Issue 2020-03

Eugene Astronomical Society

IO - March 2020

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

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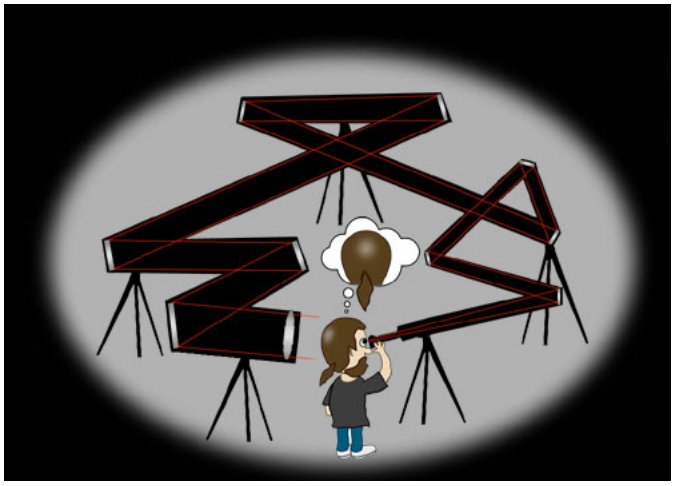
EAS is a proud member of
The Astronomical League

Note address change!

Next Meeting Thursday, March 19th, 7:00 p.m.

Unusual Telescope Designs

by Jerry Oltion



Ever since Hans Lippershey held up two lenses and looked through them, people have been trying to improve the design of telescopes. We experiment with new theories, optimize the optics for various uses, and push the boundaries of what's possible. Not all of those innovations have been successful, but there have been some interesting developments on the path to the Hubble Space Telescope and beyond.

As the amateur telescope making editor for *Sky & Telescope* magazine, Jerry Oltion has seen some strange ones. He has also done some digging into the past to see what has come before. At our March meeting he will take us on a tour of telescope design, starting at the beginning and working forward to what we consider the cutting edge and what the future might bring.

The meeting is at 7:00 on Thursday, March 19th at the Science Center planetarium, 2300 Leo Harris Parkway in Eugene (behind Autzen Stadium). Meetings start at 7:00 sharp, so come a little early to visit and get settled. If you arrive late and find the doors locked, ring the doorbell to the right of the doors.

No First Quarter Friday This Month

Our February 28th star party was clouded out, as was our Saturday backup. The Moon phases aren't favorable for a star party in March, so we're looking at April 3rd for our next one.

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.

March (none)
May 29 (50% lit)
August 15: Dexter Dark Sky Party
October 23 (56% lit)

April 3 (79% lit)
June 26 (37% lit)
August 28 (84% lit)
November 20 (39% lit)

May 1 (65% lit)
July 24 (24% lit)
September 25 (71% lit)
December 18 (23% lit)

February Meeting Report

Tales of the McDonald Observatory Lunar Ranging Project!

At our February meeting, Bernie Bopp regaled us with stories about his time as a professional astronomer at the McDonald Observatory in Texas during the era of the Apollo landing missions.

Bernie got to use both the 82" and the 107" telescopes. While running the 82" from inside the darkened dome and loading photographic plates in absolute darkness in the darkroom, Bernie slowly began to wonder if the observatory was haunted. It wasn't a scary haunting; it was more of a benign and even comforting presence, which led Bernie to speculate that it was the ghost of Otto Struve, who was the much-loved director there from 1939 to 1950.

The McDonald observatory was far from any population center, so the amenities were few. Bernie waxed philosophical about the food, though, which he said was excellent, especially what he called the "night lunch." As Bernie put it, with no other vices available, "Gluttony was the only thing left."

One of the experiments placed on the Moon by the Apollo 11 astronauts was the Lunar Ranging Retroreflector, a panel of cube-corner mirrors designed to bounce a laser beam directly back to its source. Bernie's job was to aim that laser beam (projected outward through the 107" telescope!) at the precise spot on the Moon where the reflector had been placed. It was a simple job, so simple that the laser project director said "A trained monkey could do it." Yet something was going wrong. For four months after the Apollo landing, the project failed to pick up a single return photon.

One night, as Bernie was firing yet another laser beam at the Moon, he heard a scraping sound in the air vent leading to his control room, and a banana dropped out. Enraged rather than amused, Bernie vowed to prove that something else was amiss besides his aim, and he began examining the computer code that calculated when to expect the return beam (and thus when to open the camera's shutter). He discovered a step function rather than a smooth line correlating time with distance, which meant the camera's shutter was never open when the beam returned from the Moon. When the computer programmers fixed the software (which was stored on paper tape in those days), the camera started opening its shutter at the proper time, and they started receiving signal back from Bernie's perfectly-aimed laser shots.

Not long afterward, a disgruntled employee who was about to be let go (not the computer programmer!) attacked the observatory director and an assistant, then fired seven shots from a 9mm handgun at the 107" mirror. The director and the assistant fled to the astronomers' living quarters, where they raised the alarm. This being Texas, most of the observatory staff grabbed their guns and ran out into the night to stop the assailant. Bernie, envisioning dozens of armed people stumbling around in the dark, decided that discretion was the better part of valor and hid under his bed.

Fortunately the employee who shot the mirror had used up all his ammunition on the telescope, and was subdued without further gunfire. And equally fortunately, a piece of glass a foot thick doesn't shatter under handgun fire, so the mirror survived with only a few small craters to show for it. The director later said that the effect on its ability to do science was minimal, reducing it from a 107" telescope to a 106".

Bernie moved on from McDonald after just a year there, but he remembers his time there fondly. Those of us in the audience during his talk now remember it through him, and are happy to have had the experience. Many thanks, Bernie!

EAS Receives Major Donations

In February the EAS was given a treasure trove of telescopes, eyepieces, mounts, and related equipment from three separate donors.

On February 4th Jeff and Lynn Kurz donated a 40mm Coronado Personal Solar Telescope, a 10" Orion Intelliscope, a 10" f/7 telescope whose mirror was ground in a class with John Dobson himself, a Celestron NexStar 80 refractor, and several astronomy books.

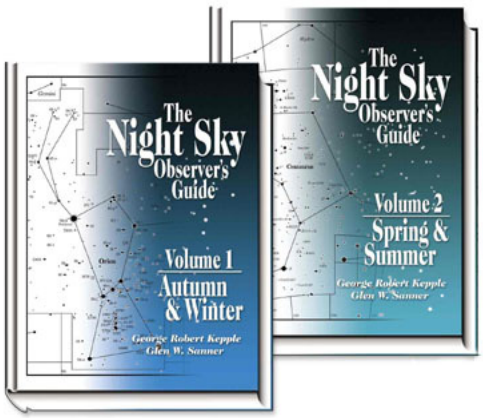
On the 22nd Hal Powers donated a 4.5" Bushnell reflector with Go-To capability.

And on that same day friends of Chuck Fuller, an amateur astronomer and astrophotographer who moved to Eugene from California and passed away in 2017, donated more equipment than there's room here to list. The highlights include a Vixen 4" fluorite refractor, two 8" Newtonians, an 11-inch Celestron Schmidt Cassegrain on a Celestron/Losmandy G11 mount, and the piece de resistance: a 20-inch Obsession telescope complete with eyepieces, shroud, and even a trailer to haul it in.

We're still figuring out what to do with it all. The solar scope and the Obsession are going into our lending library for sure, and probably several of the others will as well. What doesn't go into the lending library will be sold and the proceeds used for club activities and outreach.

The EAS offers a huge thank-you to these generous donors!

Left: Coronado PST
Center: 10" Orion Intelliscope
Right: Celestron C11 on Losmandy Mount



The Night Sky Observer's Guide

20-inch Obsession

Your Telescope Lending Library

Our astronomy club has what is probably the largest lending library of telescopes and accessories in the country. We have more than 30 telescopes, plus two cameras, two polarizing Moon filters, and various astronomy books in our collection, any of which are available for YOU to check out.

These are mostly scopes that have been donated to the club over the years. Many of them have been refurbished, and all of them are in great shape. They range from an 80mm refractor to the 20-inch reflector that was recently donated to the club. Now that the observing season seems to be starting up, this would be a good time for you to expand your options with a scope from our lending library. The full list with photos and descriptions is available on our website at www.eugeneastro.org/telescope-lending-library, but here are some enticements to pique your interest. Check these out — literally!

Upper right: 80mm Vixen refractor. Tack-sharp images. Lightweight and easy to transport.

Bottom right: 90mm Meade Maksutov. We have manual and computerized versions of this scope. Both have excellent optics and both track.

Bottom left: 4.5" Meade Dobsonian. Simple, easy to operate, easy to transport.

6" Orion Dobsonian. Easily transportable, good optics.

8" Orion Intelliscope. Computerized push-to. Great optics, will help you learn the sky.

10" Trackball. User-friendly design, excellent views. Tracks.

12" Meade Lightbridge. Large aperture, yet portable. Great optics for great views.

Gallery

We finally got some clear weather to go out observing and photographing. Mark Wetzel, Karmin Peterson, James Pelley, Alan Gillespie, and Nathan Campbell got some great shots. Enjoy!

M1, the Crab Nebula.. Photo © by Mark Wetzel.

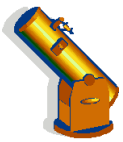
The Rosette Nebula.. This is one of the rare photos that shows what it looks like to the eye in a medium-large telescope....if that telescope had a 3° field. Photo © by Karmin Peterson.

The Flame and Horsehead nebulae with NGC 2023 inbetween. It's tough to get all three of these to show up so well with Alnitak shining so brightly nearby. Photo © by James Pelley.

Mars emerging from behind the Moon February 18th in early morning. Photo © by Alan Gillespie.

Jupiter and its moons, plus Earth's Moon February 19th in early morning. Photo © by Alan Gillespie.

Sunrise and low fog in Elk Creek Valley on February 19th. Photo © by Nathan Campbell.



Observing in March

1st Q | Full | Last Q | New

Mar 2, 11:57 AM	Mar 9, 10:48 AM	Mar 16, 2:34 AM	Mar 24, 2:28 AM
Mercury Rise: 6:06 AM	Mercury Rise: 6:39 AM	Mercury Rise: 6:24 AM	Mercury Rise: 6:15 AM
Venus Set: 9:59 PM	Venus Set: 11:13 PM	Venus Set: 11:27 PM	Venus Set: 11:42 PM
Mars Rise: 3:50 AM	Mars Rise: 4:42 AM	Mars Rise: 4:33 AM	Mars Rise: 4:21 AM
Jupiter Rise: 4:23 AM	Jupiter Rise: 5:00 AM	Jupiter Rise: 4:37 AM	Jupiter Rise: 4:10 AM
Saturn Rise: 4:52 AM	Saturn Rise: 5:27 AM	Saturn Rise: 5:01 AM	Saturn Rise: 4:32 AM
Uranus Set: 10:25 PM	Uranus Set: 10:59 PM	Uranus Set: 10:34 PM	Uranus Set: 10:04 PM
Neptune Set: 6:27 PM	Neptune lost in Sun	Neptune lost in Sun	Neptune Rise: 6:41 AM
Pluto Rise: 4:43 AM	Pluto Rise: 5:16 AM	Pluto Rise: 4:49 AM	Pluto Rise: 4:18 AM

All times Pacific Standard Time (November 3, 2019 - March 7, 2020 = UT -8 hours) or Pacific Daylight Time (March 8 - Oct 31, 2020 = UT -7 hours)

Date	Moon Rise	Moon Set	Twilight Begin	Sun Rise	Sun Set	Twilight End
3/1/2020	10:15	00:07	05:12	06:48	18:02	19:38
3/2/2018	10:49	01:10	05:11	06:47	18:03	19:39
3/3/2020	11:30	02:14	05:09	06:45	18:04	19:40
3/4/2020	12:20	03:15	05:07	06:43	18:06	19:42
3/5/2020	13:20	04:12	05:06	06:41	18:07	19:43
3/6/2020	14:30	05:04	05:04	06:40	18:08	19:44
3/7/2020	15:46	05:48	05:02	06:38	18:09	19:45
3/8/2020	18:05	07:26	06:00	07:36	19:11	20:47
3/9/2020	19:25	07:59	05:58	07:34	19:12	20:48
3/10/2020	20:45	08:30	05:57	07:33	19:13	20:49
3/11/2020	22:04	08:59	05:55	07:31	19:14	20:51
3/12/2020	23:22	09:28	05:53	07:29	19:16	20:52
3/13/2020		09:59	05:51	07:27	19:17	20:53
3/14/2020	00:37	10:34	05:49	07:25	19:18	20:55
3/15/2020	01:49	11:15	05:47	07:24	19:19	20:56
3/16/2020	02:55	12:01	05:45	07:22	19:21	20:58
3/17/2020	03:54	12:53	05:43	07:20	19:22	20:59
3/18/2020	04:45	13:50	05:41	07:18	19:23	21:00
3/19/2020	05:27	14:51	05:39	07:16	19:24	21:02
3/20/2020	06:02	15:53	05:37	07:14	19:26	21:03
3/21/2020	06:32	16:55	05:35	07:13	19:27	21:05
3/22/2020	06:58	17:56	05:33	07:11	19:28	21:06
3/23/2020	07:21	18:57	05:31	07:09	19:29	21:07
3/24/2020	07:43	19:57	05:29	07:07	19:31	21:09
3/25/2020	08:04	20:57	05:27	07:05	19:32	21:10
3/26/2020	08:26	21:58	05:25	07:03	19:33	21:12
3/27/2020	08:50	23:00	05:23	07:02	19:34	21:13
3/28/2020	09:17		05:21	07:00	19:35	21:15
3/29/2020	09:48	00:02	05:19	06:58	19:37	21:16
3/30/2020	10:25	01:05	05:17	06:56	19:38	21:18
3/31/2020	11:11	02:06	05:15	06:54	19:39	21:19

Begin Daylight Savings Time

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

Items of Interest This Month

No First Quarter Friday star parties this month.

Mars, Saturn, and Jupter line up in the morning this month.

Mid-month when Moon is not in the sky is a good time to see Zodiacal light. Look to the west an hour or so after sunset.

3/8 Daylight savings time starts.

3/9 “Super” (Somewhat Underwhelming Perigee + Excitable Reporting) full Moon tonight.

3/18 Moon joins Saturn, Jupiter, and Mars in early morning.

3/19 Spring begins 8:59 PM. Algol at minimum brightness 10:40 PM.

3/20 Mars and Jupiter within 2/3° of one another in early AM.

3/24 Venus at greatest eastern elongation (farthest from Sun): 46°

3/28 Moon occults 6th magnitude star 7:39 pm. Star reappears 8:30 PM. Moon occults another 6th magnitude star 11:30 PM. Star reappears after Moonset.

3/31 Mars within 1° of Saturn in early AM.