

IO - February 2016

Eugene Astronomical Society
Annual Club Dues \$25
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EAS is a proud member of:

The Astronomical League
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Eugene Astronomical Society

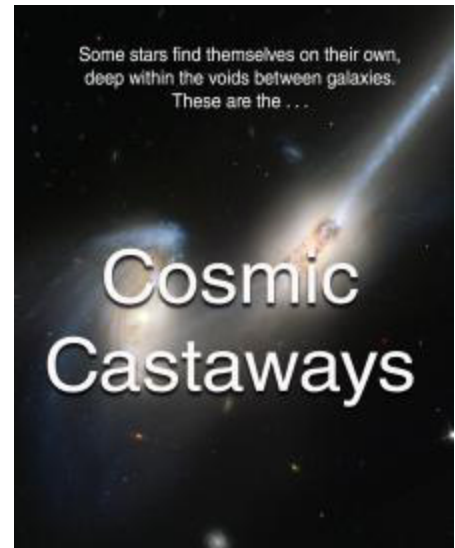


Next Meeting Thursday, February 18th Cosmic Castaways (Planetarium Show)

What happens when galaxies collide? What becomes of the stars within those galaxies? This full-dome program explores these questions and ponders the fate of our own Sun and solar system when the Milky Way galaxy and the Andromeda galaxy collide in the distant future.

The Science Factory has graciously offered to give us a free planetarium show in thanks for our support over the last year. Cosmic Castaways is an engrossing look at a process that nearly every galaxy will eventually go through. We see colliding galaxies everywhere we look, and our distant descendants will watch a collision close-up. What will their fate likely be? Come see for yourself.

At our meetings we also encourage people to bring any new gear or projects they would like to show the rest of the club. The meeting is at 7:00 on Thursday, February 18th at the Science Factory. Come a little early to visit and get a seat before the program starts.



Next First Quarter Friday: February 12th

Our January 15th First Quarter Friday Star Party was rained out and so was our backup star party on Saturday. This marks four months in a row. Here's hoping for better luck in February.

Our next First Quarter Friday is on February 12th. First Quarter Fridays are laid-back opportunities to do some observing and promote astronomy at the same time. Mark your calendar and bring your scope to the College Hill Reservoir (24th and Lawrence in Eugene) and share the view with whoever shows up. Here's the schedule through 2016. Star parties start at dusk or 6:00, whichever is later.

February 12 (25% lit)
May 13 (54% lit)
August 12 (72% lit)
November 4 (24% lit)

March 11th (12.8% lit)
June 10 (38% lit)
September 9 (56% lit)
December 9 (79% lit)

April 15 (70% lit)
July 8 (23% lit)
October 7 (39% lit)

January 21st Meeting Report

On January 21st we held our annual telescope workshop. It was well attended by club members and by members of the general public, four of whom brought telescopes for our assistance.

At the beginning of the meeting Mel Bartels gave a talk on the newly-predicted 9th planet, explaining how it was predicted and where it's likely to be found. Jerry Oltion then talked about how to bring a telescope in from the cold with minimal condensation, and he demonstrated how to clean an eyepiece.

Two of the scopes brought in for help were new Christmas presents and their owners just needed help figuring out how to use them. The third was a small Meade go-to scope that we saw last year when Bill Murray discovered that it had a stripped-out altitude gear. It came back this year under new ownership, the new people having bought it at a second-hand store. Bill again diagnosed the same problem (he's our Meade guru!) and refrained from suggesting that the new owners kill it before it returns again.

The other scope was a big 10" Dob that the owner brought in for collimation. Mel Bartels used the opportunity to demonstrate collimation to the entire group, who lined up to look at the laser collimation process and to see what the view through a Cheshire sight tube looked like.

It was a lively meeting with much conversation and fun, probably one of our most successful telescope workshops in several years. Four people asked for membership applications, so we'll probably see them join the group. Welcome! And thanks to everyone who came to the meeting and participated.



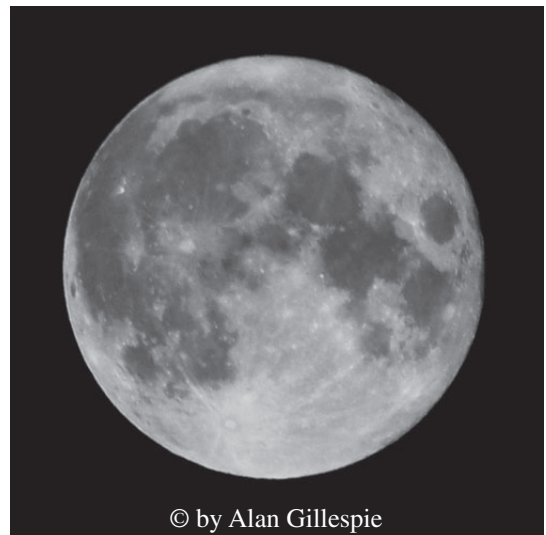
People line up to check a telescope's collimation with a Cheshire eyepiece



© by Alan Gillespie

Alan Gillespie Gets New Camera

Alan Gillespie got a new camera for Christmas (a Canon SL1), and has been taking some great shots with it. Here are two Moon photos he took, the one on the left on January 16th and the one on the right just after Full Moon on January 24th. Look forward to many more great shots from Alan in the months to come!



© by Alan Gillespie



Thank You Storage Junction

Storage Junction has donated the use of a storage unit for us to hold our loaner telescopes when they're not in use. EAS would like to thank Storage Junction for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. Storage Junction is located at 93257 Prairie Road (at the intersection of Hwy 99 and Hwy 36, 3 miles south of Junction City) Phone: 541-998-5177

Mel Bartels Makes First Visual Observation of Betelgeuse Bell

Mel Bartels has been finding all sorts of cool stuff with his short focal length, rich-field telescopes. He has found a bubble of luminosity around the Pleiades that nobody had noted before, a shelf of extended Milky Way reaching out toward the Andromeda Galaxy, and now he has made what is quite probably the very first visual observation ever of a river of darkness that completely surrounds the star Betelgeuse.

Tom Pickett posted a photo online in late December that showed what he calls “Pickett’s Bell” around Betelgeuse. This amazingly thin channel of darkness shows up in pretty much any deep photo of Orion, and it’s even visible in some planetarium programs (like Sky Safari) if you turn the limiting magnitude to maximum, but nobody had mentioned it before as an object in its own right, and nobody has reported seeing it visually.

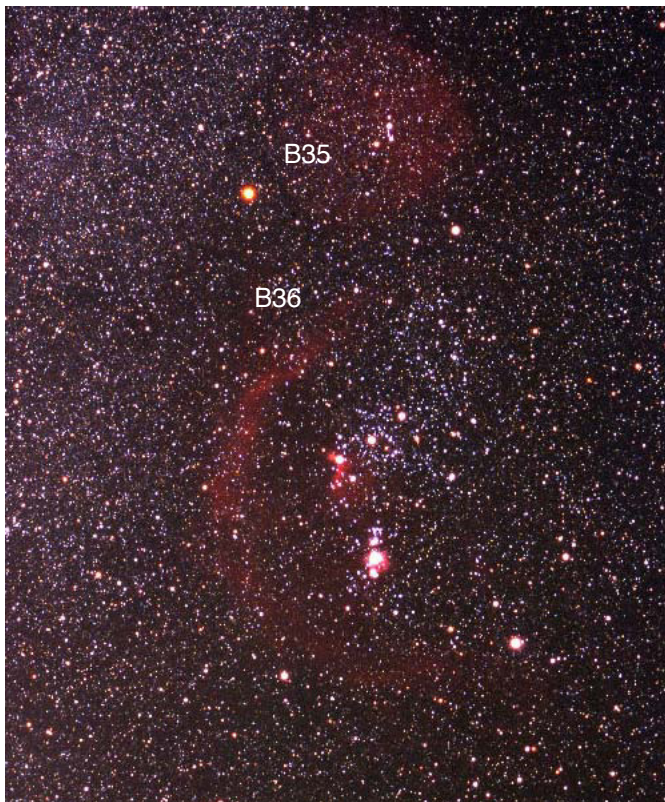
So Mel set out to observe it, and on January 1st he had a spectacularly successful view of it. He sketched what he saw, and reports:

“The general area is quite beautiful: Betelgeuse’s color, subtle shadings and striations in the Milky Way and then the dark nebulae. The ‘Ring’ of Betelgeuse is actually broken into clumpy dark nebulae with B36 the dominant feature on the western side as a long diagonal streak. There are offshoots to the north-west, one leading to B35. The arced bell to the north of Betelgeuse is clumpy and splotchy. The long curved section to the south of Betelgeuse is beautiful — subtle, mottled, striated.”

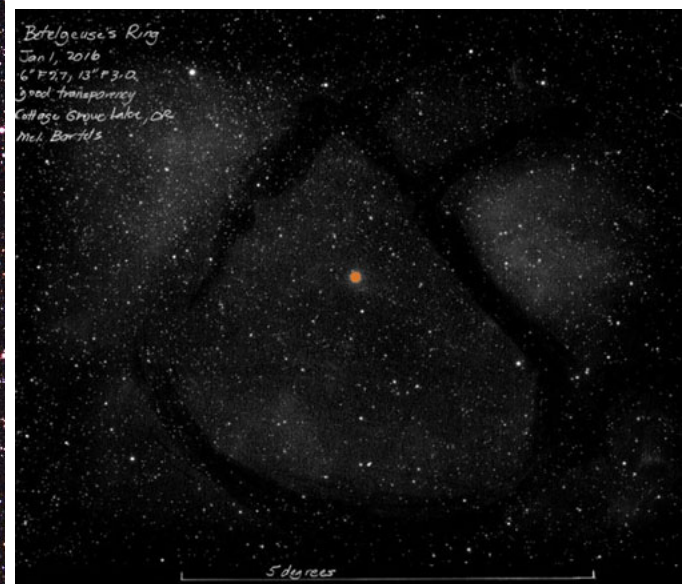
Here’s a photo of the entire Orion region showing the bell (zoom in a bit to see it well) and Mel’s sketch of it in the same orientation.

This dark object is huge, nearly 5 degrees across, so it requires a wide-field telescope to see. Jerry Oltion tried finding it in 15 x 70 binoculars on the same night that Mel made his observation and was only able to see the B36 section reliably, so it requires some aperture, too. Mel did it in his 6" f/2.7 scope and his

13" f/3 scope, neither of which could quite fit the entire bell in one field of view, so there’s hope for the rest of us. This is definitely something to look for during the next month or two as Orion cruises toward its highest position in the sky. If several of us



Orion photo © by Jerry Oltion



Betelgeuse Bell Sketch © by Mel Bartels

from the EAS see this, we'll be the only club in the world to do it. People will sing ballads about our prowess.

Seriously, this is something nobody has seen before. Let's go for it! Thanks, Mel, for leading the way into such exciting new territory.

And the Squid Nebula...

After the above was written, Mel made what may be another first: sighting OU4, the elusive Squid Nebula, inside the already-difficult Sh2-129, the Flying Bat Nebula. The Flying Bat has been sighted visually before, but to our knowledge the Squid has only been seen photographically until now. It was discovered in June of 2011 by French astronomer Nicholas Outters and shines faintly in the blue-green wavelength of oxygen III, surrounded by the reddish hydrogen alpha emission of the Flying Bat. It's quite large in the sky, spanning over a degree, which at its supposed distance of 2,300 light-years would mean it's over 50 light-years long. That's way too big to be a planetary nebula. Astronomers still don't know what it is. Current theory is that it's some kind of spectacular outflow driven by HR8119, a triple system of hot, massive stars near the center of the nebula, but the nature of that outflow isn't yet understood.

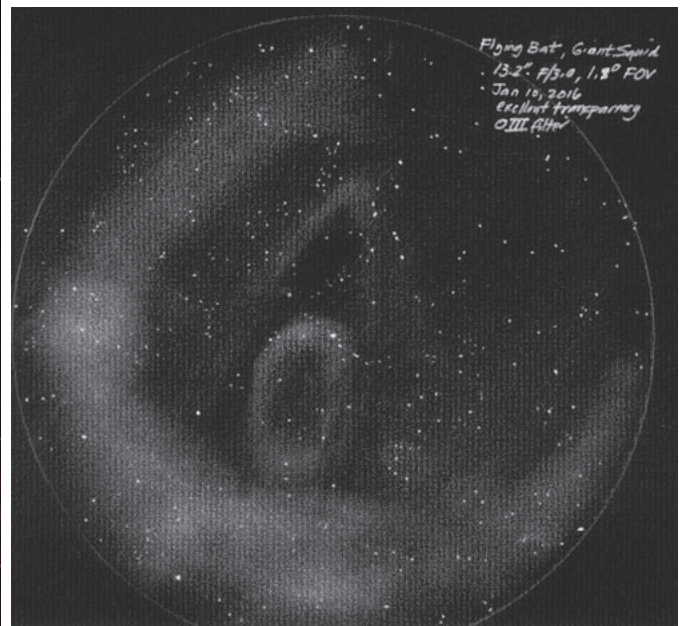
Whatever the explanation, Mel has proven that it's detectable visually in a wide-field telescope under dark sky. He caught it in his 13" f/3 scope on the night of January 10th, under a night of excellent transparency (often the case between rainstorms, as this night was).

The Flying Bat and the Squid nebulae are in Cepheus, near Herschel's Garnet Star. That puts them to the west of Polaris this time of year and dropping, so for the best view go for them as soon as you can. The Flying Bat is in the Pocket Sky Atlas (look for SH2-129 on pages 71 and 73), and in Sky Safari. SS gives it

a magnitude of +10.0, but that's spread out over a lot of area so its surface brightness is quite low. Use a narrowband filter that allows H-alpha to pass if you go looking for the Bat, and switch to an OIII filter for the Squid. Good luck!



OU4 inside Sh2-129, courtesy NOAO



OU4 inside Sh2-129, © 2016 by Mel Bartels

Observing Highlight: the Crystal Ball Nebula

On January 1st four hardy EAS members — Pam Houston, Andy Edelen, Kathy Oltion, and Jerry Oltion — braved the sub-freezing temperatures and went up to the Amphitheater site on Eagle’s Rest Road for a night of observing. There, Andy showed the rest of us a neat new object that none of us had seen before: the Crystal Ball Nebula, otherwise known as NGC 1514, in northern Taurus.

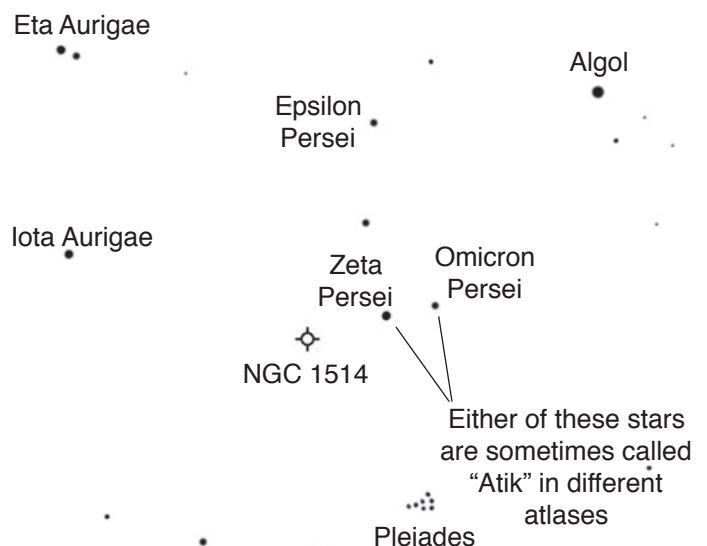
The Crystal Ball Nebula is a planetary nebula, a cloud of fluorescing hydrogen surrounding a dying star. Unlike some planetary nebulae, the central star in this one is very bright, which is both a help and a hindrance to finding it. The star is easy to find, but when you get there the nebula may not be evident in its glare. That’s where an Ultra-High-Contrast filter or an Oxygen III filter will come in handy. The filter will cut down the star’s glare and let the nebula shine through.

The Crystal Ball Nebula lives up to its name. It’s a nearly perfect circle, and that bright center looks like the reflection of sunlight on a fortune teller’s ball. Close examination at high power will reveal subtle shading within it.

This planetary nebula has the distinction of being the one that changed William Herschel’s view of what planetary nebulae were. Until he observed this one, he had assumed that they were open clusters distant enough that their individual stars weren’t resolvable, but the bright central star in this one dispelled that notion. In his words: “A most singular phenomenon! A star of about 8th magnitude with a faint luminous atmosphere, of circular form, and about 3 minutes in diameter. The star is in the centre, and the atmosphere is so faint and delicate and equal throughout that there can be no surmise of its consisting of stars; nor can there be a doubt of the evident connection between the atmosphere and the star.”

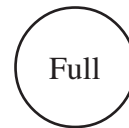
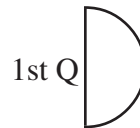
He was absolutely right. Planetary nebulae are the outer atmospheres of red giant stars in their last phases of life before settling down to become white dwarfs. This one is a splendid example of its kind, one well worth seeking out. At 2.3 x 2 arc-minutes, NGC 1514 is fairly large. It’s twice the size of the Ring Nebula in Lyra; just fainter by two magnitudes (10.8 to the Ring’s 8.8). Still, in a 6" or larger scope with a nebula filter under dark sky, it should stand out pretty nicely.

To find it, look north of the Pleiades to Zeta Persei, the southernmost star in Perseus (sometimes erroneously labeled “Atik”) and shift to the east about three degrees and south one degree. There aren’t many bright stars in that area, but its 9th-magnitude central star lies midway between two 8th magnitude stars, and there’s not much else to confuse them with. Scan the area with an OIII filter in place and you’ll spot it.





Observing in February



Jan 31, 7:28 PM	Feb 8, 6:39 AM	Feb 14, 11:46 PM	Feb 22, 10:20 AM
Mercury Rise: 6:05 AM	Mercury Rise: 6:05 AM	Mercury Rise: 6:10 AM	Mercury Rise: 6:16 AM
Venus Rise: 5:43 AM	Venus Rise: 5:51 AM	Venus Rise: 5:54 AM	Venus Rise: 5:55 AM
Mars Rise: 1:19 AM	Mars Rise: 1:08 AM	Mars Rise: 12:59 AM	Mars Rise: 12:45 AM
Jupiter Rise: 8:43 PM	Jupiter Rise: 8:08 PM	Jupiter Rise: 7:41 PM	Jupiter Rise: 7:05 PM
Saturn Rise: 3:46 AM	Saturn Rise: 3:18 AM	Saturn Rise: 2:56 AM	Saturn Rise: 2:27 AM
Uranus Set: 11:00 PM	Uranus Set: 10:30 PM	Uranus Set: 10:08 PM	Uranus Set: 9:38 PM
Neptune Set: 7:38 PM	Neptune Set: 7:08 PM	Neptune Set: 6:46 PM	Neptune Set: 6:16 PM
Pluto Rise: 6:04 AM	Pluto Rise: 5:33 AM	Pluto Rise: 5:10 AM	Pluto Rise: 4:40 AM

All times Pacific Daylight Time (March 13 – Nov. 5, 2016 = UT -7 hours) or **Pacific Standard Time (November 1, 2015 – March 12, 2016 = UT -8 hours)**

Date	Moonrise	Moonset	Twilight Begin	Sunrise	Sunset	Twilight End
2/1/2016	01:11	11:47	05:51	07:30	17:22	19:01
2/2/2016	02:08	12:23	05:50	07:29	17:24	19:03
2/3/2016	03:06	13:05	05:49	07:28	17:25	19:04
2/4/2016	04:02	13:53	05:48	07:27	17:26	19:05
2/5/2016	04:55	14:47	05:47	07:26	17:28	19:06
2/6/2016	05:45	15:49	05:46	07:24	17:29	19:07
2/7/2016	06:32	16:55	05:45	07:23	17:30	19:09
2/8/2016	07:14	18:05	05:44	07:22	17:32	19:10
2/9/2016	07:52	19:18	05:43	07:20	17:33	19:11
2/10/2016	08:29	20:31	05:42	07:19	17:35	19:12
2/11/2016	09:04	21:44	05:40	07:18	17:36	19:14
2/12/2016	09:38	22:56	05:39	07:16	17:37	19:15
2/13/2016	10:15		05:38	07:15	17:39	19:16
2/14/2016	10:53	00:06	05:37	07:14	17:40	19:17
2/15/2016	11:36	01:15	05:35	07:12	17:42	19:19
2/16/2016	12:23	02:19	05:34	07:11	17:43	19:20
2/17/2016	13:14	03:19	05:33	07:09	17:44	19:21
2/18/2016	14:09	04:13	05:31	07:08	17:46	19:22
2/19/2016	15:08	05:01	05:30	07:06	17:47	19:24
2/20/2016	16:08	05:43	05:28	07:05	17:48	19:25
2/21/2016	17:09	06:19	05:27	07:03	17:50	19:26
2/22/2016	18:09	06:52	05:25	07:01	17:51	19:27
2/23/2016	19:08	07:23	05:24	07:00	17:52	19:29
2/24/2016	20:07	07:51	05:22	06:58	17:54	19:30
2/25/2016	21:05	08:19	05:21	06:57	17:55	19:31
2/26/2016	22:03	08:47	05:19	06:55	17:56	19:32
2/27/2016	23:00	09:15	05:17	06:53	17:58	19:34
2/28/2016	23:57	09:46	05:16	06:52	17:59	19:35
2/29/2016		10:21	05:14	06:50	18:00	19:36

All times are for Eugene, Oregon Latitude 44° 3' Longitude 123° 06'

Items of Interest This Month

- 2/4 Io shadow transit from Jupiter rise (8:26 p.m.) until 10:13 p.m. Red spot centered 11:36 p.m.
- 2/6 Mercury at greatest western elongation (visible in early morning before sunrise)
- 2/7 Io and Europa pass one another 10:30 p.m.
- 2/8-2/18 Mercury and Venus together in early morning
- 2/8 Vesta near bright stars. Easy to see its motion in just an hour or two.
- 2/11 Io shadow transit 9:51 p.m.–12:06 a.m.
- 2/12 First Quarter Friday Star Party.**
- 2/15 Moon occults various stars in Hyades, including Aldebaran in early a.m. 2/16
- 2/16 Ganymede shadow transit (the easy one) 7:56–11:17 p.m.
- 2/18 Europa shadow transit (the hard one) 8:37–11:26 p.m.
- 2/20 Vesta passes between two medium-bright stars (mags 8 and 10) in early evening.
- 2/21-2/23 Comet Catalina near Kemble's Cascade (above Cassiopeia)
- 2/22 Jupiter's moons make two pairs all night
- 2/26 Europa and Ganymede pass by one another 10:00 p.m.
- 2/27 Io shadow transit 8:06–10:21 p.m.
- 2/29 Callisto shadow transit 7:10–10:15 p.m.
Callisto transits near pole 9:22–11:20 p.m.