missed meetings or refresh your understanding by viewing the recordings from our Ordinary Meetings. The archive is now up to date here: https://www.asnsw.com/omrecordings (member login required).