Issue 2019-10

IO - October 2019

Eugene Astronomical Society
Annual Club Dues $25
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Additional Board members:
Oggie Golub, Jim Murray, Ken Martin.

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EAS is a proud member of
The Astronomical League

Next Meeting Thursday, October 17th, 7:00 p.m.

Using Large-Scale Galaxy Motions to Test the Big Bang Theory

by Dr. Richard Watkins

Richard Watkins is a physics professor at Willamette University in Salem. Among other things, he studies the flow of galaxies though the Universe. Galaxies are pulled by gravity into regions where matter is concentrated and out of regions that are relatively empty. By studying these motions one can learn how much matter the Universe contains, how it is distributed, and how this distribution is changing over time. This information can, in turn, be used to test models of how the Universe has evolved, thus illuminating such issues as dark matter and dark energy.

For his talk at our October meeting, Dr. Watkins will start by giving an overview of the basics of the Big Bang theory and the evidence that supports it. He'll then talk about how we measure galaxy motions and what they can tell us about the Universe. This should be a very interesting talk! Don't miss it.

This will also be our annual business meeting, at which we elect board members. Andy Edelen and Oggie Golub are up for re-election this year.

EAS meetings are traditionally times when we learn about astronomy and share our experiences and knowledge of astronomy and the night sky. If you have something of astronomical interest to share with the group, please bring it along for show and tell.

Club meetings are held at the Eugene Science Center planetarium, 2300 Leo Harris Parkway in Eugene (behind Autzen Stadium). Meetings start at 7:00 sharp. Come early to visit and get a seat.

Calendars are Coming!

Our order of astronomy calendars has been shipped and should arrive in plenty of time for our October 17th meeting. If you pre-ordered a calendar, come pick it up at the meeting. Calendars are $6.50 each. You can write one check for calendars and dues. Cash is happily accepted, too.

If you can't make it to the meeting, contact Jerry Oltion to arrange a pickup at his home.

Dues are Due!

EAS membership runs from October thru September. If you haven't renewed already, please bring your payment to the meeting or mail your dues to the Eugene Astronomical Society, PO Box 7264, Springfield, OR 97475. Dues are still the same low $25 they've been for years. Make your checks payable to Eugene Astronomical Society, or just EAS if your pen is low on ink.

September 19th Meeting Report

How to Use a Star Chart
by Jerry Oltion and Andy Edelen

At our September 9th meeting Jerry Oltion and Andy Edelen gave a talk about star charts. They started with a description of how a star chart is laid out and what the symbols mean, then talked about how to navigate the sky with a chart in hand. They shared several tricks, such as using a penny for a Telrad circle on the *Pocket Sky Atlas*, (and a quarter for the jumbo version), or making a transparency with circles denoting the field of view of various eyepieces. Jerry showed how to star-hop from easily found objects to more difficult ones, and how to use nested charts to zoom in on an unfamiliar target.

Andy gave a whirlwind tour of the major star atlases available, both in print and electronic. Charts range from the free and relatively simple "Mag 7 Star Atlas" to the insanely detailed "Pretty Deep Maps." Choosing the right chart for your experience level and for your needs is important.Too much detail can be as bad as no chart at all.

Electronic "planetarium programs" such as Sky Safari offer distinct advantages over paper charts in that they can be adjusted to show the amount of detail you need at any given time. You can set them to show the same magnitude of stars visibile under your observing conditions, whether by naked eye or with a small telescope or a large telescope. You can expand or shrink the field of view to match what you're seeing in the eyepiece. You can change the orientation to match the view in refractors, reflectors, even binocular scopes. Most planetarium programs also offer information about each object in their database, so you can determine if something is worth hunting for before you go to the trouble of tracking it down. Many of them have "tonight's best" lists that will give you the highlights for any particular evening.

The final recommendation: for a paper chart you'll use a lot, buy the Jumbo version of the Sky & Telescope *Pocket Sky Atlas* (known as the "Jumbo Shrimp.")

The final recommendation for a planetarium program: Sky Safari. Get the pro version; it's well worth the extra money. If you wait a while, it'll often go on sale for half price ($20).

Next First Quarter Friday: October 4th

Our September 6th star party was a great success. The sky cooperated, the temperature was warm, we had several telescopes, and lots of guests came to look through them. That's the way a summer star party ought to be.

Our next star party will be October 4th. 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 2020. Star parties start at dusk or 6:00, whichever is later. (7:00 in October.)

October 4 (44% lit)
January 3 (59% lit)
March (none)
May 29 (50% lit)
August 28 (84% lit)
November 20 (39% lit)

November 1 (28% lit)
January 31 (41% lit)
April 3 (79% lit)
June 26 (37% lit)
September 25 (71% lit)
December 18 (23% lit)

December 6 (76% lit)
February 28 (25% lit)
May 1 (65% lit)
July 24 (24% lit)
October 23 (56% lit)

Observing in September

September got off to a good start: On the 1st, seven people made it up to Eagle's Ridge for a great night out under the stars. The observing site was packed with cars and telescopes and happy astronomers. Roughly from left to right we had Jerry Oltion, Amy Baker, Warren Cartwright, Karmin Peterson, Robert Asumendi, Dan Beacham, and Andy Edelen, each with a telescope. We shared views and had a lively discussion until well beyond midnight. In addition to sightseeing, Jerry was checking out early winter objects for an article for *Sky & Telescope* magazine, and Karmin was doing astrophotography, an example of which (M33) you'll see in our Gallery section on the following pages.

Then the weather turned rainy. We got over five inches of rain in two separate blasts of about a week each. The first wasn't so bad, since it happened during the bright phase of the Moon, but the second stretch killed our last-quarter observing opportunities. There were a few clear-ish nights after the rain let up, but nothing spectacular.

The rain did provide one very important advantage over previous years: we had no smoke from fires to contend with this summer. That's worth sacrificing a few observing nights for.

We also finally got a night of good weather for our Cottage Grove Library star party on September 14th. We've been trying to have a star party there for months, but every date we picked clouded up on us. At last the sky relented, and even though it was the night of a full Moon, we still had a great star party. Cottage Grove's sky isn't nearly as light polluted as Eugene's, so even with the bright Moon it was better than at the College Hill Reservoir during first quarter.

We had six telescopes and 75-100 people, but the people came in waves after participating in indoor events at the library, so we were never overwhelmed. Our biggest problems came from people who were reluctant to give up the eyepiece to give other people a turn. A good problem to have, although it was a little difficult to be diplomatic about moving them along.

EAS Receives Several Donations

September was a good month for telescope donations. The EAS received donations from three different sources, all of them substantial. As a result, we now have a 12" Meade Lightbridge and a Meade ETX 90 in our lending library. Both are fabulous telescopes! The Lightbridge is a true light bucket, yet is easily broken down and transported and is easy to reassemble on site. The ETX is one of the older models with excellent optics and a tracking motor, and it can be used on a tripod (which came with it) or as a tabletop model. It's not a go-to scope, which means no computer skills required. Just power it up and aim it at something, and it'll track it while showing you the crisp view of a high-quality Maksutov scope.

We also were given three new (to us) refractors that will be entering the lending library as soon as we can match the scopes to appropriate mounts and round up eyepieces for them all. Like the two reflectors above, these are all substantial scopes.

Meade ETX90

Meace 12" Lightbridge

The largest is a Meade 127 ED, which has a 5" objective lens! That's enormous for a refractor, and this is a super-good one. It's an apochromatic doublet, which means it won't show color fringing around any but the brightest objects, and very little even then. At f/9 it offers tack-sharp views of planets, star clusters, double stars, etc. This scope comes with a 2" diagonal, so it'll take as much eyepiece as you can throw at it. We've provided a 26mm Meade QX Wide Angle (70° apparent field, 44x, 1.6° true field) and plan to provide something in the 10mm plössl range as well.

The next size down is a Meade 102 Achromat, which is basically a scaled-down version of the 127. It's also f/9, and also has an apochromatic doublet objective lens.

The third refractor is a Vixen ED80, an 80mm apochromatic doublet. It's an even smaller version of the above two.

We were given one good mount with the above

refractors, and we've purchased another (a Celestron CG-4). We haven't yet determined which of the two larger scopes will work best on which mount, but that should be figured out soon. For the smaller scope, we'll use one of the several smaller mounts that were also donated along with a vast collection of smaller telescope parts.

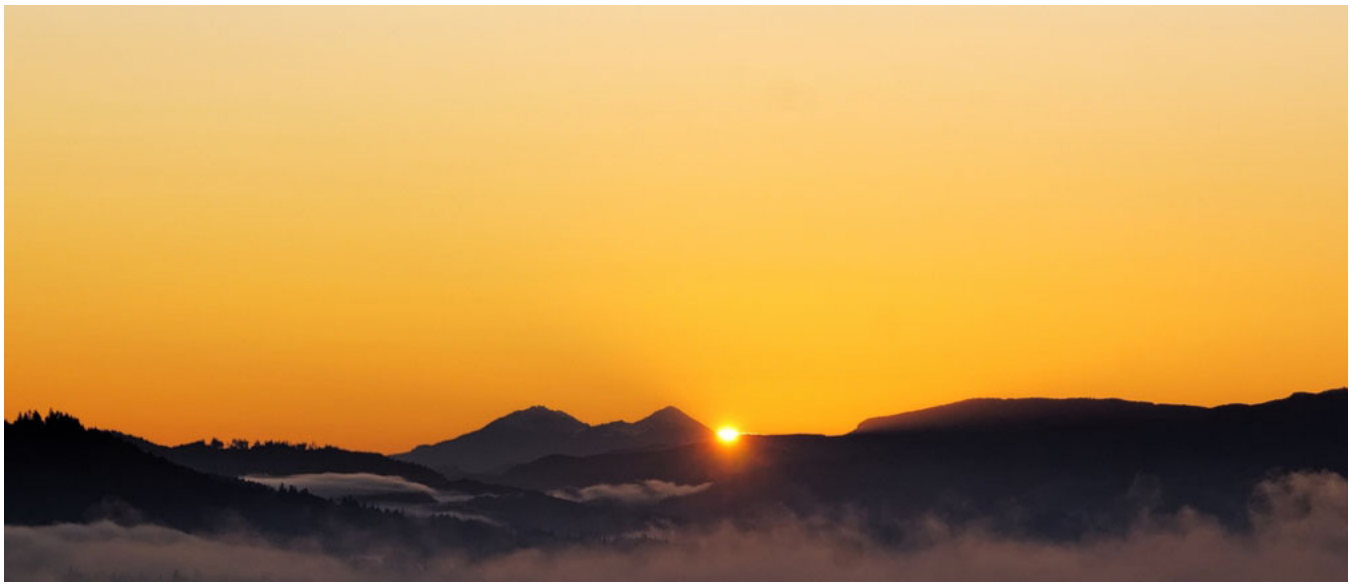
And we do mean "vast." Along with the larger scopes, we were given at least a dozen smaller "hobby killer" scopes, most disassembled with objective lenses in one box, focusers in another, and mount parts in another. Fitting them back together would only bring back to life scopes that are better left dead, so these boxes of parts will be offered up at our annual swap meet in the hope that people can find other uses for them. There are lots of interesting items, so be sure to check them out come December.

Many thanks to our generous donors: Marty McGee (wife of Glenn Meares, an EAS member until he passed away in 2017), Carol Busseau, and Larry Blom. These telescopes have enhanced our lending library considerably, and should provide many nights of great observing for EAS members in years to come.

The Meade 127, Meade 102, and Vixen 80

Gallery

September was a great month for astrophotography. Alan Gillespie, Karmin Peterson, Jim Pelley, and Mark Wetzel all got some nice images, and Mel Bartels made several more great sketches. Zoom in a bit and enjoy!



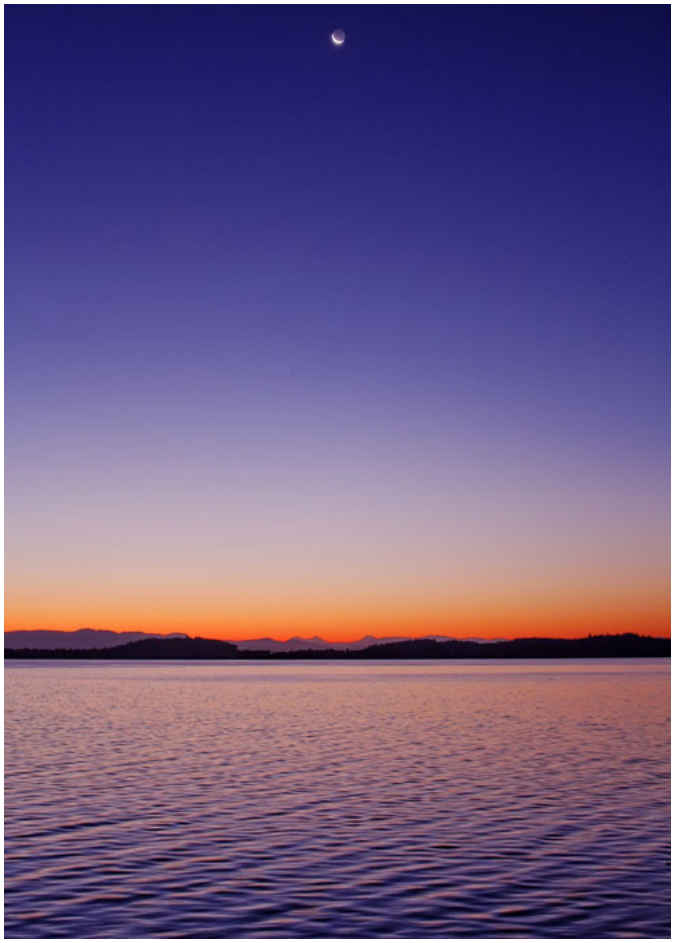
Missed it by that much... Alan Gillespie was going for sunrise over the Three Sisters, but clouds blocked the shot from his primary location. He had to go south to Skinner's Butte, but the angle waas a bit off. The photo is still beautiful!

M101, the Pinwheel Galaxy. Photo © by Mark Wetzel.

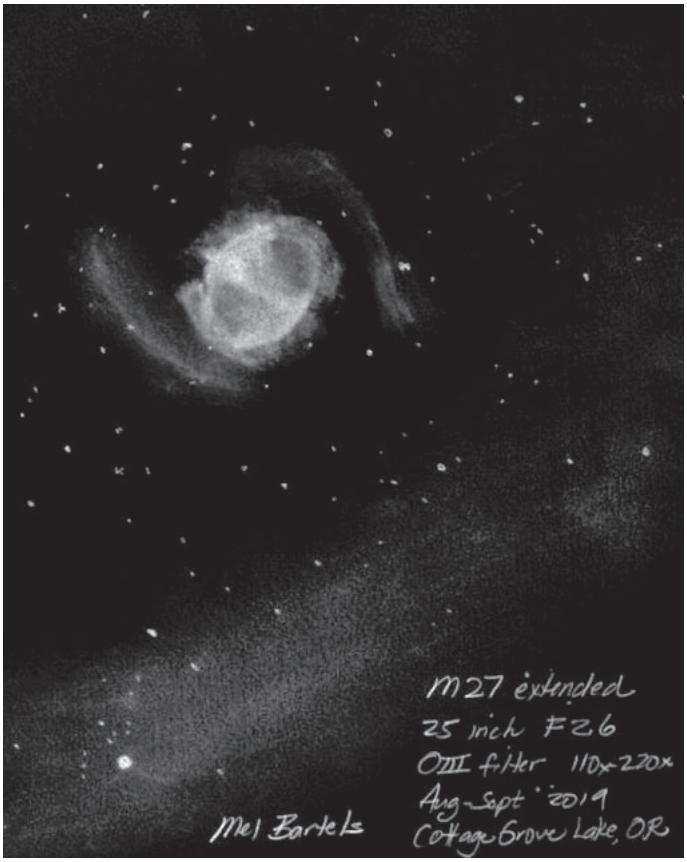
1/8 Moon 9/3/19. Photo © by Mark Wetzel.

Harvest Moon 9/14/19. Photo © by Alan Gillespie

The Milky Way above Eagle's Ridge. Note how evident the Dark Horse is, even with Jupiter just to the right of it.
Photo © by Alan Gillespie.



Moonrise over Three Sisters 9/3/19.
Photo © by Alan Gillespie.



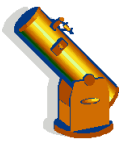
M27, the Dumbbell Nebula in Vulpecula, with outer shell and Galactic Cirrus. Sketch © by Mel Bartels

IC1318, The Butterfly Nebula in Cygnus. Photo © by James Pelley

NGC 281, The Pac-Man Nebula in Cassiopeia. Photo © by James Pelley

M33, the Triangulum Galaxy. Photo © by Mark Wetzel

M33, the Triangulum Galaxy. Photo © by Karmin Peterson



Observing in October

1st Q  Full  Last Q  New 

Oct 5, 9:47 AM	Oct 13, 2:08 PM	Oct 22, 5:39 AM	Oct 27, 8:38 PM
Mercury Set: 7:25 PM	Mercury Set: 7:15 PM	Mercury Set: 7:03 PM	Mercury Set: 6:53 PM
Venus Set: 7:20 PM	Venus Set: 7:11 PM	Venus Set: 7:04 PM	Venus Set: 7:01 PM
Mars Rise: 6:16 AM	Mars Rise: 6:12 AM	Mars Rise: 6:07 AM	Mars Rise: 6:04 AM
Jupiter Set: 9:54 PM	Jupiter Set: 9:28 PM	Jupiter Set: 8:58 PM	Jupiter Set: 8:42 PM
Saturn Set: 11:45 PM	Saturn Set: 11:14 PM	Saturn Set: 10:41 PM	Saturn Set: 10:23 PM
Uranus Rise: 7:34 PM	Uranus Rise: 7:01 PM	Uranus Rise: 6:25 PM	Uranus Rise: 6:05 PM
Neptune Set: 5:08 AM	Neptune Set: 4:36 AM	Neptune Set: 4:00 AM	Neptune Set: 3:39 AM
Pluto Set: 00:17 AM	Pluto Set: 11:42 PM	Pluto Set: 11:07 PM	Pluto Set: 10:47 PM

All times Pacific Daylight Time (March 10 - Nov. 2, 2019 = UT -7 hours) or Pacific Standard Time (November 3, 2019 - March 8, 2020 = UT -8 hours)

Date	Moon Rise	Moon Set	Twilight Begin	Sun Rise	Sun Set	Twilight End
10/1/2019	10:39	21:03	05:34	07:10	18:53	20:29
10/2/2018	11:52	21:41	05:35	07:11	18:52	20:28
10/3/2019	13:00	22:23	05:36	07:12	18:50	20:26
10/4/2019	14:02	23:10	05:37	07:13	18:48	20:24
10/5/2019	14:56		05:39	07:15	18:46	20:22
10/6/2019	15:43	00:03	05:40	07:16	18:44	20:20
10/7/2019	16:22	01:00	05:41	07:17	18:43	20:19:
10/8/2019	16:55	01:59	05:42	07:18	18:41	20:17
10/9/2019	17:24	02:59	05:44	07:20	18:39	20:15
10/10/2019	17:49	04:00	05:45	07:21	18:37	20:13
10/11/2019	18:13	05:00	05:46	07:22	18:36	20:11
10/12/2019	18:35	06:00	05:47	07:23	18:34	20:10
10/13/2019	18:58	07:01	05:48	07:24	18:32	20:08
10/14/2019	19:22	08:03	05:50	07:26	18:30	20:06
10/15/2019	19:49	09:05	05:51	07:27	18:29	20:05
10/16/2019	20:19	10:09	05:52	07:28	18:27	20:03
10/17/2019	20:54	11:13	05:53	07:29	18:25	20:01
10/18/2019	21:37	12:17	05:54	07:31	18:24	20:00
10/19/2019	22:28	13:18	05:56	07:32	18:22	19:58
10/20/2019	23:27	14:14	05:57	07:33	18:20	19:57
10/21/2019		15:04	05:58	07:34	18:19	19:55
10/22/2019	00:35	15:46	05:59	07:36	18:17	19:54
10/23/2019	01:48	16:23	06:00	07:37	18:16	19:52
10/24/2019	03:03	16:56	06:02	07:38	18:14	19:51
10/25/2019	04:20	17:26	06:03	07:40	18:13	19:49
10/26/2019	05:38	17:55	06:04	07:41	18:11	19:48
10/27/2019	06:55	18:25	06:05	07:42	18:10	19:47
10/28/2019	08:12	18:57	06:06	07:44	18:08	19:45
10/29/2019	09:28	19:32	06:07	07:45	18:07	19:44
10/30/2019	10:41	20:13	06:09	07:46	18:05	19:43
10/31/2019	11:48	20:59	06:10	07:48	18:04	19:42

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

Items of Interest This Month

Venus reappears in the evening sky for the beginning of another 8-month run as the "evening star."

Mercury joins Venus for most of the month. Neither stray very far from the horizon, though, since the ecliptic is low in autumn.

10/3 Moon 1.5° from Jupiter at sunset.

10/4 First Quarter Friday star party.

10/9 Peak of Draconid meteor shower.

10/10 Peak of Southern Taurid meteor shower.

10/11 Moon occults mag 4.6 star 33 Piscium at 7:06 PM, less than an hour after moonrise and only 30 minutes after sunset. Star reappears 8:11 PM.

10/19 Mercury at greatest eastern elongation (visible after sunset, but not a very good apparition this time).

10/22 AM Peak of Orionis meteor shower. (Particles left over from Halley's Comet.)

10/27 Uranus at opposition.