IO - June 2013

Issue 2013-06

Eugene Astronomical Society

Eugene Astronomical Society
Annual Club Dues $25
President: Sam Pitts - 688-7330
Secretary: Jerry Oltion - 343-4758
Additional Board members:
Jacob Strandlien, Tony Dandurand,
John Loper.

PO Box 7264
Springfield, OR 97475
www.eugeneastro.org
EAS is a proud member of:
The Astronomical League
The World's Largest Federation of Amateur Astronomers

www.eugeneastro.org

Next Meeting: Thursday, June 27th
What's New for the Amateur Astronomer
by Sam Pitts

It has been a few years since we really looked at what equipment is now available for the ambitious amateur astronomer. At our June meeting Sam will lead us on a journey from modest dobs to the "Upper Limits" of what can really be considered amateur equipment. There have been many incredible improvements over the last 5 years, resulting in some really nice equipment. One of the great things about brand new equipment is the emergence of top-quality used equipment that is only a few years old at bargain prices. Some need the Latest and Greatest — and the rest of us can benefit from the great deals on the used market. From scopes, mounts, cameras, software, the times they are a changing...so lets take an up-to-date look at what's out there in the modern market. Should be fun!

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, June 27th at EWEB's Community meeting room, 500 E. 4th in Eugene.

Next First Quarter Friday: June 14th

May's First Quarter Friday was another squeaker with clouds all day and an iffy forecast, but the clouds parted just at dusk and we wound up having a great star party. We had five club members with telescopes and about 20 people who came around to share the view. The Moon seemed exceptionally crisp that night, with some excellent shadows along the terminator. Saturn was the other knockout, showing off the Cassini Division and several moons, three of which made a nice arc just off the end of the rings.

Here's hoping for a clear night on June 14th. If Friday is clouded out, we'll try again on Saturday the 15th.

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 thru 2013:

June 14 (35% lit)	July 12 (21% lit)	August 16 (80% lit)
September 13 (67% lit)	October 11 (53% lit)	November 8 (38% lit)
December 6 (24% lit)		

May Meeting Report: Supernovae!

At our May 23rd meeting, Bernie Bopp talked to us about Supernovae. It was a whirlwind dive into astrophysics, but he led us through it step by step, explaining the two major types of supernovae, how they occur, and why the white dwarf type can be used as "standard candles" for measuring interstellar distances. He showed us some beautiful photographs of supernova remnants and gave us a few candidate stars that could explode soon. This was just a brief glimpse into a subject that could take a lifetime to explore fully, but we all went away with our minds blown over the awesomeness of nature's hugest explosions.

Also at the meeting, Chuck Lott and David Davis showed us the "pseudoball" telescopes they just recently completed building. These are ball-scopes with fins instead of complete spheres. They're lightweight, easy to build, and can point anywhere in the sky with equal ease — a major advantage of ball scopes over Dobsonians. The idea came from a conversation David had with Tom Conlin, in which Tom suggested that you don't need an entire ball, but simply enough curved surfaces to ride smoothly at any angle in a ring. Chuck built a model to test it, then a full scope with three fins, and David built one with four. Note that David's scope is built around one of his signature pie-plate mirrors. Yes, that's a glass pie plate that David ground and polished into a mirror.

Chuck's scope uses a crab pot for a base, with the rim of a teflon frying pan for an upper ring to reduce

Chuck Lott (left) and David Davis (right) show off their "pseudoball" scopes

friction. Rather than add counterweight to the bottom of the scope for balance, Chuck uses a piece of surgical tubing stretched between the bottom of the scope and the bottom of the crab pot. When he tilts the scope downward, the tubing stretches, balancing the weight of the secondary cage.

David's scope uses a length of PVC pipe to smooth the contact ring, and the friction of the wooden arcs against the PVC provides enough resistance to counter the scope's top-heaviness. Both scopes exhibit smooth motion in all axes.

With two new scopes to admire and Bernie's supernova program, this was an excellent meeting all around. Our next meeting will be on Thursday, June 27th, at 7:00 PM at EWEB's community meeting room. This is the first room in the semicircular building to the north of the fountain at EWEB's main campus on the east end of 4th Avenue.

Here's our meeting schedule thru the end of 2013. We meet on the 4th Thursday of each month except November. EWEB has given us the same room (the Community room) every time this year.

June 27 July 25 August 22 September 26 October 24
November 21 December 26

Mt. Baldy Observing Site

Jon Schwartz has too many trees in his back yard, and a street light right across from his driveway. So he went looking for an observing site near his home, one he could use on the spur of the moment and actually see something from. He found it only a couple miles up Old Dillard Road: a wide, flat spot next to the trail to Mt. Baldy.

The observing site is about 50 yards from the parking lot, so people have to haul their gear a little ways, but probably no farther than from a car to the center of the College Hill Reservoir. The trail is wide and smooth and not very steep, so it's a relatively easy haul. (Bear in mind that it *is* uphill, and the trail is gravel, so do be cautious.) And because it's so much farther south and is protected from city lights by Mt. Baldy itself, this site is much darker.

There are power lines right overhead. That's why this site exists: it's the flat apron that was graded into the hillside when the power poles were installed. But the poles and the wires only obscure a small part of the sky. The view to the southeast, south, and west are pretty good, and overhead is great. Jon has used this site several times and is quite satisfied with it. It's not Eagle's Ridge, but for a site that's still within the Eugene city limits, it's pretty darned good.

Jon Schwartz and a friend at the Mt. Baldy observing site

There's the occasional poison oak bush off the side of the trail, but none of it seems to be growing where a user of this site would likely encounter it. Still, it wouldn't hurt to check out the area before setting up or venturing off trail.

The parking lot will hold eight or nine cars. The observing site will probably hold four scopes comfortably, but there's another flat spot just a few feet away that would hold another four or five scopes. It's not a place we'd want to hold an open star party, but for an impromptu outing for a few people it would make a great alternative to the College Hill Reservoir. Jon's happy to have the company — provided you bring cookies.

EAS at Boy Scout Camp

On Saturday, May 18th, Rick Kang, Jerry Oltion, and Jeff Phillips gave a series of talks to the Boy Scouts at Camp Murnane, in the Coast Range southwest of Crow. There were over a hundred Scouts in groups of 12-15. Each group would come around in turn to learn about general astronomy from Rick, astrophotography from Jeff, and mirror grinding from Jerry. The kids were for the most part attentive and interested and full of questions. The mirror grinders got to try their hand at it, making a lot of racket and glass sludge, much to the delight of the younger kids.

Rick Kang talks about astronomy to a group of Boy Scouts

The event was organized by John Walley, EAS member and Cascade District BSA Chairman. John says, "I've seldom seen so many boys pay rapt attention to speakers. Feedback from Scout officials is extremely appreciative for your efforts. Thanks for a wonderful presentation!"

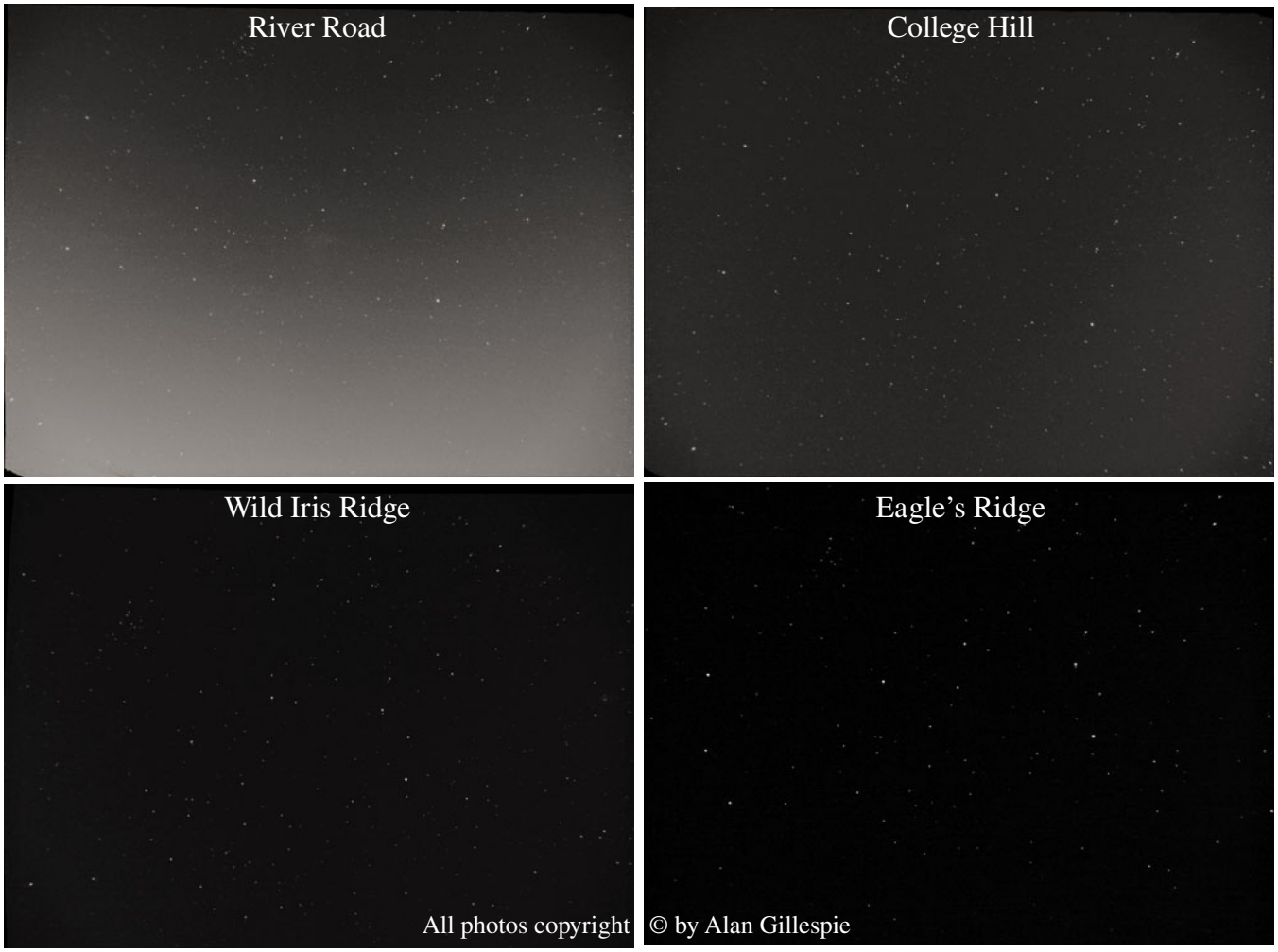
Wild Iris Ridge Observing Site

Alan Gillespie has found another potential observing site on the southwest side of town: Wild Iris Ridge. It's located at the end of Baily View Drive, which you reach off Warren St. rather than Bailey Hill Road. It's a high spot along the Ridgeline trail system with a relatively open oak savannah that affords good views to the south. East is blocked by trees, and north and west look into a lot of unshielded city lights, but this site has the advantage of being on the south side of all that glow, and the sky to the south definitely shows it. (See the article on p.5 for more on how significant that is.) Alan says "In retrospect, it's not really that great because of the combination of no views to the east and un-shielded light to the west. That leaves only the south, which is pretty good for being in town. Also it picks up any wind at all." But if you want some decent dark sky to the south and don't want to drive all the way to Eagle's Ridge, this might be just the ticket.

The Effects of Skyglow

Alan Gillespie recently did a neat experiment: he photographed the constellation Leo from several different sites, using the same exposure settings for each shot, to see how the skyglow affected the image from those sites. The results were, well, graphic.

From Alan's home partway out River Road (not far from Beltline), the skyglow wipes out the entire lower half of the frame and severely impacts the rest. From College Hill, the glow is considerably less and more consistent from zenith to horizon, but still quite evident. Wild Iris Ridge (see p.4) on the southwest edge of town had much better southern sky, only slightly worse than Eagle's Ridge, a good 20 miles as the crow flies to the southeast. Eagle's Ridge is still the winner, but it's interesting to see how quickly the skyglow drops away when you put the source of it to your back. That would suggest that four observing sites in the cardinal directions just a mile or two out of town would suffice to give us ready access to any part of the sky we wanted for observing faint fuzzies without a long drive.



Thank You Castle Storage

For the last five 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.

M106 and Interacting Galaxies NGC 5216 & 5218

Brandt Schram keeps knocking our socks off with his stunning images. This time it's a familiar Messier object that you've probably never seen like this, and an interacting pair considerably farther away.

The Messier object is M106, a spiral galaxy in Canes Venatici about 22-25 million light-years away. Brandt spent 25+ hours of exposure time on this one. He says "I was trying to show the H-alpha streams coming from the core but even with 30 minute subs the SNR was really low. My favorite part are the distant, red shifted galaxies in the lower right." The red dust lanes spiraling into the core are pretty amazing, too. The companion galaxy is NGC 4248.

The other shot shows the interacting galaxies NGC 5218 (top) and 5216 in Ursa Major. They're also known as ARP 104 and the Keenan System and are estimated to be 130-160 million light-years away. There's a clear bridge of stars between the galaxies that spans at least 22,000 light-years, plus tidal tails extending outward from both galaxies.

There are a bunch of distant and red-shifted galaxies in the background as well as the inclined barred-spiral NGC 5205 in the lower right and a distant interacting pair at the far left.

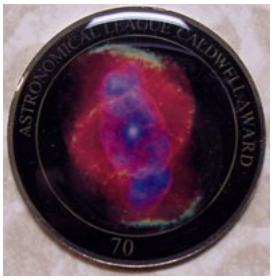
The image has a total of 30 hours of exposure. Just to put it in perspective, the brightest star in this image is mag 9.6.

Keep 'em coming, Brandt!

The Astronomical League Observing Programs

As a member of the Eugene Astronomical Society, you automatically become part of the Astronomical League, the worldwide organization of amateur astronomers. One of the neatest benefits of membership is access to the League's observing programs, which are designed to provide a direction for your observations and to provide clear, reachable goals. The programs have awards and pins to recognize the observers' accomplishments and for demonstrating their observing skills with a variety of instruments and objects.

The observing programs are basically lists of objects that are related in some way, objects that are either especially good examples of their type or are particularly challenging to find or view for one reason or another. For instance, the planetary nebula program description reads: "One hundred ten planetary nebulae were chosen for this program. Among them are some of the most famous showpieces in the northern sky, but the list contains examples across the entire range of planetary nebula morphology. Some are tiny star-like points that will challenge you to pick them out of their crowded star fields. Others will appear as ghostly apparitions that will severely test your powers of observation. In addition, we have included four examples of 'proto-planetary nebulae' as additional challenges."

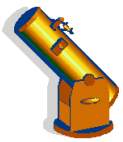


There are currently 44 programs, with new ones being added continually. (Rumor has it that one of our long-distance friends in Hawaii is developing a Lunar Sketching program.) Subjects range from the analemma to variable stars. (Someone needs to create a "Zwicky Object" program so we'll have programs all the way from A to Z!)

Each Program offers a certificate based upon achieving certain observing goals and is recognized with a beautiful award pin. You are required to observe a specific number of objects of a specific group with a specific type of instrument. Some programs have multiple levels of accomplishment within the program, and some permit observations of different types and note this on your certificate. There is no time limit for completing the required observing, but good record keeping is required. When you reach the requisite number of objects, your observing logs are examined by an appropriate authority and you will receive a certificate and pin to proclaim to all that you have reached your goal.

If you find yourself looking at the same familiar objects each time you go out, perhaps it's time to dive into an observing program. You'll learn a lot about your chosen subject, and provide a new focus to your nights out. These programs are not just for star-hoppers, either. Some of them can be done with go-to scopes, and some can be done with imaging rather than visual observation. As the League website says, "When you complete a program, you should feel a sense of pride and great accomplishment for what you have just completed. Each program is designed not only to show you a variety of objects in the sky, but to also familiarize you with your telescope and how to use it, night-sky navigation, and to learn some eye-training techniques that will enhance your viewing of the objects of the programs."

Check them out at: http://www.astroleague.org/observing.html



Observing in June

New 1st Q Full Last Q

June 8	June 16	June 23	June 29
Mercury Set: 10:45 PM	Mercury Set: 10:33 PM	Mercury Set: 10:07 PM	Mercury Set: 9:34 PM
Venus Set: 10:22 PM	Venus Set: 10:30 PM	Venus Set: 10:33 PM	Venus Set: 10:33 PM
Mars Rise: 4:47 AM	Mars Rise: 4:34 AM	Mars Rise: 4:24 AM	Mars Rise: 4:16 AM
Jupiter Set: 9:26 PM	Jupiter Behind Sun	Jupiter Rise: 5:21 AM	Jupiter Rise: 5:03 AM
Saturn Set: 3:41 AM	Saturn Set: 3:09 AM	Saturn Set: 2:41 AM	Saturn Set: 2:17 AM
Uranus Rise: 2:31 AM	Uranus Rise: 2:00 AM	Uranus Rise: 1:32 AM	Uranus Rise: 1:09 AM
Neptune Rise: 1:11 AM	Neptune Rise: 00:40 AM	Neptune Rise:00:12 AM	Neptune Rise: 11:45 PM
Pluto Rise: 10:05 PM	Pluto Rise: 9:33 PM	Pluto Rise: 9:05 PM	Pluto Rise: 8:40 PM

All times: Pacific Standard Time (Nov 3, 2013-March 9, 2014) = UT -8 hours or U.S. Pacific Daylight Time (March 10-November 2, 2013) = UT -7 hours.

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
6/1/2013	01:45	14:11	05:32	20:49	03:14	23:07
6/2/2013	02:13	15:16	05:32	20:50	03:13	23:09
6/3/2013	02:41	16:19	05:31	20:50	03:12	23:10
6/4/2013	03:11	17:20	05:31	20:51	03:11	23:12
6/5/2013	03:43	18:19	05:30	20:52	03:10	23:13
6/6/2013	04:19	19:16	05:30	20:52	03:09	23:14
6/7/2013	04:59	20:10	05:30	20:53	03:08	23:15
6/8/2013	05:44	20:58	05:30	20:54	03:07	23:16
6/9/2013	06:33	21:42	05:29	20:54	03:07	23:18
6/10/2013	07:26	22:21	05:29	20:55	03:06	23:19
6/11/2013	08:22	22:56	05:29	20:56	03:05	23:19
6/12/2013	09:20	23:27	05:29	20:56	03:05	23:20
6/13/2013	10:19	23:56	05:29	20:56	03:04	23:21
6/14/2013	11:20		05:29	20:57	03:04	23:22
6/15/2013	12:22	00:24	05:29	20:57	03:04	23:23
6/16/2013	13:26	00:51	05:29	20:58	03:04	23:23
6/17/2013	14:32	01:19	05:29	20:58	03:03	23:24
6/18/2013	15:41	01:49	05:29	20:58	03:03	23:24
6/19/2013	16:52	02:24	05:29	20:59	03:03	23:24
6/20/2013	18:04	03:04	05:29	20:59	03:04	23:25
6/21/2013	19:13	03:52	05:29	20:59	03:04	23:25
6/22/2013	20:17	04:50	05:30	20:59	03:04	23:25
6/23/2013	21:13	05:56	05:30	20:59	03:04	23:25
6/24/2013	22:01	07:09	05:30	20:59	03:05	23:25
6/25/2013	22:41	08:24	05:31	21:00	03:05	23:25
6/26/2013	23:16	09:38	05:31	21:00	03:06	23:24
6/27/2013	23:47	10:50	05:31	20:59	03:07	23:24
6/28/2013		11:59	05:32	20:59	03:07	23:24
6/29/2013	00:16	13:06	05:32	20:59	03:08	23:23
6/30/2013	00:45	14:10	05:33	20:59	03:09	23:23

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

Items of Interest This Month

First half of month: Mercury above Venus in evening sky.

6/12 Mercury at greatest eastern elongation, highest in evening sky for 2013

6/14 First Quarter Friday Star Party

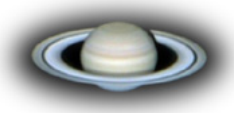
6/18 Mercury 2° directly left of Venus

6/19 Moon 4° south of Saturn

6/20 Summer solstice 10:04 pm.

6/20 Moon occults 4.8 mag Kappa Librae 9:08 pm PST (right after sunset; may not be visible)

6/22-23 Largest full moon of the year.



For Current Occultation Information

Visit Derek C. Breit's web site: http://www.poyntsource.com/New/Regions/EAS.htm

Go to Regional Events and click on the Eugene, Oregon section. This will take you to a current list of Lunar & asteroid events for the Eugene area.