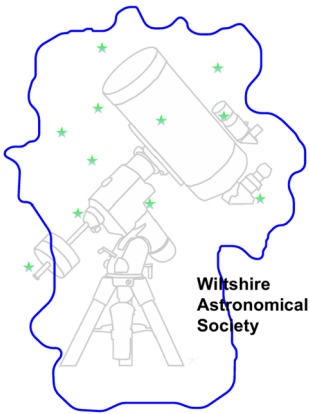


WAS News January 2025

Newsletter for the Wiltshire Astronomical Society



Wiltshire AS Contacts

Chairperson: Simon Barnes

Newsletter/Publicity : Simon Barnes

Treasurer and Membership: Sam Franklin

Speaker secretary: Position Vacant

Observing Sessions coordinators: Chris Brooks, Jon Gale,

Web coordinator: Sam Franklin

Contact the Society here:

Email: contact@wasnet.org.uk

Website url: <https://wasnet.org.uk/>

Follow our Facebook Page <https://www.facebook.com/Wiltshire-Astronomical-Society-154077261327030/>

Join the members only Facebook Group: <https://www.facebook.com/groups/wiltshire.astro.society/>

Committee Page:

<https://wasnet.org.uk/committee/>

Upcoming Observing Session

Prime Session Friday 24th January
Back Up Friday 31st January

Start time 19:00 Hrs.

Please look out for a confirmation email from Chris that the session is either ON or OFF (Also shown on the Members Facebook page)

Location:

Red Lion Pub carpark SN15 2LQ
W3W - airbag.shudders.losing

Sign up to Observing Mailing List: <https://wasnet.org.uk/observing/>

Report from the Chair

A Happy New Year to All!

I open this first newsletter of 2025 with an important message from the committee:

The Wiltshire AS committee is keen to highlight and improve the benefits of joining the society in order to keep membership levels at sustainable numbers to allow the society to continue and grow. Therefore, we will be making the following changes in the next few weeks in order to make things fairer to existing paying members:

Zoom Meeting Access: We will no longer issue the zoom passcode publicly for our monthly members meetings (when held online). Instead, we will send out the specific zoom meeting passcode in an email to current society members for season 2024/2025 and "Life" (Honorary) members. Non-members may still join monthly meetings in order to "try out" the society, but we will limit this to a maximum of two meetings before we ask you to kindly take out membership.

Please feel free to email contact@wasnet.org.uk if you are a non-member and would like access to the passcode to try out our members' meetings.

Members-only Facebook Group: Likewise, an additional benefit of becoming a member is access to our member community. Currently we use a Private Facebook Group. From the **31st January 2025**, only Wiltshire AS members for the current season 2024/2025 will have access to this Facebook group and any non-members of the society will be removed.

To continue access to these, please consider joining the society by signing up online <https://wasnet.org.uk/membership/>. The current season is £16 single adult, £25 family membership and expires 31st August 2025.

These changes will not affect the public Facebook page that anyone can follow: <https://www.facebook.com/profile.php?id=1000800569572630>

If you have any questions about these changes, please reach out to us at contact@wasnet.org.uk.

I hope you all understand and appreciate the introduction of this change of policy. We want our members to feel they get value from their annual subscription.

Thank you to the three members for their viewing logs/submissions received. This interaction is the core of sharing knowledge within society.

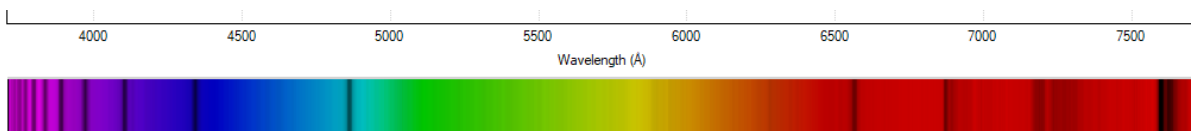
Upcoming Speakers:

7th January 2025	Spectroscopy.	Hugh Allen. (Zoom)
4th February 2025	Astrophotography.	Matthew Terrell. (Zoom)
4th March 2025	Was Einstein 100% Right?	Professor Malcom MacCallum (Zoom)

****Interested in Joining the Society? See <https://membermojo.co.uk/was/>

Spectroscopy: Cracking starlight's hidden code
by Hugh Allen

Analysis of starlight by spectroscopy is a pillar of professional astronomy. But take a look inside popular astronomy magazines and you will not find much mention of amateur spectroscopy. The language of spectroscopy can seem obscure and for many the technique is poorly understood. The light from stars is however like the cover of a book. Carefully spreading the starlight into a spectrum is like opening the book's pages. A new world is revealed where there is beauty, science and detective work in equal measure, and it is all readily accessible to the amateur astronomer. The talk will demystify amateur spectroscopy and show how it offers a unique way to observe the Universe.



The atomic structure of hydrogen is revealed in the light from the bright, A-class star Theta Aurigae 8" Meade LX90 telescope, Atik 314L+ mono camera, Alpy 600 spectroscope with a 23 μ slit, BASS software

Speaker biography:

I am an industrial chemist with a career in the printing ink industry, having studied Natural Sciences at Downing College, Cambridge. My interest in astronomy became a passion (some would say obsession) when my wife bought me a telescope in 2008. I started with visual observing and then astrophotography. Since 2014 spectroscopy has become my main focus, the passion for which I share through talks and courses. I am Chairman of the Wells & Mendip Astronomers and a member of the Herschel Society in Bath.



Moon Phases for January– with rise and set times.

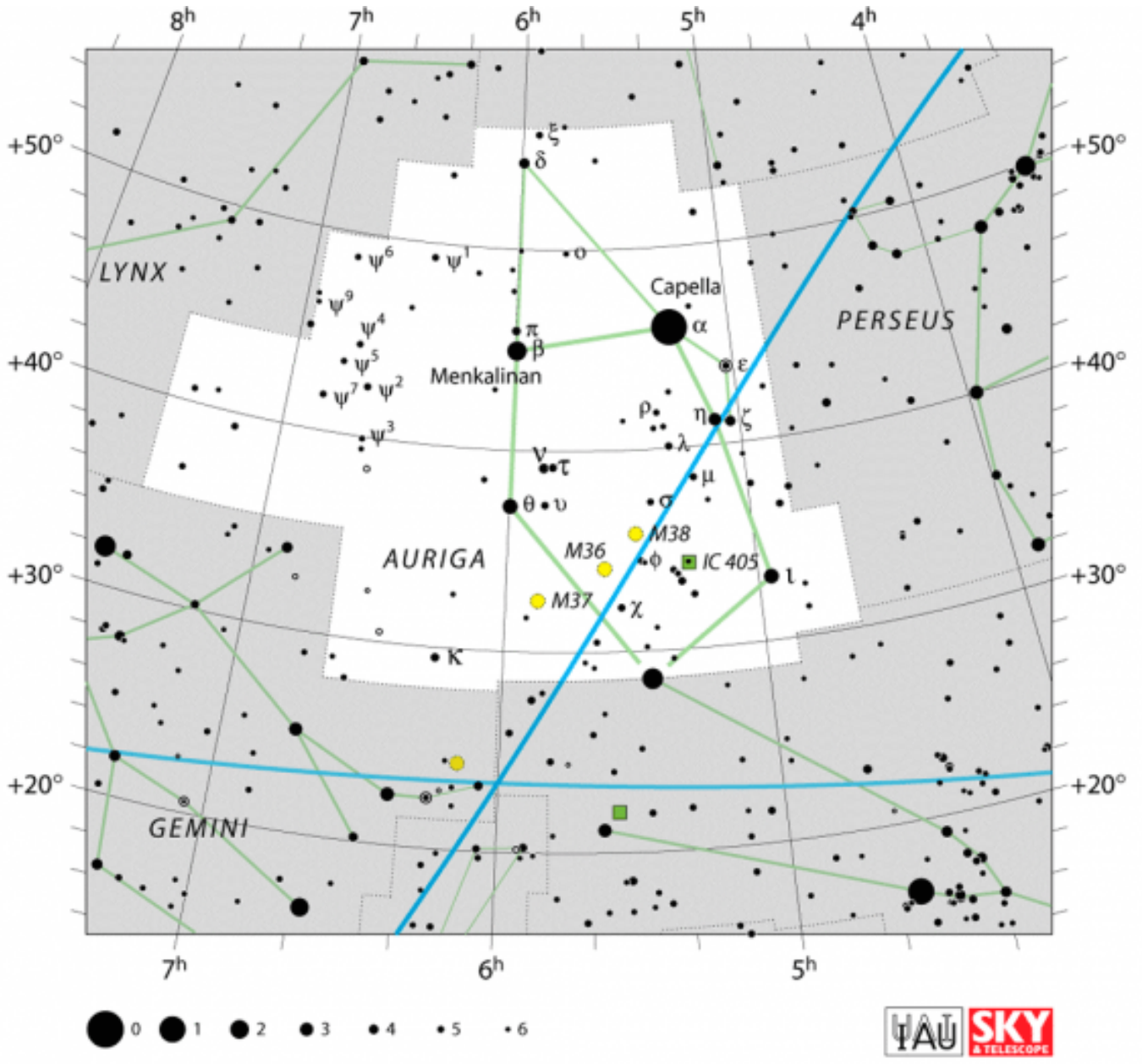
January 2025						
Sun	Mon	Tues	Wed	Thur	Fri	Sat
29 Sun: 08:16 16:09 Moon: 07:34 14:11	30  Sun: 08:16 16:10 Moon: 08:35 15:07	31  Sun: 08:16 16:11 Moon: 09:23 16:18	1  Sun: 08:16 16:12 Moon: 09:57 17:41	2  Sun: 08:15 16:13 Moon: 10:21 19:07	3  Sun: 08:15 16:15 Moon: 10:38 20:33	4  Sun: 08:15 16:16 Moon: 10:53 21:58
5  Sun: 08:15 16:17 Moon: 11:05 23:21	6  Sun: 08:14 16:18 Moon: 11:17 —	7  Sun: 08:14 16:19 Moon: 11:30 00:46	8  Sun: 08:13 16:21 Moon: 11:46 02:12	9  Sun: 08:13 16:22 Moon: 12:06 03:41	10  Sun: 08:12 16:24 Moon: 12:35 05:10	11  Sun: 08:12 16:25 Moon: 13:18 06:32
12  Sun: 08:11 16:26 Moon: 14:18 07:41	13  Sun: 08:10 16:28 Moon: 15:33 08:30	14  Sun: 08:10 16:29 Moon: 16:54 09:04	15  Sun: 08:09 16:31 Moon: 18:16 09:28	16  Sun: 08:08 16:33 Moon: 19:35 09:44	17  Sun: 08:07 16:34 Moon: 20:49 09:56	18  Sun: 08:06 16:36 Moon: 22:01 10:07
19  Sun: 08:05 16:38 Moon: 23:11 10:16	20  Sun: 08:04 16:39 Moon: ----- 10:26	21  Sun: 08:03 16:41 Moon: 00:21 10:37	22  Sun: 08:02 16:43 Moon: 01:33 10:49	23  Sun: 08:01 16:44 Moon: 02:47 11:06	24  Sun: 07:59 16:46 Moon: 04:02 11:29	25  Sun: 07:58 16:48 Moon: 05:16 12:02
26  Sun: 07:57 16:50 Moon: 06:22 12:50	27  Sun: 07:56 16:51 Moon: 07:16 13:56	28  Sun: 07:54 16:53 Moon: 07:56 15:15	29  Sun: 07:53 16:55 Moon: 08:23 16:42	30  Sun: 07:51 16:57 Moon: 08:43 18:12	31  Sun: 07:50 16:59 Moon: 08:59 19:40	1  Sun: 07:48 17:00 Moon: 09:12 21:06
2  Sun: 07:47 17:02 Moon: 09:25 22:32	3  Sun: 07:45 17:04 Moon: 09:37 24:00	4  Sun: 07:44 17:06 Moon: 09:52 -----	5  Sun: 07:42 17:08 Moon: 10:10 01:29	6  Sun: 07:40 17:10 Moon: 10:36 02:57	7  Sun: 07:39 17:11 Moon: 11:13 04:21	8  Sun: 07:37 17:13 Moon: 12:06 05:33

January Meteor Showers

The Quadrantid Meteor shower displays between 26 December and 12 January, it maximized on the 4th January which has just passed. With the moon interfering as well as the current weather it will be more difficult to spot any meteors as the shower come to a close.

Constellation of the Month

Auriga



Auriga

Auriga is the 21st biggest constellation in the night sky, occupying 657 square degrees. It can be seen at latitudes between +90° and -40°. The neighbouring constellations are Camelopardalis, Gemini, Lynx, Perseus, and Taurus. Auriga contains three Messier objects – M36 (NGC 1960), M37 (NGC 2099), and M38 (NGC 1912) – and has eight stars with known planets. The brightest star in the constellation is Capella, Alpha Aurigae, which is also the sixth brightest star in the sky. There are two meteor showers associated with Auriga: the Alpha Aurigids and the Delta Aurigids.

Messier 36 is a bright open cluster located in the southern region of Auriga. It was first discovered by the Italian astronomer Giovanni Batista Hodierna in the 17th century, then rediscovered by Le Gentil about a century later, and finally included by Charles Messier in his catalogue in 1764.

M36 contains at least 60 stars and has an apparent magnitude of 6.3. The brightest members of the cluster are B2 type stars with an apparent magnitude of 9. M36 is approximately 4,100 light years distant and about 14 light years in diameter. The estimated age of M36 is 25 million years.

Messier 37 is another bright open star cluster in Auriga. It was discovered along with M36 and M38 by Giovanni Hodierna. The cluster is between 3,600 and 4,700 light years from Earth and contains some 500 stars, about 150 of which are brighter than magnitude 12.5.

M37 contains about a dozen red giants and its estimated age is 300 million years. The cluster has an apparent magnitude of 5.6 and is 24 light years in diameter. It is the brightest of the three clusters discovered by Hodierna.

Messier 38 can be observed only 2.5 degrees northwest of M36. It is an open cluster, approximately 4,200 light years distant. Like M36 and M37, it was originally discovered by the Italian astronomer Giovanni Batista Hodierna in the 17th century and then independently discovered again by the French astronomer Le Gentil in 1749. Charles Messier later included the cluster, along with M36 and M37, in his catalogue in 1764.

The Flaming Star Nebula, also known by the designations IC 405, SH 2-229, and Caldwell 31, can be seen near the open cluster M38, the star Iota Aurigae, or the emission nebula IC 410. It is an emission/reflection nebula that surrounds the star AE Aurigae. It lies 1,500 light years from Earth and has an apparent magnitude of 6.0.

The Tadpole Nebula (IC 410) is an emission nebula, one that slightly resembles the Rosette Nebula in the constellation Monoceros. The nebula surrounds the open cluster NGC 1893. It is approximately 2,200 light years distant and has an apparent magnitude of 13.



VIXEN 20cm(7.9") VISAC with a conversion lens (f=1278mm, F6.4) with Baader Planetarium Moon& Skyglow filter. Auto-guided with TAKAHASHI EM-200 Equatorial. Each 2min.× 6shots. Canon 600D modified. (by Naoyuki Kurita, Japan)

(Please also see the images of M36, 37 and 38 taken by Peter Chappell later in this Newsletter taken with his Seestar S50. A nice comparison of an expensive set up compared to a Smart Telescope.

Planets for January 2025

Earth—reaches perihelion on 4th January.

Mercury

Venus comes to greatest elongation on 10th January, visible in the evening after sunset. It shines brightly at -4.4 magnitude. It can be found in the South-South West sky.

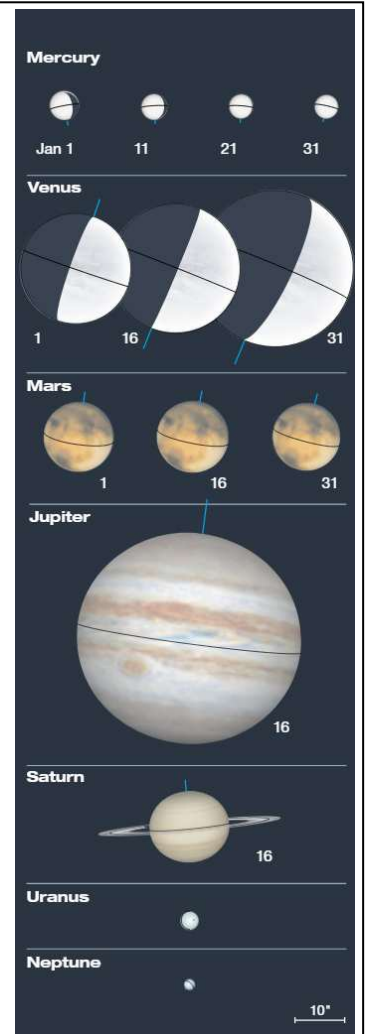
Mars reaches perigee on 12 January, coming with approx. 0.64 AU of Earth, continuing moving toward opposition on 16 January (A good time to view).

Jupiter reaches opposition is still well placed for observation this month at magnitude $\sim+2.7$. The planet will be in Taurus, on 31 January it will be 5.2° N of Aldebaran. As always look out for Galilean moons and their movement day to day.

Saturn is still in the sky, visible until about 20:00 UT. The rings are slowly closing heading toward the ring plane crossing on 23 March. This is when the rings appear to disappear as they are edge on to our line of sight, Its magnitude is around $+0.9$ lying in the constellation of Aquarius. On 20 January, Saturn and Venus will be 2.2° apart, Venus will be the brighter of the two at magnitude -4.5

Uranus will cease its westward retrograde movement in Taurus.

Neptune will lie in Pisces setting earlier as the month progresses.



Other key moments during January:

10th January— Pleiades 0.3° S of the moon.

14th January— Mars 0.2° S of the moon.

16th January— Regulus 2.2° S of the moon.

21th January— Spica 0.1° N of the moon.

23rd January—Mars 2.3° S of Pollux

24th January—Antares 0.3° N of the moon.

For further information about the current night sky, you can go to various web pages e.g., Sky and Telescope

<https://skyandtelescope.org/observing>

or the British Astronomical Society

<https://britastro.org/news/sky-notes>

International Space Station Visible Passes 14 January 2025 – 31 January 2025

Date	Brightness (mag)	Start Time	Highest point			End			Pass type		
			Alt.	Az.	Time	Alt.	Az.	Time		Alt.	Az.
14-Jan	-1.9	18:43:14	10°	SSW	18:45:03	21°	S	18:45:03	21°	S	visible
15-Jan	-1.8	17:51:46	10°	S	17:53:56	17°	SE	17:55:04	14°	ESE	visible
15-Jan	-1.2	19:26:41	10°	WSW	19:27:44	19°	SW	19:27:44	19°	SW	visible
16-Jan	-3.1	18:34:34	10°	SW	18:37:39	41°	SSE	18:37:39	41°	SSE	visible
17-Jan	-2.5	17:42:34	10°	SSW	17:45:29	28°	SSE	17:47:30	16°	E	visible
17-Jan	-1.8	19:18:22	10°	WSW	19:20:09	29°	WSW	19:20:09	29°	WSW	visible
18-Jan	-3.7	18:26:01	10°	WSW	18:29:18	65°	SSE	18:29:55	51°	ESE	visible
18-Jan	-0.2	20:02:28	10°	W	20:02:33	11°	W	20:02:33	11°	W	visible
19-Jan	-3.2	17:33:43	10°	SW	17:36:55	47°	SSE	17:39:37	14°	E	visible
19-Jan	-2.5	19:09:59	10°	W	19:12:15	40°	W	19:12:15	40°	W	visible
20-Jan	-3.9	18:17:29	10°	WSW	18:20:48	87°	S	18:21:54	40°	E	visible
20-Jan	-0.5	19:53:59	10°	W	19:54:32	14°	W	19:54:32	14°	W	visible
21-Jan	-3.7	17:24:58	10°	WSW	17:28:17	71°	SSE	17:31:30	11°	E	visible
21-Jan	-3.2	19:01:26	10°	W	19:04:08	56°	WNW	19:04:08	56°	WNW	visible
22-Jan	-3.9	18:08:50	10°	W	18:12:10	83°	N	18:13:43	29°	E	visible
22-Jan	-0.9	19:45:20	10°	W	19:46:21	18°	W	19:46:21	18°	W	visible
23-Jan	-3.8	18:52:42	10°	W	18:55:54	80°	SW	18:55:54	80°	SW	visible
24-Jan	-3.9	18:00:01	10°	W	18:03:21	86°	N	18:05:28	21°	E	visible
24-Jan	-1.4	19:36:32	10°	W	19:38:06	24°	W	19:38:06	24°	W	visible
25-Jan	-3.5	18:43:46	10°	W	18:47:03	60°	SSW	18:47:41	48°	SSE	visible
26-Jan	-3.7	17:51:00	10°	W	17:54:20	78°	SSW	17:57:18	12°	ESE	visible
26-Jan	-1.7	19:27:40	10°	W	19:29:57	24°	SW	19:29:57	24°	SW	visible
27-Jan	-2.5	18:34:43	10°	W	18:37:50	38°	SSW	18:39:39	20°	SSE	visible
28-Jan	-3.1	17:41:49	10°	W	17:45:05	54°	SSW	17:48:20	10°	ESE	visible
28-Jan	-1.1	19:19:02	10°	WSW	19:21:00	15°	SW	19:22:07	13°	SSW	visible
29-Jan	-1.5	18:25:39	10°	W	18:28:20	23°	SW	18:31:01	10°	SSE	visible
30-Jan	-2.1	17:32:31	10°	W	17:35:34	34°	SSW	17:38:36	10°	SE	visible
31-Jan	-0.7	18:16:56	10°	WSW	18:18:34	13°	SW	18:20:12	10°	SSW	visible

The above data is based on location data for Seend, the Heavens Above web pages. If you need accurate data for your location please go to:

<https://www.heavens-above.com/>



Submissions and Viewing Logs

Viewing Log for 25th of October

Having a free evening and the skies were clear, I decided to go out and do a viewing session at Nebo farm, I asked if anyone else from Swindon Stargazers would like to join me but no one took up the offer.

I had my Meade LX90 8 inch GOTO telescope set up and ready by 19:39, as usual I would be using a Pentax XW 14 mm eye piece with a temperature of 10 °C, no wind and some cloud to the south east, viewing should be good. Guide stars were Vega and Altair. I had brought along my camera to take pictures of the comet A3 but the camera was dead (turned out the battery was flat! Note to self, check equipment before you come out, helps in the long run if not been used for a while), so all I could do this evening was visual.

I decided to do any summer objects before they got lost in the south western skies and probably for the year. I would be using my Sky & Telescope Sky Atlas for references, first object was Messier (M) 17, the Omega nebula, and this was a large grey blob to look at. This object is a Bright nebula but being at - 16 ° in Declination did not help. Next was the only Star Cloud on Messier's list, namely M 24 which is also in Sagittarius, I could make out many stars but not knowing where it started or stopped? The first open cluster (OC) this evening was M 16, in Serpens Cauda, the Eagle nebula, this cluster is very loose and sparse to look at. No, I could not see the Pillars if you were wondering, my eyes are not that good! Back into Sagittarius and another OC was M 18, this was dim and loose to look at, did not help being only 11 ° above the horizon. A bit higher in the sky is M 25, another OC which was loose but had some bright stars within the cluster. First globular cluster (GC) was M 75, this is also in Sagittarius but well away from the 'Teapot' on the border with Capricornus, so might get overlooked by anyone looking for objects within this constellation, this GC was dim to look at but had a bright core. On to another GC and M 22, this was a faint fuzzy blob (FFB) to look at, being only 5 ° above the horizon it was really too late to look at this object? Going higher in the sky and M 26 in Scutum, this OC was small and only had a few stars in the cluster. Staying within this constellation I had a look at M 11, the Wild Duck cluster, this OC was tight and had some bright stars, it looked similar to a loose GC? By now Jupiter was just rising above the eastern horizon but I would not look at the king of the planets for a while. So with Jupiter rising I turned my attention to Saturn, this ringed planet looked very good in the eye piece, I could make out two moons, Titan was to the west and Rhea (which I confirmed later) to the east. For a change I managed to find Neptune with the first star I manually slewed to in the finderscope, Neptune is a planet I often do not find, even using GOTO equipment for some reason? There was some hint of blue to this planet. Now on to the constellation of Aquarius and M 72, this GC was a faint blob to look at, could not make out any detail with this object? Not far away is M 73, not sure whether it should be called an OC or an asterism as there are only 3 or 4 faint stars to this object, checking Google, it is an asterism but my hand controller on the Meade called it an OC. Back to Saturn but the Saturn nebula instead and NGC 7009 or Caldwell (C) 55, this planetary nebula is an out of focus star to me. On to the Helix nebula, NGC 7293 or C 63, unfortunately I could not see it? Back to the Messier objects and M 30, the last object to view if you are doing the marathon around March/April time, this GC is compact but has a bright core. Could not make any details out on Uranus, so by now Jupiter had cleared the trees and was by far the brightest object in the whole visible sky. I could make out 3 moon to the east of Jupiter, namely Io followed by Ganymede and finally Calisto. Europa was not to be seen.

By now it was 21:38 and the wind had picked up a bit and there was cloud to the north of me, so I decided to call it a night.

Clear skies.

Peter Chappell

Viewing Log for 11th of November

As I am still off of work with a back/leg problems and the sky was clear, I sent out a notice that I intended to do a viewing session at Nebo farm if anyone was interested in coming along. I got replies from Damian and Tony that they would come along, several other people said they could not make it that evening. Normally I would not go out viewing once the Moon was past half phase (it actually was 77 % lit at this time) as the light from it washes a large part of the sky out but as I had not seen a clear sky or the Sun in over 10 days, I had to accept the conditions on offer!

When I arrived at the farm both Tony and Damian were there and set up, Damian was taking pictures with his Seestar S50 (which I would do later on once I have set up my telescope) and Tony was doing some astro photography with his 81 mm William Optics telescope via a laptop. As usual, I was using my Meade LX90 telescope with a Pentax 14 mm

eye piece and ready to go by 19:28, there was no wind and the sky was clear of cloud. The guide stars were Vega and Capella.

After setting up the Seestar S50 myself and letting it take pictures of various Messier (M) objects (some will hopefully be in the magazine?), I started off with the four largest planets in the Solar System, first was Saturn in the south eastern sky not far from the blazing Moon. Considering the moon was close, the views of this ring world were pretty good, I could only make out Titan to the west of Saturn. Next was Neptune about four Moon diameters from this planet, I found it quite easy this time but no detail of the planet was to be seen. Next I went to Uranus, the planet was seen in the finderscope, so I had to manually slew the telescope to the object. There was a hint of colour on the surface but nothing else to report. Shining very brightly in the eastern sky at over - 2.5 magnitude (Mag) was Jupiter, this planet no one could miss, apart from the Moon nothing else was in the same league for brightness? As usual I could make out the two main weather belts (the Great Red Spot was on the other side of the planet) with Europa and Ganymede to the west of Jupiter and Calisto to the east, Io was behind the planet when I had a look. For a change I thought I would have a look at the Deep Sky suggestions around Andromeda in November's edition of Astronomy Now. Starting with NGC 7662, Caldwell (C) 22 or the Blue Snowball nebula, this planetary nebula was nearly over head (82 °), I could not make out any colour at all, Moon was probably the cause of this? Best I could call it was a faint blob. Next target was M 31, the Andromeda galaxy, this spiral galaxy has a bright core, even with the Moon around! Off to the Ghost of Mirach (NGC 404), a lenticular galaxy very close to the star Mirach (Beta And). Unfortunately you need to remove the star from the field of view (as it is too bright) to be able to find the Ghost. The star is Mag 2 and the Ghost comes in at Mag 10.1, end result I could not locate it? On to another C object and NGC 752 or C 28, this open cluster is large and sprawling to view and had a couple of bright stars within the group, the magazine claims it is visible to the eye coming in at Mag 5.7, not to me! While I was talking to Damian about something we both noticed a meteor trail going thru Capella, must have been Mag +2 or better? Back to a star called Almach, this is a beautiful double star with Mag's of + 2.1 & 4.8 and could give Albireo a run for its money as best double star in the sky? To me they looked orange and blue, they are separated by 9.6 arc seconds. According to AN, they are golden-yellow and greenish-blue stars? My final object for the evening was NGC 891 or C 23, an edge on spiral galaxy, unfortunately I could not locate it, and coming in at Mag 10 was probably beyond my eyes!

By now it was 21:40 and a cloud bank was rolling in, so we decided to call it a night, temperature had dropped to 4 °C and we had some wind for company.

Clear skies.

Peter Chappell



Viewing Log for 27th of November

It had been a couple of weeks since I have been out viewing, as the sky was clear I decided I would not play my weekly game of Chess at the Swindon Chess club and go out to Nebo farm instead. As usual I put a notice out to members of Swindon Stargazers and this time Tony and his wife Roya would join me, a few other could not make the night, unfortunately. Turns out Tony had been here since 17:30 as he wanted to set up an astrophotography rig which he had been having trouble with in the past.

I had my Meade LX90 set up and ready by 19:18, tonight for a change I would be using my Televue Delos 14 mm eye piece instead of the 14 mm Pentax XW. With a temperature of 2 °C and no wind, conditions should be okay for the evening. The guild stars were Vega and Capella.

I would be using my Seestar S50 to do some deep sky objects as well, trouble was the battery was down to around 25%, so I knew it would not last long before 'auto shut down' once it gets to around 10 %, turned out it closed down at 12 % this evening! The cold probably did not help the S50 this evening?

As Tony was busy playing with his rig, I said I would give Roya a tour of the sky starting with the planets, she was very keen in seeing Jupiter but I would come to that planet later on as it was still low in the eastern sky. First Planet was Saturn sitting high in the south western sky, we could clearly see the nearly closed ring system with Titan to the west of Saturn and Rhea to the east. I do not think I have seen any other moon in this system even though there is 146 known moons! Off to Neptune not far away, for a change I managed to bag this planet (quite often I cannot locate this planet even using GOTO kit!) but could not make any real colour out of it. At least we did see some blue/green on the disc of Uranus. Both of these planets I had to manually slew to a light point in the finderscope and hope it was the planet I was trying to look for? Finally we went off to Jupiter, we could make out the two main weather belts with Ganymede to the west of Jupiter and Io followed by Europa and finally Calisto to the east. With the planets out of the way we looked at Messier (M) 45, the Pleiades or Seven Sisters, the stars seem a bit dim, even had trouble finding the 7th star? Turns out dew had set into the eye piece, had a look with the finderscope as this is the best way to view this open cluster, very dim to look at. Yes, dew had really got at the lens, had to clean both ends of the finderscope and afterwards the view got a lot better. By now Roya had gone back to their car as she was feeling a bit cold, so I turned my attention to M 15, a globular cluster in Pegasus, this cluster was small to look at but had a bright core. Not far away is M 2 in Aquarius, this looked very similar to M15, the only difference was the magnitude, M 15 comes in at + 6.4 and M 2 comes in at +6.5, no real difference in them.

By now I was really noticing the dew/frost of my equipment, not having any dew heaters with me I had to give in the elements. So at 20:44 I packed up my gear which would need a good drying overnight before being stored properly. Tony and Roya said they would leave not long after I went. Leaving temperature was 0 °C.

Clear skies.

Peter Chappell

Viewing Log for 19th of December

Normally on a Thursday evening I play Bridge at the Swindon club but as the sky was fairly clear and I have not been out for a few weeks due to the cloud cover we currently seem to have, I thought I would go out and do the viewing session instead. I asked members from Swindon Stargazers but no one was available to come out with me, so I went to Nebo Farm by myself

After getting permission from the farmer, I had my Meade LX90 set up and ready by 19:23, as usual I would be using my Pentax 14 mm XW eye piece, giving me a magnification of around 143. The temperature was 4 °C with some wind and cloud in the sky, guide stars were Vega and Capella. I was also using my Seestar S50 to take more pictures of the Messier (M) list, I intend getting all 110 over this coming year, subject to the weather gods?

While I was driving to this site, I could see Venus getting close to the western horizon, lucky for me it was still up once everything had been powered up and checked out, so I went off to Venus, only 4 ° above the horizon! Venus was producing multi colours, too much atmosphere to go thru for this planet, I put this down to the height above the horizon? I could see the phase starting on the planet, it was not round anymore. Saturn was a lot higher, I could make out Titan the largest moon of Saturn out to the east of the planet. Saturn was not as clear as the last time I looked at it about a month previous even at -1.0 magnitude (Mag)? Tried for Neptune but I could not find it at all, could not blame the moon as it would not rise until around 21:00. No one could not miss Jupiter, it is that bright shining at mag -2.8, as usual I could make out the two main weather belts with only three of the main moon showing, all were out to the east of Jupiter, starting with Ganymede followed by Europa and finally Calisto, Io was in transit at this time. I noticed a shadow on the surface which probably was Io's shadow as the Great Red Spot was on the edge of the surface and going around the back of the planet. After spending some time on Jupiter I headed off to Uranus, could make the planet out fairly well but no real colour on the surface. Mars was really too low to look at, so I would come back to the red planet later in the session. With the planets finished it was time to look at some Messier objects, starting with M 29, this open cluster (OC) was small to look at, the six main stars which make up this cluster were dim this evening? Off to M 27, the Dumbbell nebula, this was a large grey dim blob to look at, did not help being low in the western skies but I wanted to see these objects before I lose them for winter. Off to M 74, not sure if I saw this spiral galaxy (SG), coming in at mag 9.1 does not help me. So I tried the 'High Precision' mode, this fixes onto a nearby star which I manually centre, then goes off to the object I wish to view. I could just about make it out using averted vision, a real faint fuzzy blob (FFB)! Cont'd

Cont'd.....Next was M 77, another SG which was small but had a bright core, this galaxy has a declination of -0.01'. These two objects are the first to be viewed if you are doing the Messier marathon around March time. Off to the Pinwheel galaxy or M 33, a large grey blob with no detail, this SG can be missed very easy. Next was M 32, a satellite galaxy of M 31, this Elliptical galaxy (EG) was small but had a bright core, a fuzzy blob (FB) to look at. Next door is M 31, the Andromeda galaxy, this SG has a very bright core and looks like a comet head. The third of the galaxies here is M110, a real FFB, EG. By now I was starting to get a bit cold in my fingers, so would only do a few more objects before packing up, by now Orion was clear of the horizon and time to look at M 42, the Great Orion nebula, I could make out the 'Trapezium' stars clearly and the two main dust lanes were bright. Higher in the sky was M 1, the only Supernova Remnant on this list, this was a large grey dim blob to look at. Thought I would go back to Jupiter and see if the missing moon had left the surface, turns out I could just about see lo clear of the disc. While viewing Jupiter, it was bouncing around a bit in the eye piece, the wind had picked up a bit (which made it feel cold). I checked the telescope and it was not tight on the mount, would need to be looked at later on once home?

It was now 21:05 and the moon was rising thru some branches of trees on the horizon, time to pack up and go home, the temperature had only dropped down to 3 °C but the wind made it feel a lot colder. I did say earlier on that I would come back to Mars but I forgot about this planet! Maybe next time I will look at it?

Clear skies.

Peter Chappell

PS The following morning I had a look at the securing bolt on the mount, turns out the two locking nuts had become loose on the threaded section of the blot, a quick turn of one of the locking nuts and it was tight again?

Visit to the Adler Planetarium, Chicago By Chris Brooks 28/12/2024

Over the Christmas and New Year of 2024, we decided to visit family and friends in the USA. My better half originates from Chicago and so a visit to the Windy City was definitely on the cards.

We arrived in the city just as the weather was turning colder, but of course that is to be expected at this time of the year and it would be nice to see a little of the forecasted snow.

Due to both our interests in all things space, on the agenda of this great city was to visit the Adler Planetarium, sited in downtown Chicago on the shores of Lake Michigan and a relatively short train ride from our base in Oak Park.

So, without much planning (only to check the place was open) and despite the chilly weather, we hopped onto the 'L' (for eLevated) train to Roosevelt, the nearest station to the Museum Campus where the planetarium is located. The train ride itself was interesting as it approached the 'Loop' marking the business centre of the city and winding its way through the buildings, tilting left and right as it did so and avoiding the city traffic chaos below.

There are other methods to get to the planetarium including buses and taxis/Ubbers but we chose instead to walk from the station, heading east along Roosevelt Rd. You can quickly get away from the busy traffic by walking through the various parks, following the signs as you go.

In hindsight, walking was not ideal as pellets of now freezing snow were being whipped up into our faces by squalls of blustering winds, which seem to come in from all directions, but we persevered and made our way through it.

There are a number of museums located on the campus including the Shedd Aquarium and the Field (History) Museum, both of which would have been nice to visit, however time was not available to do so on this occasion, so maybe next time.

From a distance, the 1930's planetarium looks foreboding, like some sort of huge brown concrete bunker straight out of a post-apocalyptic war. However, as you move closer there were large numbers of signs welcoming you to the observatory. A flight of steps leads you up to the grand brown entrance doors, beckoning you to come in out of the cold.

As we approached, the doors opened and as we were just about to enter, we were asked whether we had prepaid tickets. On negatively responding, we were ushered back out into the cold and to go to the 'Assisted Entry' doors around the side of the building instead. So we scurried around the side and this time met with a nice welcome and assistance in purchasing our day tickets, also tickets for some of the Exploration shows.

Luckily, there were still a few good shows left each lasting about half an hour. We were planning to see two shows but unfortunately the available timings meant we could only get to see one this time so it's a good idea to check ahead. We chose 'Planet 9' which was due to start in an hour's time meaning we had time to grab a warm drink from the cafe area first. Cont'd

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Food was atypical of such places, i.e. unremarkable, in fact fairly pedestrian and well over-priced for what it was. Having warmed up a little we popped in the space shop to see what was on offer. There was a good selection of gifts for all ages, but most of it was suitable for the younger and preteens market.

After a good look around, we headed for the screening of our show. There was the normal queue but we were kept entertained by short videos dotted around the gathering area, which was bathed in a pale blue and calming light.

We entered the screening area with its domed ceiling, chose our seat and settled down for the show. During the next half hour, we were treated to a spectacular overhead show by Mike Brown from CalTech and their search for a new Planet 9 (after the demotion of Pluto to Dwarf Planet) taking us back in time to events in the early solar system based on the current orbits of Pluto and other dwarf worlds such as Eris, Haumea and Sedna, which form the part of the Kuiper Belt.

It was a truly well made and well-presented show. Other shows available include such titles as:

Destination Solar System

Imagine the Moon

Niyah and the Multiverse

After the show, we explored the upper floor of the planetarium, which has many areas dedicated to the exploring the solar system and is presented in such a way that it is suitable for both adults and kids with lots of fun experiments to play with - which of course I did! There are pieces of meteorites from the Moon and Mars that you can touch, also a piece of the very large iron meteorite that created Meteor Crater, Arizona. There is even an actual piece of the Moon.

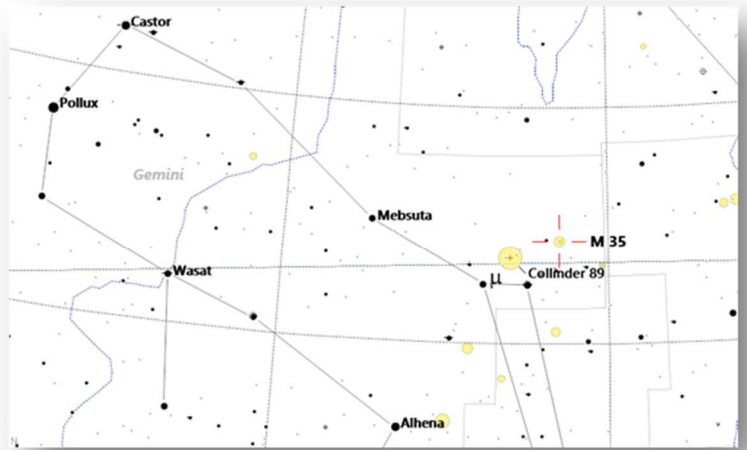
We really enjoyed the displays from both Apollo and Gemini space missions, with the Gemini 12 capsule proudly on display as well as replicas of some of the Mars Landers. We went back to the shop to buy a few things before going down to the lower level, where one of the most comprehensive displays of scientific instruments are on display. I was really blown away by the collection of telescopes, astrolabes and orreries and wanted to spend many more hours at this place, but alas, time was not on our side so we had to face Chicago's freezing weather again.

In summary, I think this place is a must for any keen astronomer but is also great for beginners. There is plenty to keep young minds busy and in awe - definitely worth the entry fee and I would certainly recommend catching a show while there. I would imagine it to be a very busy place in the warmer months though.

The Deep Sky in Gemini by John Gale

In my current part of the world, whilst I have very dark skies, the weather is not as forgiving and so some of my astronomy is now undertaken in an armchair. I am also (slowly) working my way through the Herschel 400 observing plan so I thought it would be useful to review some of the targets I have found and see what other perhaps lesser known targets are around and about, and to enthuse you to go and track them down visually or through imaging.

As Gemini adorns our skies, I am starting here as it contains my favourite open cluster, Messier 35, together with planetary nebula and several open clusters. Some of them I have seen, some still to observe; I have spotted the Medusa Nebula from North Devon, but I have overlooked the Gemini Nebula (or not logged my observation more likely). Reference material is the trusty Night Sky Observers Guides, and also Mark Bratton's Complete Guide to the Herschel objects.



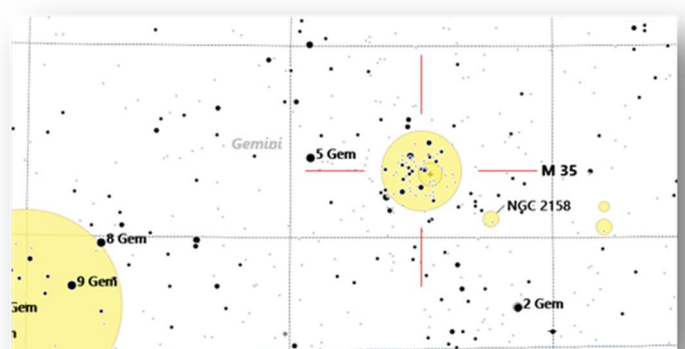
So to the objects; in my opinion, Messier 35 is an outstanding open cluster, visible easily through binoculars and spectacular in a telescope. Lying almost 3,000 light years away, and 11 light years across, it comprises over 400 member stars, mostly white or blue-white main sequence stars that are still fusing hydrogen into helium in their cores. You might also observe a few stars tinted with subtle shades of yellow or orange; these have evolved off the main sequence and are no longer producing energy through hydrogen fusion in their cores.

Messier observed the cluster in August 1764, but he was not the first to see it. Jean-Philippe Loys de Chéseaux was a wealthy Swiss landowner, mathematician and astronomer, with a private observatory housing his Gregorian reflector together with a simple refractor. In the period 1745-1746, he compiled a list of 21 nebulous objects, 8 of which he himself discovered, amongst them M35. His list does not give any details about the cluster, except that it is "above the northern feet of Gemini". However, the other observer who is credited as having seen it is Wiltshire born John Bevis, who observed it independently some time before 1750, including it in his Uranographia Britannica, often known as the "forgotten star atlas" as it was never published.

Messier's notes describe it as "a cluster of very small stars, near the left foot of Castor" and "contains nebulosity; but having examined it with a good Gregorian telescope which magnified 104 times, I have noticed that it is nothing but a cluster of small stars, among which there are some which are of more light".

In my mind, M35 is best observed visually, tracing the lines of stars within the clusters, spotting the different colours, with my mind drifting to those historical observers who saw the same sight those years ago.

Close to M35 is **NGC 2158**, but is actually some 9,000 light years distant. Herschel found it in November 1784 noting "a very rich cluster of very compressed and eS stars, 4' or 5' diameter. A miniature of the 35 cluster of Messier which it precedes". NGC 2158 is rather an old cluster, a recent estimate being 2 billion years old using GAIA data, with 800 member stars identified. I remember hunting for it unsuccessfully in my 6" reflector, but finding it fairly easily in my 8" which bears out what other observers state. An interesting thread on Cloudy Nights gives a detailed analysis (<https://www.cloudynights.com/topic/602280-ngc-2158-m35/?p=9847166>) of the differences in observations of the cluster, with thoughts on aperture and sky conditions. So despite being obviously fainter than M35 it remains an interesting target to observe, plus the challenge in smaller apertures.



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Next up is **NGC 2129**, which is on the Herschel 400 list. Making a triangle with Eta Geminorum and M35, NGC 2129 is a bright, though small, Auriga-shaped cluster, quite young at around 10 million years old with over 30 main sequence stars. Herschel first observed it in February 1782, during studies of double stars, although not logging it until November 1784.

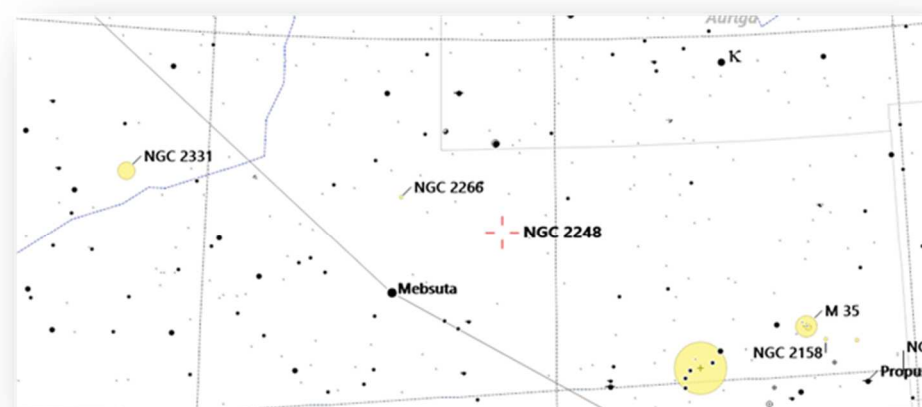
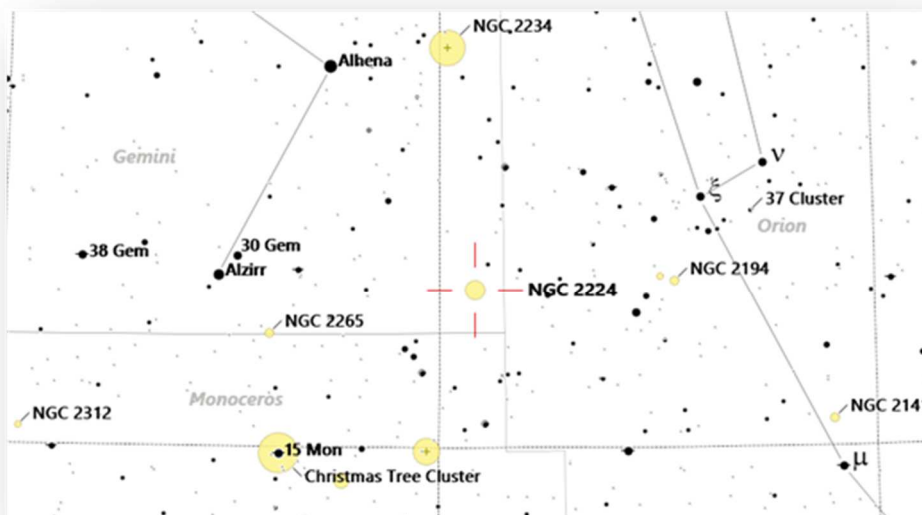
NGC 2224 is the first of two clusters that may not really exist. On Christmas Eve 1786, Herschel logged this 2224 as "A cluster of small, pretty much compressed stars with suspected milky nebulosity". The problem is that at the presumed position of the cluster is just a collection of scattered stars, within a narrow brightness range. A thread on Cloudy nights (<https://www.cloudynights.com/topic/807496-intrigued-by-ngc-2224-herschel-35/>) Steve Gottlieb comments that "Most likely, Herschel's "suspected nebulosity" refers to a clump of unresolved stars that seemed "milky" to him, not emission nebulosity." Herschel apparently logged a few clusters that were unrelated milky way stars; however why not point your telescope or image the area and see what is there.

Does **NGC 2234** cluster actually exist? William Herschel discovered this loose open cluster in February 1784 describing it as "a cluster of very much scattered stars of various magnitudes, near half a degree, not rich." Checking the Night Sky Observers Guide (Vol 1) I read "Users of Norton's Star Atlas may be acquainted with this cluster, but other atlases do not plot this supposedly non-existent cluster". However, the authors then describe at a magnification of 75x on a 12" scope "2234 is visible as a loose group of forty 11th magnitude and fainter stars spread over a 25' area".

My next stop was in checking the Sky X software, which includes Steve Gottlieb's observing notes, of which he wrote of 2234 "... at 175x (18" scope) only a scattered group of ~75 stars in a non-descript 10' region. Includes a number of mag 12 stars forming the outline of two rough loops or a butterfly shape."

The final word can go to Harold Corwin who notes "NGC 2234 is described by both WH and JH as a very large cluster, at least half a degree across. I find three concentrations of stars in the area,... perhaps the Herschel's observations refer to all three. As with so many of the poor, scattered "clusters" found by them, telescopic observations will be needed for confirmation." Point your scope at the area, what do you see?

NGC 2248 looks like an interesting little asterism, as opposed to a true cluster. It was first included in a star catalogue compiled between 1848 to 1956 by the Markree Observatory in County Sligo. There is remained unnoticed before being included by Arthur von Auwers, in his 1862 list of nebulae and clusters found by observers other than the Herschel's, although a reference I found states that John Herschel included it in the General Catalogue. Whatever its true nature, whether a true cluster or not, it looks like an interesting little asterism to seek out on a winters night

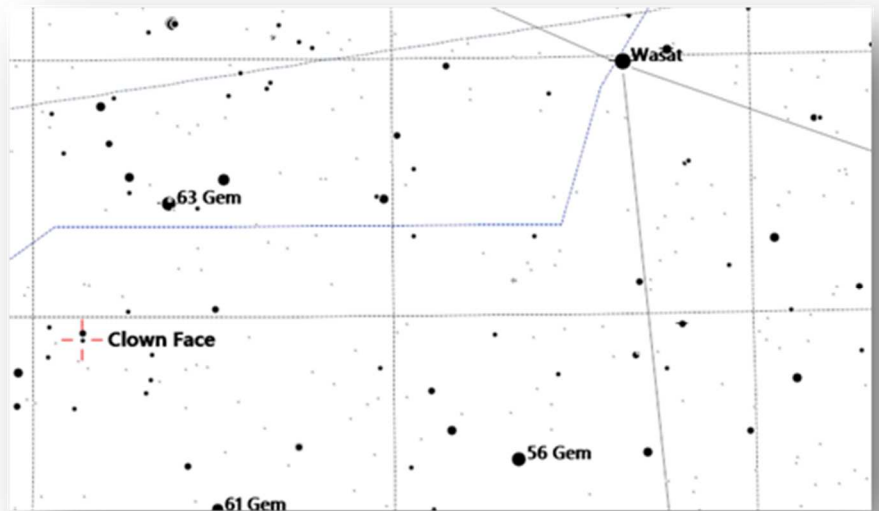


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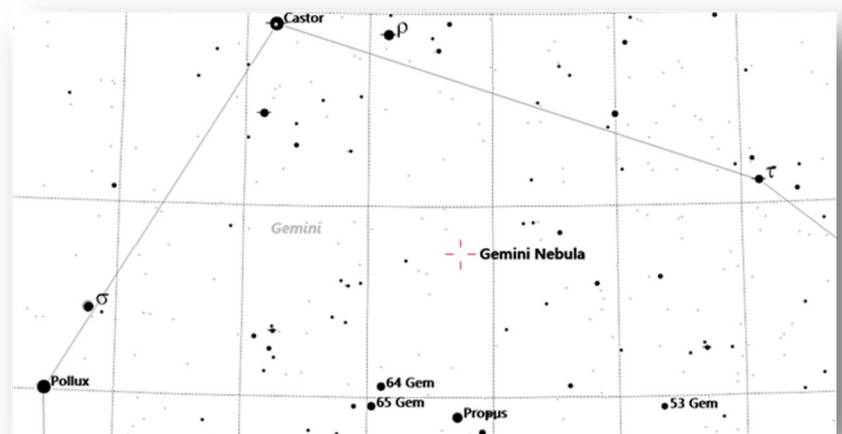
Next to M35, Gemini's other signature object is the **Eskimo Nebula (NGC 2392)**, renamed recently by the woke world to the **Clown Face**, but remaining the Eskimo to me and many others.

A planetary nebula lying 5,000 light years away, it began forming some 10,000 years ago and takes its name from visual observations giving it a "parka" hood surrounding a bright "face". Amateur images show this magnificent nebula with its exquisite filamentary inner and outer structure, together with the "facial" features and the central star. Sketchers are not far behind, particularly this one <https://www.asod.info/?p=2485>.



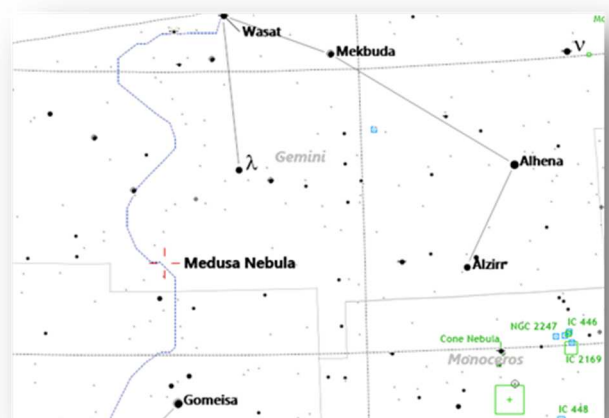
Finding the Eskimo is not too tricky; start from Wasat, continue towards 63 Geminorum, which lies at the end of an obvious "bow" of stars, then continue from 63 to the Eskimo.

The **Gemini Nebula** is the informal name for **NGC 2371**, and also known as the "Double bubble" Nebula, due to its peanut shaped lobes. Although it is one object, Herschel recorded it as two separate Class 2 objects; 2371 being the SW lobe and 2372 the NE portion. In a 12" to 16" scope it resembles Messier 76. The south-west lobe is the brighter, more concentrated of the two, but a 16" to 18" is needed to spot the central star clearly. Images shown additional, detached portions to the ESE and WNW, resembling (to me at least) a wrapped sweet!



The **Medusa Nebula**, catalogued by George Abell as **Abell 21**, is a faint planetary nebula in a half moon shape. The observation from North Devon arose due to a discussion with one of my fellow observers who saw it from an urban site in an 8", admittedly in the 60s or 70s, and could we still see it from a dark site? It took me a while to find it in my 12", but I did using I think a UHC filter first, then an OIII, and I had it confirmed by a fellow observer. I failed to log the observation at the time, but it is clear in my memory as the early part of the evening was "hunt the Medusa" in a variety of telescopes!

So there we have it, 9 objects in Gemini to have a hunt around for, image, or even to see if they exist! Whatever you find, drop it to Simon so it can go in the magazine and inspire more of us to look upwards and savour the night sky.



Jonathan Gale

Enlarged Maps from the Jon Gale Article to help those that want to try to find the objects. Good luck and let us know how your observing went.

