

# IO - March 2015

Issue 2015-03  
Eugene Astronomical Society

Eugene Astronomical Society  
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## Next Meeting Thursday, March 19th Star Parties and the Council of Giants by Ken Martin and Mel Bartels

Our February 19th meeting will feature two speakers discussing two separate subjects.

Ken Martin will present a slide show and short talk about upcoming summer star parties in Oregon and northern California. If you've never attended a multi-day star party, this is your chance to see and hear what they're all about, what to expect and how to prepare. And for those who have attended some of these star parties, come and whet your appetite for this year's events.

Mel Bartels will tell us about the Council of Giants, a recently discovered ring of giant galaxies that surround ours. These are a dozen of the brightest galaxies visible in a telescope, and are best seen in spring skies.

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, March 19th at the Science Factory planetarium. Come early to visit before the program starts.

## Next First Quarter Friday: March 27th

Our February 27th star party was clouded out, but our emergency backup star party on Saturday the 28th went off beautifully. The sky was clear and the temperature mild, and we had nine or ten telescopes to show the view through. Jupiter's moons Io and Europa staged an occultation for us, and the seeing was steady enough that we were able to split Sirius even for newcomers at the eyepiece. Some of our newest club members were there, as were some of our longest-standing. There were a couple dozen guests at the peak of the star party, many with good questions and lots of excitement at what they could see. We lasted until 9:30 or so, when people finally started getting cold and drifting off toward home.

Our next star party is on March 27th. 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 for the rest of 2015. Star parties start at dusk or 6:00, whichever is later.

March 27 (58% lit)

April 24 (42% lit)

May 22 (26% lit)

June 26 (75% lit)

July 24 (60% lit)

August 21 (43% lit)

September 18 (28% lit)

October 23 (84% lit)

November 20 (70% lit)

December 18 (55% lit)

# February 19th Meeting Report

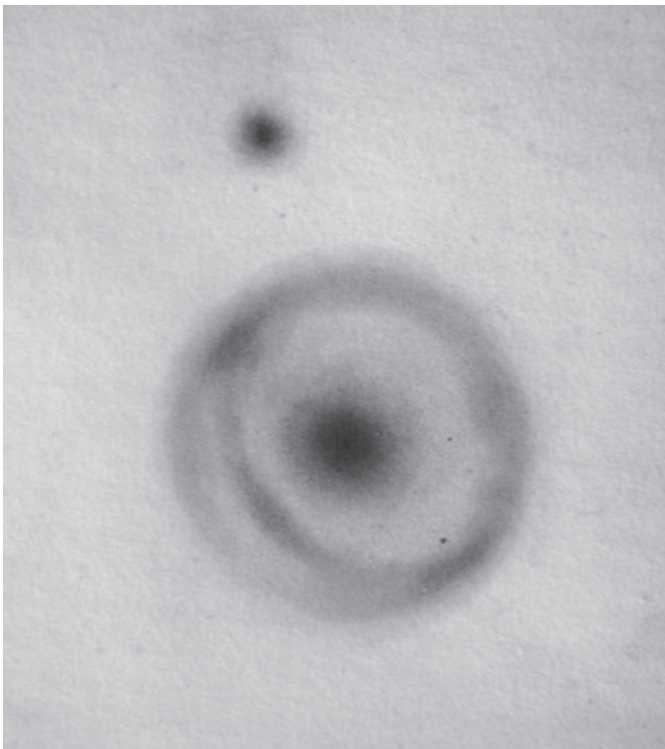


At our February 19th meeting, Portland amateur astronomer Howard Banich talked to us about sketching at the eyepiece and how the observer's biases can affect what they see. It was a fascinating talk with many examples that revealed a surprising variability in what people record even when they're trying their hardest to be as accurate as possible.

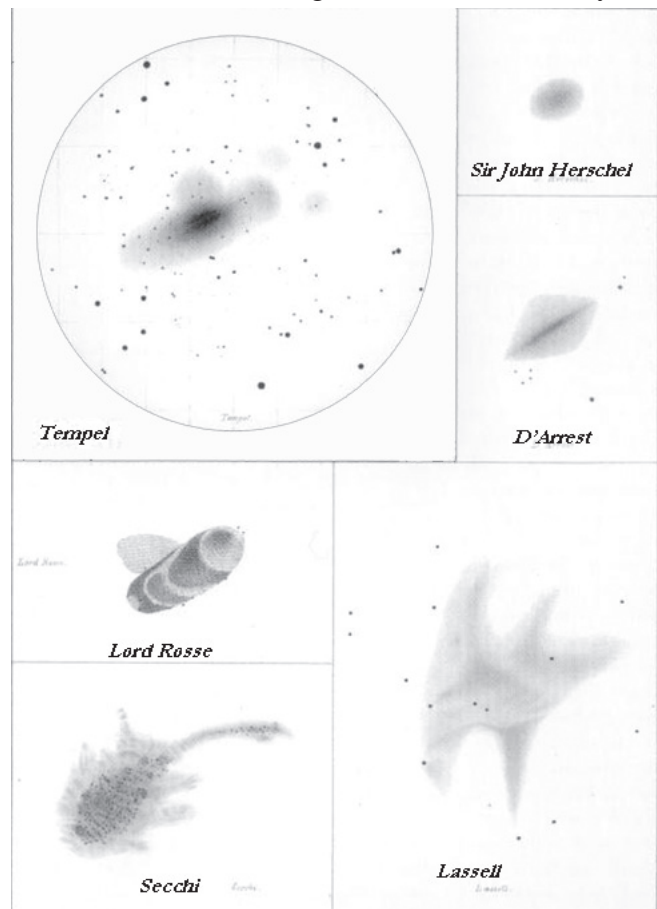
In the days before astrophotography, sketching was the only way to record an observation. Great pains were taken to record only what was seen, but prevailing theories of the day affected what people saw (or what they thought they saw). For instance, before people realized that M51 was a spiral, astronomers were recording it as a series of rings. Then after its spiral nature was discovered, people started seeing spirals in everything. (Except for Wilhelm Tempel, who even twenty years later rejected the spiral observations and persisted in recording M51 without spiral structure.)

Likewise M1, the Crab Nebula. Astronomers suspected that it might change over time, so they wanted to record its shape every few years and compare their sketches to witness those changes. Alas, each astronomer had different equipment, different eyesight, different biases, and different artistic ability, so their observations (below right) are nothing like one another.

Howard talked about his own observations and sketches, which often take many nights to complete. His goal is to record only what he actually sees, and to see only what's actually there. He will observe an object over and over, comparing what he has sketched to what he sees each night, and he will modify his drawing to contain only those details that he can reliably observe on multiple occasions. The result is an almost photographic faithfulness to the real object — and an amazing level of detail teased out of the limits



John Herschel's M51, 1830

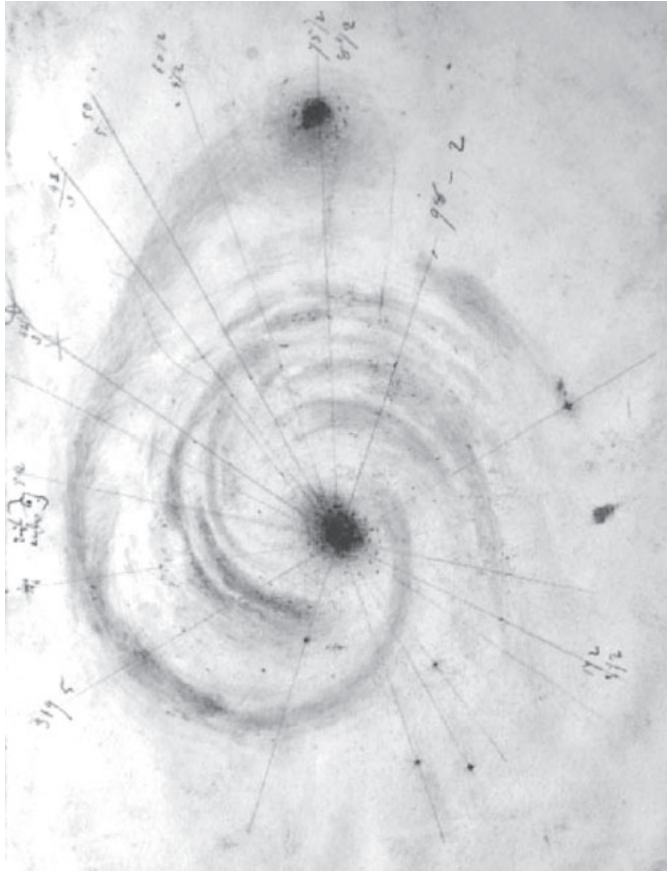


M1, the Crab Nebula, recorded by six different astronomers

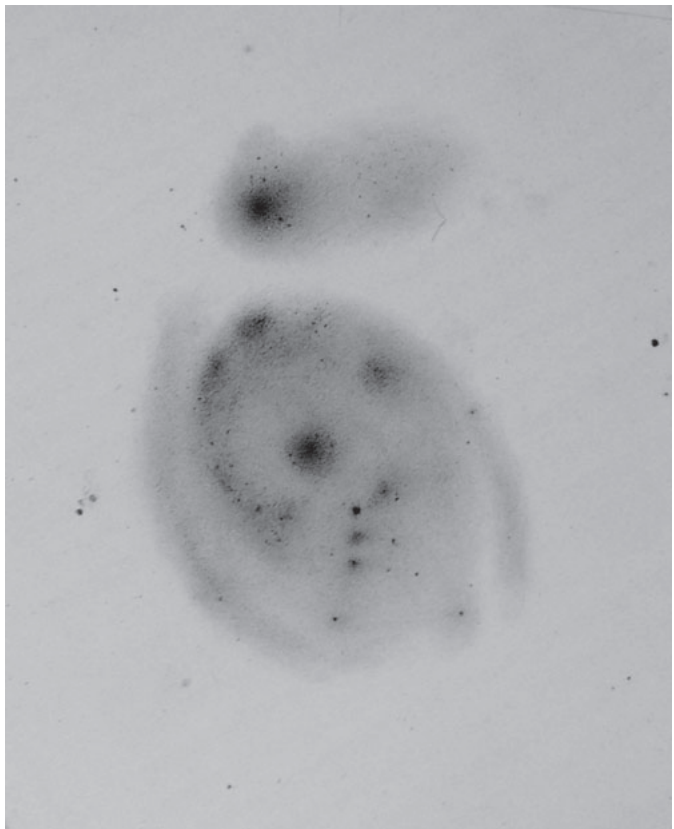
of visibility. Howard's M51 is remarkably similar to photographs taken by the Hubble Space Telescope.

Howard's talk was well attended and highly appreciated. It was also recorded by Bill Basham and is available at:

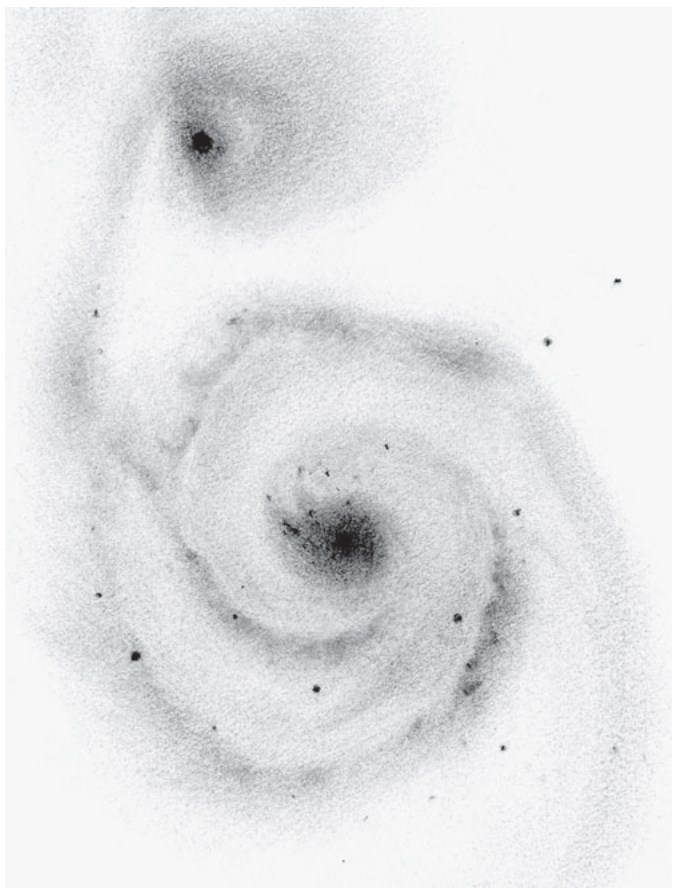
<https://www.youtube.com/watch?v=3Jzn19dbcfI>



Lord Rosse's M51, 1845



Wilhelm Tempel's M51, 1877



Howard Banich's M51, 2014

## Thank You Castle Storage

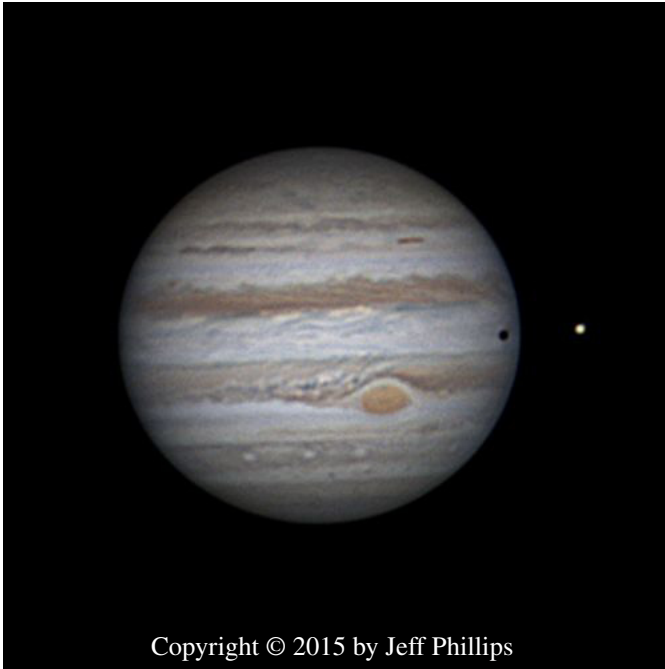
For the last several years, Castle Storage has generously provided EAS a place to store its telescopes and equipment. EAS would like to thank Castle Storage for their generosity and support for our group. Please give them a call if you need a storage space, and tell your friends. They are great people and offer secure and quality storage units.



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# February Observing Report

February had a surprising number of clear days. We were able to get out with telescopes several times during the dark phase of the Moon, and several of us took photos and sketched what we saw. Here are some of our results.



Copyright © 2015 by Jeff Phillips

Jupiter with Great Red Spot, Europa and Europa's Shadow  
2/17/15



Copyright © 2015 by Bill Basham

Venus, Mars, and Moon conjunction 2/20/15



Horsehead Nebula, 13 inch f/3.0, 1.8° FOV  
Excellent transparency, H-Beta and unfiltered  
Feb 21, 2015 Copyright © 2015 by Mel Bartels

Horsehead Nebula and environs on a night of exceptionally good seeing, 2/17/15.



Copyright © 2015 by Bill Basham

M51, showing what it looks like to the eye through a 10-12" telescope. 2/21/15

# Observing Highlight: Hubble's Variable Nebula

If Charles Messier, the world's quintessential comet hunter, had discovered this object, he would no doubt have considered it a cruel hoax. There's probably nothing else in the night sky that looks so much like a comet, but isn't. William Herschel discovered it just a few years after Messier published his list of non-comets, and confessed that he thought it was a comet until he realized it didn't move against the background stars. It does change brightness, however, leading to considerable confusion over just what it was until Edwin Hubble answered the question in the first half of the 20th century. Hubble imaged it on January 26, 1949 as the Hale Telescope's first light at Palomar Observatory, and determined that it was a reflection nebula with a variable star at its apex. The star's changes in brightness, plus motion in the gas cloud itself, provide the variations that we see.

The variations aren't fast, but they can be dramatic, changing the nebula's appearance considerably and its brightness by up to two magnitudes.

Even at its dimmest, the nebula is still a delight in the eyepiece. It's relatively small (2 x 4 arcminutes in size) but still visible at low power, and when you increase the magnification you begin to see lots of detail within the nebula. It fades away toward the north, sometimes appearing long and ghostly and other times appearing short and squat.

It's very near the Cone Nebula and the Christmas Tree cluster, and that's the easiest way to find it. Go to 15 Monocerotis, the magnitude 4.7 star that marks the base of the Christmas Tree, then work your way up to the top of the tree and veer to the upper left a little over one tree-length from there. (You're actually moving the scope down and to the right.) Go-toers set your controls for NGC 2261. Its RA is 06h39min and its Dec is +08°44'.

The above photo was created by EAS member Brandt Schram expressly for this Observing Highlight. He took 2.5 hours of luminance and color data on February 14th to create this image, which shows very well what the nebula looks like in the eyepiece. It's in a rich starfield, and it stands out as a wispy white triangle within those stars. Thanks, Brandt, for taking such a beautiful photo for us!

Astronomers have been taking photos of the nebula since Hubble's first shot in 1949, and the Glenlea Astronomical Observatory at the University of Manitoba has created a series of animations showing its variations over time. Go to <http://www.umanitoba.ca/science/astronomy/cbrown/imaging/hvn/analysis.html> for those animations and an analysis of the magnetic fields and dust swirls responsible for them. And make sure you go out and see this one for yourself. It's a beauty.



Copyright © 2015 by Brandt Schram

Hubble's Variable Nebula as seen in a Newtonian scope. (South is up.)



# Observing in March



March 5, 10:05 AM	March 13, 10:48 AM	March 20, 02:36 AM	March 27, 00:43 AM
Mercury Rise: 5:51 AM	Mercury Rise: 6:51 AM	Mercury Rise: 6:50 AM	Mercury Rise: 6:48 AM
Venus Set: 8:46 PM	Venus Set: 10:06 PM	Venus Set: 10:24 PM	Venus Set: 10:42 PM
Mars Set: 8:17 PM	Mars Set: 9:17 PM	Mars Set: 9:17 PM	Mars Set: 9:17 PM
Jupiter Set: 5:43 AM	Jupiter Set: 6:10 AM	Jupiter Set: 5:41 AM	Jupiter Set 5:13 AM
Saturn Rise: 00:49 AM	Saturn Rise: 1:18 AM	Saturn Rise: 00:50 AM	Saturn Rise: 00:22 AM
Uranus Set: 8:37 PM	Uranus Set: 9:07 PM	Uranus Set: 8:42 PM	Uranus lost in Sun
Neptune Rise: 6:32 AM	Neptune Rise 7:01 AM	Neptune Rise: 6:34 AM	Neptune Rise: 6:07 AM
Pluto Rise: 3:47 AM	Pluto Rise: 4:16 AM	Pluto Rise: 3:49 AM	Pluto Rise: 3:21 AM

All times Pacific Standard Time (November 2, 2014 – March 7, 2015 = UT -8 hours) or Pacific Daylight Time (March 8 – October 31, 2015 = UT -7 hours)

Daylight savings time begins March 8

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
3/1/2015	14:36	04:23	06:50	18:01	05:14	19:37
3/2/2015	15:33	05:00	06:48	18:02	05:12	19:38
3/3/2015	16:30	05:33	06:46	18:03	05:10	19:39
3/4/2015	17:27	06:03	06:44	18:04	05:09	19:40
3/5/2015	18:25	06:31	06:43	18:06	05:07	19:42
3/6/2015	19:23	06:58	06:41	18:07	05:05	19:43
3/7/2015	20:21	07:26	06:39	18:08	05:03	19:44
3/8/2015	22:19	08:54	07:37	19:10	06:02	20:46
3/9/2015	23:18	09:24	07:36	19:11	06:00	20:47
3/10/2015		09:57	07:34	19:12	05:58	20:48
3/11/2015	00:18	10:34	07:32	19:13	05:56	20:50
3/12/2015	01:16	11:17	07:30	19:15	05:54	20:51
3/13/2015	02:14	12:06	07:29	19:16	05:52	20:52
3/14/2015	03:09	13:02	07:27	19:17	05:50	20:54
3/15/2015	04:00	14:04	07:25	19:18	05:49	20:55
3/16/2015	04:47	15:13	07:23	19:20	05:47	20:56
3/17/2015	05:30	16:26	07:21	19:21	05:45	20:58
3/18/2015	06:10	17:41	07:19	19:22	05:43	20:59
3/19/2015	06:47	18:57	07:18	19:23	05:41	21:01
3/20/2015	07:24	20:13	07:16	19:25	05:39	21:02
3/21/2015	08:01	21:28	07:14	19:26	05:37	21:03
3/22/2015	08:39	22:40	07:12	19:27	05:35	21:05
3/23/2015	09:19	23:48	07:10	19:28	05:33	21:06
3/24/2015	10:03		07:09	19:30	05:31	21:08
3/25/2015	10:50	00:51	07:07	19:31	05:29	21:09
3/26/2015	11:41	01:47	07:05	19:32	05:27	21:11
3/27/2015	12:34	02:37	07:03	19:33	05:25	21:12
3/28/2015	13:30	03:21	07:01	19:34	05:23	21:13
3/29/2015	14:26	04:00	06:59	19:36	05:21	21:15
3/30/2015	15:23	04:34	06:58	19:37	05:18	21:16
3/31/2015	16:21	05:05	06:56	19:38	05:16	21:18

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

## Items of Interest This Month

- Zodiacal light visible in west during Moon's dark phase.
- 3/2 8:06 PM Ganymede occults Io near end of shadow transit (transit starts before sunset)
- 3/2 9:22 PM Ganymede eclipses Io during Ganymede shadow transit
- 3/3 7:02 – 9:20 PM Io shadow transit
- 3/5 10:35 PM Io eclipses Ganymede (Full magnitude drop in brightness, don't miss!)
- 3/7 10:15 PM Europa occults Io
- 3/7 11:21 PM Europa eclipses Io
- 3/8 Daylight saving time starts.
- 3/9 11:31 PM Ganymede occults Io during Ganymede shadow transit
- 3/11 Algol at minimum 8:00 – 10:00 PM
- 3/12 8:27 PM Io eclipses Europa
- 3/14 00:50 AM Io eclipses Ganymede
- 3/15 11:46 PM Callisto eclipses Europa
- 3/19 10:40 PM Io eclipses Europa
- 3/20 Spring begins 3:45 PM
- 3/23 11:04 PM Ganymede eclipses Europa
- 3/24 Moon goes through Hyades. Several bright stars occulted
- 3/27 00:53 AM Io eclipses Europa
- 3/27 First Quarter Friday Star Party**

