IO - June 2014

Issue 2014-06

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

The Astronomical League
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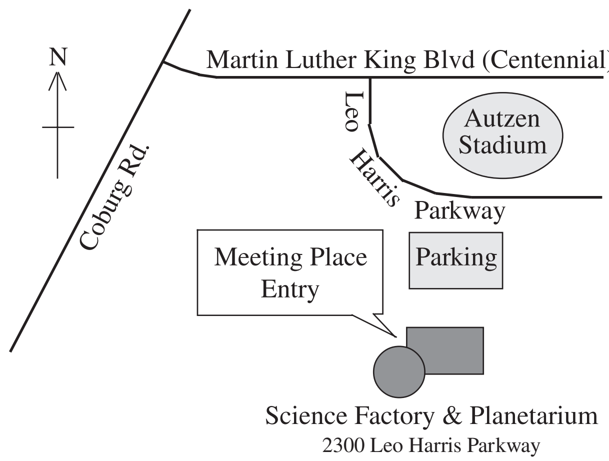
Next Meeting Thursday, June 19th
"Deep Among the Star Groups"
by Larry Deckman

At our June 19th meeting, Larry Deckman will present "Deep Among the Star Groups," an insightful look into some of the interrelationships between our planet, our solar system, the constellations, and our Milky Way Galaxy. This presentation will focus on various aspects of observational astronomy. Included among other topics will be a look at the alternation of starlight and moonlight in the night sky; an examination of how constellation patterns seem to mirror one another in the heavenly display; a comparison of the brightness of stars, planets, Moon and Sun; and the way seasons manifest on planet Earth.

Interspersed throughout will be stunning photographs of some of the sky's most beautiful sights. Don't miss this meeting!

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



Next First Quarter Friday: June 6th

Our May 2nd First Quarter Friday was clouded out. Our next FQF will be on June 6th. Here's hoping for a clearer night.

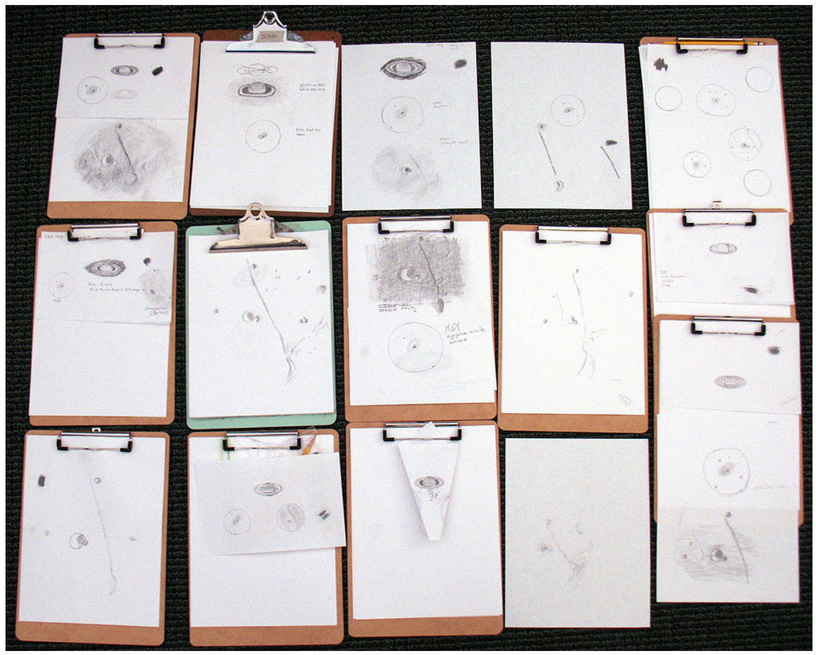
First Quarter Fridays are laid-back opportunities to do some observing and promote astronomy at the same time. Mark your calendar and bring your scope to the College Hill Reservoir (24th and Lawrence in Eugene) and share the view with whoever shows up. Here's the schedule for the rest of 2014. Note that we've scheduled some of the star parties a week earlier than the calendar would normally dictate in order to have less moon in the sky.

June 6 (63% lit)	July 4 (47% lit)	August 1 (32% lit)
August 29 (18% lit)*	September 26 (8% lit)*	October 31 (61% lit)
November 28 (46% lit)	December 26 (31% lit)	

*These star parties are a week earlier than normal to provide less moon glare.

May Meeting Report:
"Sketching at the Eyepiece"

At our May 15th meeting, Mel Bartels taught us how to sketch. Sketching used to be the only way to record what we saw in our telescopes, so astronomers got pretty good at it. Nowadays CCD cameras have changed the way we record what's out there, but modern images aren't very good at recording what we actually *see*. That's where sketching still shines. A sketch can concentrate on the features that actually show up in your particular scope with your particular eyepiece under your particular sky, and it can focus on what you find important about that view. It's still the best way by far to record your *observations*.



The sketches of our evening "class," showing Saturn, M64 (the Black Eye Galaxy), and the Straight Wall on the Moon.

Mel handed out drawing kits that included a clipboard with paper, a standard pencil, a blending stump, a pliable eraser, and a soft charcoal stick. He projected Saturn on the planetarium dome, turned down the lights to simulate drawing in the dark with a flashlight, and talked us through the techniques for drawing, shading, blending — and observing what to record. We started with pre-drawn templates of the outline of the planet and rings so we wouldn't get hung up on the shape, which allowed us to concentrate on the finer details of the planet's features and the rings' subtle shading.

With M64 we passed around a metal ring to make a circle to represent the eyepiece view, then we placed the major stars in their proper positions within that view, then we sketched in the galaxy, using our blending stumps and erasers to get the subtle details of the galaxy and its dark dust lane.

Then we moved on to the final exam: sketching a lunar scene with craters, shadows, subtle shading, and a great, long, linear fault scarp running diagonally through it. The planetarium was filled with the skritch of pencil on paper, the swish of blending stumps and erasers, the occasional curse, and the far more frequent "Hey, that looks pretty good!"

When we were done, we assembled our handiwork for a group photo and we all agreed: It did look pretty good, and we all came away excited about learning a new and useful skill. Thanks, Mel!

Thank You Castle Storage

For the last six 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.

Report on Willagillespie School Event

by Rick Kang

Shade Rose, Rick Nelson, and I set up two telescopes plus the Scale Model Solar System outdoors at the NE side of the school, Friday afternoon, May 2nd. We gambled on having some sunshine, which we did for the first hour, so quite a few students, parents, and faculty got to see sunspots.

The clouds finally did shut us down around 6:20 PM. The Sun peeked through twice prior to setting but not long enough to do us any good.

Having a huge lawn area for our model let us set up the planets not only to scale distance from the Sun, but in correct angular orientation for that day.

Most of the people who visited our display (about 100) walked at least partway out into the Solar System. Shade aimed the reflector at the treeline east of our site after the clouds came in and challenged the students to figure out why the trees appeared upside down. She used my large metal parabolic reflector to demonstrate the answer. Rick Nelson aimed his refractor at the NASA posters of Uranus that we'd placed 200 feet away. Students enjoyed the simulated planetary views. By 7:00 PM there was a chilly wind blowing around the corner of the school so we were glad that we could pack up our gear. We had a successful event with a great turnout by the students and parents. Dr. Berman, the 4J District Superintendent, stopped by along with Dr. Dadson, the School Principal. They both got to view sunspots and talk with us for a few minutes.

Much thanks to Shade and Rick, and also to Rita Gillihan for loaning us the plastic racks her family made for the prior event at Yujin Gakuen, and to the Willagillespie faculty/staff, Jennifer O'Shea and her crew for picking up and delivering the stands and helping to set up the display. We needed weights to hold the tall plastic racks steady in the wind, and the school had a huge boxful of scrapped i-Macs sitting right by our site; one of the teachers suggested using the i-Macs, so we ended up carrying an i-Mac to each rack in the field and placing it across the stand base. The old computers ably served one last function in education!

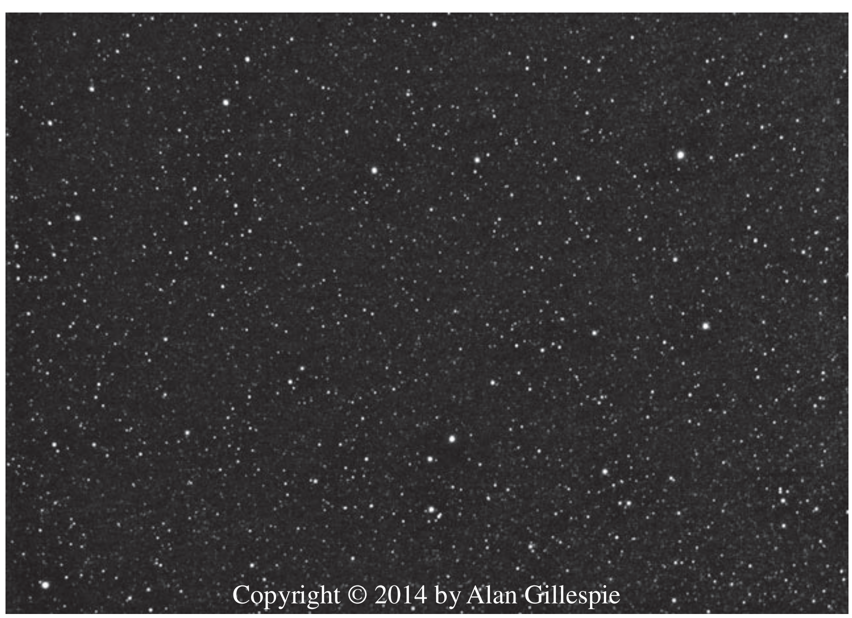
Shade is going to spiff up the posters a bit for our next outreach opportunity.

Hercules Rising

On the last night of May, Alan Gillespie took this photo of Hercules — in his sleep! He set up his camera on an equatorial mount, programmed it to take a sequence of 13-second frames every 30 seconds (allowing time for a 13-second dark frame plus processing time for each live frame), then went to bed and let it go. The result is a stack of 110 frames processed with Deep Sky Stacker and Photoshop.

Hercules's familiar keystone stands out well, and M13 and M92 show up nice and bright.

Photo data: 110 13-sec. frames at f/4, iso 640, 100mm f.l.



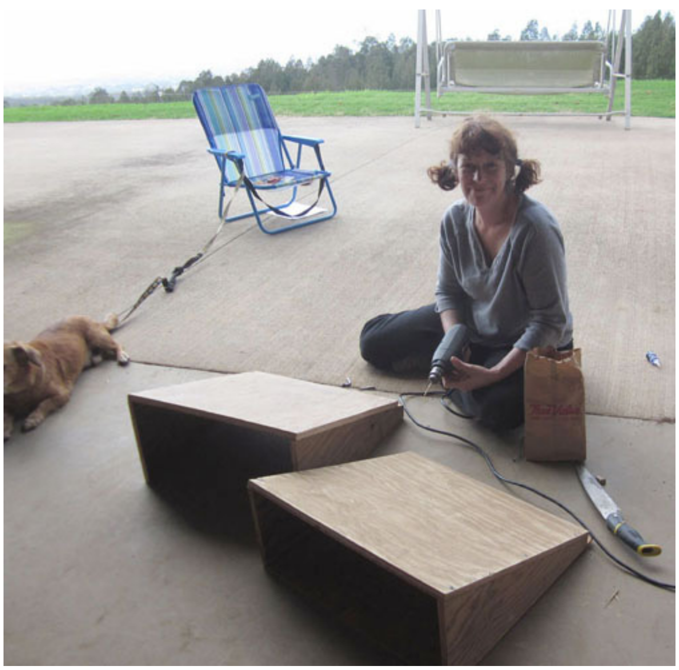
The Hiss Drive

by Cindy Krach

I had been wanting to build an equatorial tracking platform for my 8" Dobsonian, but after searching the internet found that many of the plans looked more complicated than I was up for. Then I came across the Hiss Drive, originally created by Tom Fangrow in 1985. (http://www.tomfangrow.com/hissdrive.html)

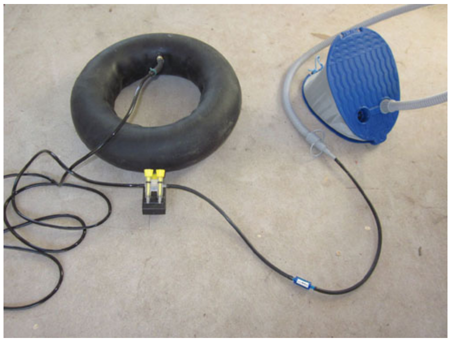
From the description, it looked pretty straightforward. The concept is simple: Two wedge shaped wooden units cut to match your latitude, hinged together on one side where the axis of the hinge points to Polaris (or the NCP). Somewhat like a cube with a latitude bifurcation cut through the center. An inner tube sits between the two wedge shaped pieces and as air escapes the tube, it allow the upper section to move downward, rotating around the hinge axis. The rate of air escaping is controlled by the observer by using a needle valve which releases enough air to keep the object in the telescope field of view and match the Earth's rotation.

It seemed simple enough, so I decided to give it a go. A big part of the draw for me was that I wanted to do everything myself without asking help unless absolutely needed, and this appeared to fit the bill. I don't have a lot of woodworking experience or feel comfortable using large power tools, but a jigsaw, hand saw, belt sander & power drill are safe in my hands. (Or maybe I should say my hands are safe for the most part when using them.) These tools were all that was needed to complete the project.

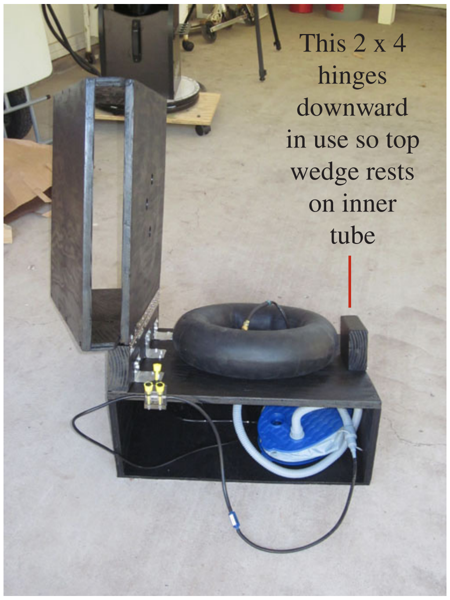


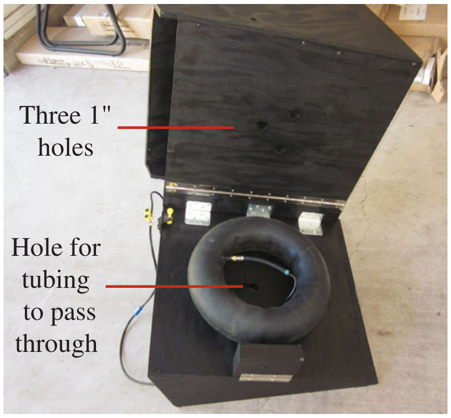
I started out with a cardboard mockup to see if I had it all straight in my head. I used 1/2" scrap plywood square pieces for the sides with a 21° angle (my latitude) cut across for the bottom sector, leaving the remainder for the top to support the top platform. Top, bottom and middle pieces were also cut to size. Bottom pieces for the lower sector measured 20" square, top pieces 18"x20" to allow for a 2x4 the length of the side to then hinge the upper sector to. A smaller hinged piece of 2x4 was attached to the bottom platform to allow the upper platform to rest on it instead of the inner tube when not in use. On the opposite side is the equatorial hinge that moves when the air is released from the tire. In use, this hinge is situated to the east and the 21° edge of the hinge pointed to Polaris.

The inner tube I purchased was a 16x6.5 for 8" rim from a local Lowes, but I have seen many different sizes used. I didn't realize the "stuff" inside this particular inner tube is for fixing small leaks. I made the mistake of turning the tube over so the valve was facing down. I had to clean up the goo mess before I could get the air to release from it. I have the stem now facing upward so it doesn't happen again. I purchased a stem valve extender and cut off the end to attach a garden irrigation connector. I then attached this to a 2-Way Aquarium Gang Valve or needle valve (available at any pet store) which worked great as my slow air release or "hiss." A clamp was used at the end of the extender to be sure I had a tight seal here. More aquarium tubing and then a one-way check valve also available at the pet shop. This is so that I didn't have to get a two-way stop cock to input air into the system. More aquarium tubing to a foot pump (the kind used to inflate bicycle tires or pool toys) which fits nicely right in the bottom wedge for storage when not in use. I swapped out the one I had for a bellows type, but any kind would work fine.



I was worried that it would be difficult to pump air in because of reducing the bore diameter from the pump to the smaller aquarium tubing (something about Bernouli comes to mind!) but I just have to go a little slower when pumping. It takes maybe 5-6 foot pumps to fill the tube. I then let down the support 2x4 on hinges to rest the top of the platform onto the inner tube. It takes very little release of air from the needle valve to keep an object in the eyepiece and you need to play with it to get it right. I also used shims to try to get the platform as level as possible. Wind is my greatest enemy since movement of the scope can be a bit bouncy on the tube. There is a also bit of jostling whenever you touch the eyepiece but it settles quickly. To help remedy this, three 1" holes were cut on the bottom portion of the top half of the wedge that rests on the tube using a 1" hole saw. This acts as a vibration damper, much like a shock absorber in a car.

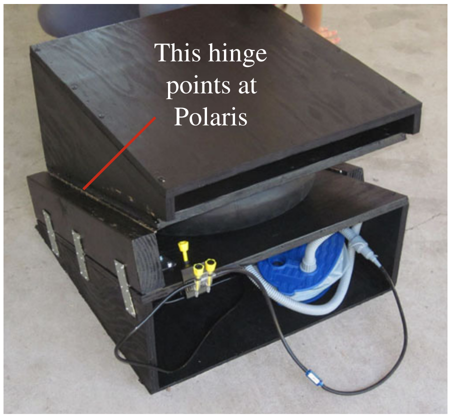




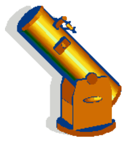
I have enjoyed the Hiss drive with both my 8" Dob and my 40mm PST on a tripod. I can normally get ~45 minutes of tracking before I have to refill the tube. It tracks amazingly well, it cost me very little and was made by my own hands. It was also simple to create and a fun project that took about a weekend.

My supply list:

Scrap wood, 1/2" plywood
2x4
16x6.5 inner tube for 8" rim
Stem valve extender
Garden irrigation connector
2-Way Aquarium Gang Valve
1 way Aquarium Check Valve
Aquarium tubing
Foot pump
Long hinge for east edge of platform
Short hinge for 2x4 brace
Screws
Metal clamp
Metal support brackets "L" and straight braces
(Band-Aids and beer are optional)



Solar scope tracking on Hiss Drive



Observing in June

1st Q	Full	Last Q	New
June 5, 1:39 PM	June 12, 9:11 PM	June 19, 11:39 AM	June 27, 1:08 AM
Mercury Set: 10:10 PM	Mercury Set: 9:28 PM	Mercury lost in Sun	Mercury Rise: 5:09 AM
Venus Rise: 3:52 AM	Venus Rise: 3:46 AM	Venus Rise: 3:41 AM	Venus Rise: 3:39 AM
Mars Set: 2:44 AM	Mars Set: 2:19 AM	Mars Set: 1:55 AM	Mars Set: 1:29 AM
Jupiter Set: 11:23 PM	Jupiter Set: 11:00 PM	Jupiter Set: 10:38 PM	Jupiter Set: 10:12 PM
Saturn Set: 4:27 AM	Saturn Set: 3:58 AM	Saturn Set: 3:29 AM	Saturn Set: 2:57 AM
Uranus Rise: 2:51 AM	Uranus Rise: 2:24 AM	Uranus Rise: 1:57 AM	Uranus Rise: 1:26 AM
Neptune Rise: 1:29 AM	Neptune Rise: 1:02 AM	Neptune Rise: 12:34 AM	Neptune Rise: 11:59 PM
Pluto Rise: 10:29 PM	Pluto Rise: 10:01 PM	Pluto Rise: 9:33 PM	Pluto Rise: 9:01 PM

All times Pacific Daylight Time (March 9 – November 1, 2014 = UT -7 hours) or Pacific Standard Time (November 2, 2014 – March 7, 2015 = UT -8 hours)

Date	Moonrise	Moonset	Sunrise	Sunset	Twilight Begin	Twilight End
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6/1/2014	09:13	23:42	05:32	20:49	03:15	23:07
6/2/2014	10:10		05:32	20:49	03:13	23:08
6/3/2014	11:08	00:14	05:31	20:50	03:12	23:10
6/4/2014	12:06	00:44	05:31	20:51	03:11	23:11
6/5/2014	13:04	01:11	05:31	20:52	03:10	23:13
6/6/2014	14:04	01:39	05:30	20:52	03:09	23:14
6/7/2014	15:05	02:06	05:30	20:53	03:08	23:15
6/8/2014	16:09	02:35	05:30	20:54	03:08	23:16
6/9/2014	17:14	03:08	05:29	20:54	03:07	23:17
6/10/2014	18:21	03:45	05:29	20:55	03:06	23:18
6/11/2014	19:27	04:27	05:29	20:55	03:06	23:19
6/12/2014	20:31	05:18	05:29	20:56	03:05	23:20
6/13/2014	21:29	06:17	05:29	20:56	03:05	23:21
6/14/2014	22:20	07:23	05:29	20:57	03:04	23:22
6/15/2014	23:05	08:34	05:29	20:57	03:04	23:22
6/16/2014	23:44	09:47	05:29	20:58	03:04	23:23
6/17/2014		11:00	05:29	20:58	03:03	23:23
6/18/2014	00:19	12:11	05:29	20:58	03:03	23:24
6/19/2014	00:52	13:21	05:29	20:59	03:03	23:24
6/20/2014	01:24	14:29	05:29	20:59	03:03	23:25
6/21/2014	01:56	15:35	05:29	20:59	03:04	23:25
6/22/2014	02:29	16:40	05:30	20:59	03:04	23:25
6/23/2014	03:06	17:41	05:30	20:59	03:04	23:25
6/24/2014	03:46	18:39	05:30	20:59	03:05	23:25
6/25/2014	04:30	19:33	05:31	21:00	03:05	23:25
6/26/2014	05:18	20:21	05:31	21:00	03:06	23:24
6/27/2014	06:10	21:04	05:31	21:00	03:06	23:24
6/28/2014	07:05	21:42	05:32	20:59	03:07	23:24
6/29/2014	08:01	22:16	05:32	20:59	03:08	23:23
6/30/2014	08:58	22:46	05:33	20:59	03:09	23:23

Items of Interest This Month

Jupiter is fading fast into the west this month.
Last good look at Mars for nearly two years.
Saturn is becoming higher in early evening.
6/6 First Quarter Friday Star Party.
6/7 Star party at Veneta Elementary (tentative—check email list for confirmation).
6/14 Earliest sunrise this morning.
6/17 Earliest morning twilight.
6/21 Summer solstice 3:51 AM.
6/24 Moon and Venus very close at dawn.
6/24 Latest twilight tonight.
6/27 Latest sunset tonight.
6/29th into July: Ceres and Vesta within 1/2° (visible in same field in low to medium power eyepiece).

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. Breit continues to update and add to his site weekly if not daily. This is a site to place in your favorites list and visit often.

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